**Request Details**
**Request Type :** *FOIA*

**Status :** *Assignment Determination* **Due Date :** *N/A*
**0 (Never Started)**

Submitted · Evaluation · Assignment · Processing · Closed

## Request Details

| | | | |
|---|---|---|---|
| Tracking Number : | EPA-HQ-2017-006137 | Submitted Date : | 04/14/2017 |
| Requester : | Rachel Leven | Last Assigned Date : | 04/27/2017 |
| Organization : | N/A | Fee Limit : | $25.00 |
| Requester Has Account : | Yes | Request Track : | Simple |
| Email Address : | rleven@bna.com | Due Date : | N/A |
| Phone Number : | N/A | Assigned To : | Loreto Tillery (Office of Congressional and Intergovernmental Relations) |
| Fax Number : | N/A | Last Assigned By : | Jonathan V. Newton (Office of the Administrator) |
| Address : | 1801 S. Bell St. | | |
| City : | Arlington | | |
| State/Province : | VA | | |
| Zip Code/Postal Code : | 22202 | | |

Submission Details | Case File | Admin Cost | Assigned Tasks | Comments (0) | Review

## Request Handling

| | | | |
|---|---|---|---|
| Requester Info Available to the Public : | Yes | Request Perfected : | No |
| Request Track : | Simple | Acknowledgement Sent Date: | |
| Fee Category : | Media/Educational | Unusual Circumstances ? : | No |
| Fee Waiver Requested: | Yes | 5 Day Notifications: | ☐ |
| Fee Waiver Status: | Full Grant | Litigation : | No |
| Expedited Processing Requested : | No | | |
| Expedited Processing Status : | N/A | | |

## Request Description

Short Description :

Please send me the full correspondence associated with the following control numbers in your congressional logs. These control numbers were sent to me April 13 as FOIA Nos. EPA-HQ-2017-005089 and EPA-HQ-2017-005088. • AL-17-000-6376, Claire McCaskill • AL-17-000-4849, Randy Hultgren • These related to Ken Calvert: o OCFO-17-000-4781 o OCFO-17-000-4770 o OCFO-17-000-5265 o OCFO-17-000-3372 o OCFO-17-000-3707 o OCFO-17-000-3375 o AL-17-000-3143 • AL-17-000-6415, Earl Blumenauer • AL-17-000-5244, Elizabeth Warren • These related to Jason Chaffetz: o AL-17-000-6012 o AL-17-000-5818 o AL-17-000-6319 o AL-17-000-3332 o AL-17-000-3709 AL-17-000-3525 • AL-17-000-5392, Jeff Sessions • AL-17-000-6545, Debbie Stabenow • AL-17-000-6410, Michael Bennet • These two related to Ed Markey: o AL-17-000-3722 o AL-17-000-3726 • AL-17-000-3436, Ron Johnson • AL-17-000-3724, Marcy Kaptur • AL-17-000-3729, Betty McCollum AL-17-000-3728, Todd Young • AL-17-000-3708, Sheldon Whitehouse • These related to James Inhofe: o AL-17-000-3566 o AL-17-000-5390 • AL-17-000-3348, Tom Carper • AL-17-000-3723, Debbie Stabenow • AL-17-000-3656, Mark Warner • R1-17-000-3584, Stephen Lynch • These related to James McGovern: o R1-17-000-3902 o R1-17-000-3163 o AL-17-000-3273 • AL-17-000-3196, Charles Schumer • AL-17-000-3725, Mike Pence • AL-17-000-4526, Greg Walden • AL-17-000-5101, Josh Gottheimer • AL-17-000-4906, John Faso • AL-17-000-6357, Frank Pallone • AL-17-000-6350, Cory Gardner

| | | | |
|---|---|---|---|
| Description Available to the Public : | Yes | Has Description Been Modified? | ☐ |

## Attached Supporting Files

No supporting files have been added.

## Upload Supporting Files

No attachments have been added.

AL-17-000-6376
incoming

# United States Senate

WASHINGTON, DC 20510

March 9, 2017

**VIA ELECTRONIC TRANSMISSION**

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Administrator Pruitt:

Whistleblowers play a vital role in helping the government identify and resolve issues of waste, fraud, and abuse, and they are crucial for Congress in the exercise of its constitutionally mandated oversight responsibilities. Since the beginning days of our nation, our Founding Fathers recognized that whistleblowers are essential to ensuring that government is functioning properly and efficiently. As early as July 30, 1778, "in demonstration of their full support for whistleblowers," the Continental Congress unanimously approved legislation recognizing "the duty of all persons in the service of the United States" to inform "Congress or other proper authorit[ies]" of wrongdoing.[1] Today, we continue to recognize this important responsibility. President George H. W. Bush, in his October 17, 1990 Executive Order 12731, stated plainly that federal employees "*shall* disclose waste, fraud, abuse, and corruption to appropriate authorities."[2]

As members of the Senate Whistleblower Protection Caucus, we enthusiastically echo these historical precedents in our support for individuals who shine a light on waste, fraud, and abuse. We believe that it is in your agency's best interest, and the taxpayers' best interest, to do the same, and to openly recognize and wholeheartedly support the duty and value of whistleblowers. Whistleblowers are assets, and they can help us enhance government efficiency and transparency and save taxpayers billions of dollars.

To encourage these individuals to bring problems to the surface so that they may be addressed, Congress enacted and has since strengthened federal laws that protect

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[1] S. Res. 522, 114th Cong. (2016) (enacted) (citing legislation of July 30, 1778, reprinted in *Journals of the Continental Congress, 1774–1789*, ed. Worthington C. Ford, et al. (Washington, D.C., 1904–37), 11:732). The 2016 Whistleblower Appreciation Day resolution was sponsored by the Senate Whistleblower Protection Caucus.

[2] Exec. Order No. 12,731, 3 C.F.R. 306 (1990) (emphasis added).

them from reprisal for lawful, good faith disclosures of potential wrongdoing. It is a prohibited personnel practice to retaliate against an employee for "*any disclosure* of information . . . which the employee or applicant reasonably believes evidences (i) any violation of any law, rule, or regulation, or (ii) gross mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety."[3] Protections from reprisal also extend to employees of contractors, subcontractors, grantees, and subgrantees.[4] These statutes protect whistleblowers who report wrongdoing internally to a supervisor—as a significant majority do—so that their management has an opportunity to address it. They also protect whistleblowers who choose to report outside of their chain of command due to real fears of reprisal by their management. In either case, these brave men and women perform an invaluable public service.

That service is equally valuable and necessary when whistleblowers disclose waste, fraud, and abuse to Congress. Congress relies on these individuals working within agencies to provide the information necessary "to give effect to the checks and balances that are essential to the separation of powers."[5] Accordingly, title 5, Section 7211 provides that the right of federal employees to furnish information to committees of Congress may not be interfered with or denied.[6] Officials or employees who do interfere with that right are not entitled to compensation.[7]

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[3] 5 U.S.C. § 2302(b)(8)(A)(i)–(ii) (2012) (emphasis added); *id.* § 2302(b)(9) (protecting employees who, among other things, exercise any right granted by law, rule, or regulation or who cooperate with an Inspector General or the Office of Special Counsel); and *id.* § 2302(b)(13) (requiring any non-disclosure agreement to contain a clear exception for lawful whistleblowing); Consolidated Appropriations Act of 2016, Pub. L. No. 114-113, div. E, title VII, 129 Stat. 2485, § 744 (2015). Employees of the Intelligence Community also are protected under a separate regime pursuant to Presidential Policy Directive 19, the Intelligence Authorization Act of 2014, and the Intelligence Community Whistleblower Protection Act. Presidential Policy Directive 19, *Protecting Whistleblowers with Access to Classified Information* (Oct. 10, 2012); Intelligence Authorization Act for Fiscal Year 2014, Pub. L. No. 113-126, §§ 601–04, 128 Stat. 1390, 1414–22 (2014); Intelligence Authorization Act for Fiscal Year 1999, Pub. L. No. 105-272, §§ 701–02, 112 Stat. 2397, 2413–17 (1998). Employees of the Federal Bureau of Investigation are protected under 5 U.S.C. § 2303 which now also explicitly clarifies that the statute protects disclosures to supervisors, the Office of Special Counsel, and Congress. Federal Bureau of Investigation Whistleblower Protection Enhancement Act of 2016, Pub. L. No. 114-302, 130 Stat. 1516 (2016).

[4] 41 U.S.C. app. § 4712 (2016); 10 U.S.C. § 2409 (2012).

[5] Brief for Members of Congress as Amici Curiae Supporting Respondent, Dep't of Homeland Sec. v. MacLean, No. 13-894, 2014 WL 4925075, at *7 (U.S. Sept. 29, 2014).

[6] 5 U.S.C. § 7211 (2012) ("The right of employees, individually or collectively, to petition Congress or a Member of Congress, or to furnish information to either House of Congress, or to a committee or Member thereof, may not be interfered with or denied.")

[7] Consolidated Appropriations Act of 2016, Pub. L. No. 114-113, div. E, title VII, 129 Stat. 2475, § 713, (2015); Letter from Susan A. Poling, Gen. Counsel, U.S. Gov't Accountability Office to Charles E. Grassley, Chairman, S. Comm. on the Judiciary, Jason Chaffetz, Chairman, H. Comm. on Oversight and Gov't Reform, and Bob Goodlatte, H. Comm. on the Judiciary re: GAO Op. B-325124 (Apr. 5, 2016) (*available at* http://www.gao.gov/assets/680/676341.pdf).

Despite these protections, whistleblowers still often face intimidation, retaliation, and prohibited personnel practices. Therefore it is essential that agency leadership, from the top down, promotes an open culture for employees to make disclosures and takes swift action against any employee who violates a whistleblower's rights.

All Americans are better off when whistleblowers step forward and report misconduct without fear of retaliation. Consistent with your statutory responsibilities, we ask that you remind employees at your agency about their ability to make protected disclosures in accordance with whistleblower protection laws.[8] We also ask that you remind all incoming employees and managers that retaliation against whistleblowers will not be tolerated.

Over the past several years the members of the Senate Whistleblower Protection Caucus have endeavored to increase protections for whistleblowers and bring awareness to issues of retaliation. We will continue this work in the current Congress and will continue oversight of the executive branch's implementation and enforcement of whistleblower protections. We appreciate your assistance and look forward to working with you.

Sincerely,

Claire McCaskill
U.S. Senator

Charles E. Grassley
U.S. Senator

Ron Wyden
U.S. Senator

Thom Tillis
U.S. Senator

Tammy Baldwin
U.S. Senator

Joni K. Ernst
U.S. Senator

[8] 5 U.S.C. § 2302(c) (2012) ("The head of each agency shall be responsible for the prevention of prohibited personnel practices, for the compliance with and enforcement of applicable civil service laws, rules, and regulations, and other aspects of personnel management, and for ensuring (in consultation with the Office of Special Counsel) that agency employees are informed of the rights and remedies available to them under this chapter and chapter 12 of this title, including how to make a lawful disclosure of information that is specifically required by law or Executive order to be kept classified in the interest of national defense or the conduct of foreign affairs to the Special Counsel, the Inspector General of an agency, Congress, or other agency employee designated to receive such disclosures.").

Tom Carper
U.S. Senator

Edward J. Markey
U.S. Senator

Gary Peters
U.S. Senator

John Boozman
U.S. Senator

Ron Johnson
U.S. Senator

AL17-000-4849
incoming

**Mims, Kathy**

**From:** Berger, Carol <Carol.Berger@mail.house.gov>
**Sent:** Thursday, February 23, 2017 12:45 PM
**To:** OCIRmail
**Subject:** TIME SENSITIVE
**Attachments:** IL14DOscanner_20170223_113621.pdf

Congressional Liaison Officer

Please see the attached privacy release and summary with a time sensitive issues with the EPA Chicago Regional Office. The Curran Group has complied with the $200,000+ clean up required by EPA even though the property was contaminated by previous owners. However, the Chicago regional office is now requesting an additional amount of $187,000 as reimbursement for its direct and indirect costs for the supervision of remediation work when the Curran Group was assured that the cost for the supervision would ONLY be approximately $20,000.

It appears to our office that the demand for an additional $187,000 issued by the EPA Chicago Regional Office is outrageous and unacceptable. We would appreciate a further explanation immediately.

Best regards,

Carol Berger | Constituent Services
U.S. Representative Randy Hultgren (IL-14)
40W310 Lafox Road, Ste. F2 | Campton Hills, IL 60175
Office: (630) 584-2734 | Fax: (630) 584-2746
Website | Facebook | Twitter

# PRIVACY RELEASE AUTHORIZATION

I hereby authorize Congressman Randy Hultgren, or his representative, to inquire with the following Federal Agency(s) on my behalf:

United States Environmental Protection Agency
(Name of Federal Agency)

In addition, I authorize the agency listed to release information to Congressman Hultgren, or his staff, co(b) (6) [redacted], Attorney for Curran Group, Inc. & Crossville, Inc.
Signature

February 23, 2017
Date

**PLEASE PRINT THE FOLLOWING INFORMATION:**

Name (b) (6) [redacted], In-House Counsel, Curran Group, Inc.

Address (b) [redacted]

City/State/Zip (b) (6) [redacted]

Daytime Telephone (b) (6) [redacted] Evening Phone

Fax Number [redacted] Email (b) (6) [redacted]

Date of Birth N/A Social Security # N/A

CIS (Immigration): Alien (A) # N/A (R) Receipt # N/A

VA Claim Number N/A

Briefly explain the issue in which you are requesting my assistance:
(please use a separate sheet of paper)

Please attach the most recent correspondence you have received from the federal agency and any other information you believe will assist us with your case.

Once completed please mail, or fax, the documents to:

**Congressman Randy Hultgren**
**40W310 LaFox Road, Suite F2**
**Campton Hills, IL 60175**

**Phone: (630) 584-2734**
**Fax: (630) 584-2746**

** See attached summary of issue with US EPA. The EPA Docket No. is "V-W-15C-025". We have been communicating with Ms. Puja Lakhani and Mr. Thomas Turner at the Office of Regional Counsel of Region 5 of the U.S. Environmental Protection Agency in Chicago. The matter is time sensitive as the EPA has given us only until early next week to submit any additional materials in support of our requests to reduce the response costs to be assessed. The EPA plans to finalize the assessment next week. Let me know if you need any other materials or documents. Thank you!

CURRAN GROUP

STRENGTH THROUGH DIVERSITY

February 22, 2017

VIA FACSIMILE (202) 225-0697

Congressman Randy Hultgren
14th Congressional District of Illinois
2455 Rayburn HOB
Washington, DC 20515

Re: Peltier Glass Site
US EPA Docket No. V-W-15C-025
Respondent: Curran Group

Dear Congressman Hultgren:

I am in-house counsel to Curran Group, Inc. ("Curran"). Curran is a holding company located in Crystal Lake, Illinois, that owns four manufacturing subsidiaries and employs approximately 2,500 people. I write to ask for your assistance in resolving an issue that Curran currently has with United States Environmental Protection Agency ("U.S. EPA").

Curran's tile manufacturing subsidiary, Crossville, Inc., leased a 100-year old building located in Ottawa, Illinois, during the period of 2005-2010. The building was the former site of a Peltier Glass Company, a glass manufacturing company which used various contaminants as part of its production process. During its decades of operation, Peltier apparently failed to properly dispose of these contaminants and they infiltrated the soil surrounding the building. In 2011, following the expiration of Crossville's lease, the building owner transferred the property to the City of Ottawa. The City of Ottawa requested the Illinois EPA to perform an environmental assessment, and the property was eventually identified as a Superfund site by the US EPA.

The US EPA subsequently identified Crossville and Curran as a potentially responsible party. Curran Group fully cooperated with the US EPA in its investigation of the site and produced a significant number of documents showing that Crossville's operations were not the cause for the contamination on the site. Additionally, at no time has the US EPA ever cited to any contrary evidence. Nonetheless, under the threat of a CERCLA legal action by the US EPA, Curran entered a voluntary consent order in which it agreed to clean up the property on its own and at its own expense. At the time the consent order was signed, US EPA advised Curran that it would also be obligated to pay for the agency's cost to supervise the remediation, which it estimated to be around $20,000.

Curran subsequently retained environmental consultants and contractors to excavate and replace the soil in various areas on the site. In total, Curran has spent in excess of $200,000 on these remediation efforts. The work was supervised and accepted by the US EPA in fall 2016.

Now, in the process of closing out its file, the US EPA is demanding Curran to pay it approximately $182,000 (as opposed to the promised $20,000) as reimbursement for its direct and indirect costs in supervising the remediation work. In essence, the EPA claims that it is entitled to receive payment for its supervisory activities in an amount that almost equals the cost of the actual remediation work itself.

Curran believes that the demand is both unfair, unreasonable, and punitive. Curran respectfully submits that it has already gone above and beyond to clean up a mess that it did not create. Curran would like to discuss the matter with Congressman Hultgren or his staff to and to ask for any suggestions or guidance to assist us in this manner.

Your assistance would be most appreciated and we look forward to having the opportunity to speak with you. I can be reached at (b (6) (6) or

Thanks in advance for your assistance with this matter.

Sincerely,

(b) (6)

AL-17-000-4849
FR

**Gary, Gayvonne**

**From:** Beckmann, Ronna Erin
**Sent:** Thursday, March 09, 2017 1:01 PM
**To:** Gary, Gayvonne
**Subject:** FW: Curran Group / Peltier Glass Site Inquiry
**Attachments:** 20170309120515306.pdf

Gayvonne,

Please use this to close AL-17-000-4849 (Rep. Hultgren).

Thank you,

Ronna Beckmann
Office of the Regional Administrator
U.S. Environmental Protection Agency, Region 5
312-886-0689
beckmann.ronna@epa.gov

**From:** Beckmann, Ronna Erin
**Sent:** Thursday, March 09, 2017 1:00 PM
**To:** 'carol.berger@mail.house.gov' <carol.berger@mail.house.gov>
**Cc:** Deamer, Eileen <deamer.eileen@epa.gov>; Fortin, Denise <Fortin.Denise@epa.gov>
**Subject:** Curran Group / Peltier Glass Site Inquiry

Dear Ms. Berger:

As the U.S. Environmental Protection Agency regional lead for Illinois congressional inquiries, I received your February 27 inquiry requesting an explanation for why EPA asked Curran Group, Inc. to pay an $187,000 for cleanup of the Peltier Glass Site. I appreciate your interest in this matter and your concerns about the outstanding $187,000 bill.

I hope you find this response helpful in understanding the process by which the costs were incurred and the public health and environmental benefits that came from the cleanup. If you have any questions or would like a conference call to discuss the information below, please let me know. I'd be happy to set something up. And please feel free to contact me in the future with any district environmental inquiries.

As you may know, EPA's Summer 2013 sampling at the Peltier Glass site found lead, cadmium, chromium, arsenic, barium, selenium, and mercury in the soil and fill material within the on-site building. The conditions present at the site constituted a threat to public health, welfare, and the environment (based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended (NCP) 40 C.F.R. § 300.415(b)(2)). Analysis of the soil samples of lead, arsenic, and cadmium confirmed the presence of high concentrations of those pollutants. EPA and other public health agencies have determined that exposure to such contaminants has a severe effect on women and children, including leading to premature births, brain damage, cancer, and sometimes death. If you would like to learn more, the Settlement Agreement (which is attached) provides additional details about the hazards that existed at the site, including to residents in the immediate neighborhood. Post-cleanup, there is no longer exposure to hazardous contaminants at/from the site.

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622, Curran Group, as the current site owner, is responsible for response actions and

for response costs incurred when removing hazardous substances at the site. On September 3, 2015, Curran Group entered into a voluntary Administrative Settlement Agreement and Order on Consent (Settlement Agreement) to remediate and to reimburse EPA for future response costs incurred at the site. Future response costs, as defined under Paragraph 8 of the Settlement Agreement, are defined as all costs, including, but not limited to, direct and indirect costs, that the EPA incurs in reviewing or developing plans, reports and other items pursuant to the Settlement Agreement, in overseeing implementation of the work at the site, or otherwise implementing, overseeing, or enforcing the Settlement Agreement on or after the effective date of the Agreement. Such costs include, but are not limited to, payroll costs, contractor costs, travel costs, laboratory costs, attorneys' fees, and any monies paid to secure access, including, but not limited to, the amount of just compensation, and emergency response at the site. The fees assessed to Potentially Responsible Parties at CERCLA sites are set by national standards.

Curran Group was represented by legal counsel during the negotiations. That counsel is familiar with CERCLA and negotiated that prior costs associated with EPA's investigation or testing of contaminated materials at the site would not be included as response costs under the final Settlement Agreement. During the course of the negotiations, EPA did not limit the future response costs to a specific amount. Both parties fully understood it was not possible to provide a specific estimate of what work needed to be performed to make the site safe for human health and the environment and the Settlement Agreement provided for reimbursement of future response costs. Further, the Settlement Agreement provided a detailed process for resolving disputes about future costs.

While we are pleased that Curran Group has completed the response action pursuant to the Settlement Agreement, Curran Group has not reimbursed EPA for future response costs. EPA takes all billing matters seriously and diligently works to ensure all financial matters are reviewed and validated before presented in the form of oversight costs. EPA treats all responsible parties equally and provides each with an opportunity to demonstrate that payment of the response costs would adversely affect a company's business. Here, Curran Group provided EPA with five consecutive years of federal tax returns to support the claim that the company could not pay the future response costs. After thoroughly reviewing the documentation, EPA concluded that Curran Group did have the ability to pay, pursuant to the voluntary Settlement Order both parties signed. EPA has provided Curran Group with the opportunity to discuss the ability to pay status with EPA's finance office, but has not heard back from the company. EPA is also open to setting up a payment plan and is available to review any questions the company has relating to the final bill.

I hope that this has sufficiently responded to the concerns you raised in your February 23, 2017 email. EPA remains open to conversations with (b) (6) [redacted] of Curran Group and his outside counsel concerning the relevant above mentioned matters.

All the best,

Ronna Beckmann
Office of the Regional Administrator
U.S. Environmental Protection Agency, Region 5
312-886-0689
beckmann.ronna@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
S-6J

SEP 0 8 2015

**CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED**

Thomas G. Cronin | Partner
GORDON & REES
SULLY MANSUKHANI
One North Franklin, Suite 800
Chicago, Illinois 60606

Re: Peltier Glass Site, Ottawa, LaSalle County, Illinois
Site Spill Identification Number: (C5U1)
Administrative Settlement Agreement and Order on Consent

Dear Mr. Cronin:

Enclosed please find an executed copy of the Administrative Settlement Agreement and Order on Consent issued for this Site pursuant to Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA), 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622. Thank you for your cooperation in this matter.

If you have any questions regarding this Order, please contact Puja Lakhani, Associate Regional Counsel, at 312-353-3190 or Leonard Zintak, On-Scene Coordinator, at 312-886-4246.

Sincerely yours,

Richard C. Karl, Director
Superfund Division

Enclosure

cc: Illinois Environmental Protection Agency Superfund Program Manager

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Recycled Paper (50% Postconsumer)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

IN THE MATTER OF:

**Peltier Glass Site**
**Ottawa, LaSalle County, Illinois**

Respondent:

**Curran Group**
**286 Memorial Court, Crystal Lake, Illinois 60014**

ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT FOR REMOVAL ACTION

Docket No. V-W-15-C-025

Proceeding Under Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622

## I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent (Settlement Agreement) is entered into voluntarily by the United States Environmental Protection Agency (U.S. EPA) and Respondent, Curran Group. This Settlement Agreement provides for the performance of removal actions by Respondent and the payment of certain response costs incurred by the United States at or in connection with the Peltier Glass Site (Site) located at 518 Deleon Street, in LaSalle County, Ottawa, Illinois.

2. This Settlement Agreement is issued under the authority vested in the President of the United States by Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622. This authority has been delegated to the Administrator of the U.S. EPA by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, and further delegated to the Regional Administrators by U.S. EPA Delegation Nos. 14-14-A, 14-14-C and 14-14-D, and to the Director, Superfund Division, Region 5, by Regional Delegation Nos. 14-14-A, 14-14-C and 14-14-D.

3. U.S. EPA has notified the State of Illinois (the "State") of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

4. U.S. EPA and Respondent recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Respondent in accordance with this Settlement Agreement do not constitute an admission of any liability. Respondent does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of facts, conclusions of law, and determinations in Sections IV (Findings of Fact) and V (Conclusions of Law And Determinations) of this Settlement Agreement. Respondent agrees to comply with and be bound by the terms of this Settlement Agreement and further agrees that they will not contest the basis or validity of this Settlement Agreement or its terms.

## II. PARTIES BOUND

5. This Settlement Agreement applies to and is binding upon U.S. EPA and upon Respondent and their successors and assigns. Any change in ownership or corporate status of a Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondent's responsibilities under this Settlement Agreement.

6. Respondent is jointly and severally liable for carrying out all activities required by this Settlement Agreement.

7. Respondent shall ensure that their contractors, subcontractors, and representatives comply with this Settlement Agreement. Respondent shall be responsible for any noncompliance with this Settlement Agreement.

## III. DEFINITIONS

8. Unless otherwise expressly provided in this Settlement Agreement, terms used in this Settlement Agreement that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement Agreement or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601-9675.

"Day" shall mean a calendar day unless otherwise specified. In computing any period of time under this Settlement Agreement, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

"Effective Date" shall be the effective date of this Settlement Agreement as provided in Section XXVIII.

"Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports and other items pursuant to this Settlement Agreement, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement on or after the Effective Date. Future Response Costs shall also include, but not be limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Paragraph 38 including, but not limited to, costs and attorneys' fees and any monies paid to secure access, including, but not limited to, the amount of just compensation, and Paragraph 35 (emergency response). Future Response Costs shall also include all costs, including, but not limited to, direct and indirect costs, incurred prior to the Effective Date, but paid after that date. Future Response Costs shall also include all "Interim Response Costs," and all interest on those Past Response Costs Respondent has agreed to pay under this Settlement Agreement that has accrued pursuant to 42 U.S.C. § 9607(a) during the period from April 24, 2013 through completion of the requirements of this Settlement Agreement.

"Interest" shall mean interest at the rate specified for interest on investments of the U.S. EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1st of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1st of each year.

"Municipal solid waste" or "MSW" shall mean waste material: (a) generated by a

household (including a single or multifamily residence); or (b) generated by a commercial, industrial, or institutional entity, to the extent that the waste material (i) is essentially the same as waste normally generated by a household; (ii) is collected and disposed of with other municipal solid waste as part of normal municipal solid waste collection services; and (iii) contains a relative quantity of hazardous substances no greater than the relative quantity of hazardous substances contained in waste material generated by a typical single-family household.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

"Paragraph" shall mean a portion of this Settlement Agreement identified by an Arabic numeral or an upper or lower case letter.

"Parties" shall mean U.S. EPA and Respondent.

"RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, *et seq.* (also known as the Resource Conservation and Recovery Act).

"Respondent" shall mean **Curran Group and the Peltier Glass Company, which is owned by** Curran Group.

"Section" shall mean a portion of this Settlement Agreement identified by a Roman numeral.

"Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent and all appendices attached hereto (listed in Section XXVII - Severability/Integration/Attachments). In the event of conflict between this Settlement Agreement and any appendix, this Settlement Agreement shall control.

"Site" shall mean the Peltier Glass Site, encompassing approximately 1.8 acres, located at 518 Deleon Street, in LaSalle County, Ottawa, Illinois.

"State" shall mean the State of Illinois.

"United States" shall mean the United States of America and each department, agency, and instrumentality of the United States, including U.S. EPA.

"U.S. EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

"Waste Material" shall mean 1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); 2) any pollutant or contaminant under Section 101(33) of

CERCLA, 42 U.S.C. § 9601(33); 3) any "solid waste" under Section 1004(27) of Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6903(27); and 4) any "hazardous material" under Title 35 Ill. Adm. Code, Parts 700-739.

"Work" shall mean all activities Respondent is required to perform under this Settlement Agreement, except those required by Section XI (Record Retention).

## IV. FINDINGS OF FACT

9. Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds that:

a. On April 24, 2013, Illinois Environmental Protection Agency (IEPA) requested U.S. EPA's assistance at Peltier Glass Site, located at 518 Deleon Street, LaSalle County, Ottawa, Illinois.

b. In 1882, The Novelty Glass Company was located at that address. The owner of the operations was Victor Peltier. The company produced lamp chimneys, auto headlights, railroad car windows and library lamp shades.

c. In 1919, a fire destroyed the facility, but it was rebuilt approximately one year later. At that time, the company changed its name to the Peltier Glass Company and began producing glass marbles.

d. Peltier Glass Company operated under Curran Group from 2005 to 2010.

e. During 2005 to 2010, Peltier Glass Company used hazardous substances in their glass manufacturing processes including lead, cadmium, and chromium.

f. The facility continued to operate until 2010 and is currently vacant.

g. In 2012, IEPA conducted a Brownfield Redevelopment Assessment at Peltier Glass property. During the investigation, soil and groundwater samples were collected from locations surrounding the buildings and beneath the buildings. Fill material (including fragments of colored glass and other debris) were found in several locations surrounding the buildings. An analysis of the fill material revealed that arsenic and other heavy metals, including cadmium and selenium, were present. These compounds were known to be used in the glass making process.

h. Peltier Glass Company is a wholly-owned subsidiary of Crossville, Inc.

i. Crossville, Inc. is a wholly-owned subsidiary of Curran Group.

j. On July 31, 2013 and August 1, 2013, the U.S. EPA conducted site assessments at the Peltier Glass Site in Ottawa, IL. The U.S. EPA sampling reveals that some of these hazardous substances became hazardous wastes when spilled onto the soil, floor and drains.

k. U.S. EPA Site Assessment sampling found lead, cadmium, chromium, arsenic, barium, selenium, and mercury in the soil and in debris within the on-site building.

l. Hazardous substances identified by Curran Group in its 104(e) response as used at the facility include: polychlorinated biphenyls (PCBs) (see p. 4, item 15 of Curran Group Response); lead oxide (litharge); cadmium oxide (cad mix); and; chromium (potassium bichromate).

## V. CONCLUSIONS OF LAW AND DETERMINATIONS

10. Based on the Findings of Fact set forth above and the Administrative Record supporting this removal action, U.S. EPA has determined that:

a. The Peltier Glass Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. The contamination found at the Site, as identified in the Findings of Fact above, includes [a] "hazardous substance(s)" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

c. The Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

d. The Respondent is a responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is jointly and severally liable for performance of response actions and for response costs incurred and to be incurred at the Site.

i. Respondent Peltier Glass Company is the former "operator" of the facility at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2);

e. The conditions described in the Findings of Fact above constitute an actual or threatened "release" of a hazardous substance from the facility into the "environment" as defined by Sections 101(22) and 101(8) of CERCLA, 42 U.S.C.§§ 9601(22) and 9601(8).

f. The conditions present at the Site constitute a threat to public health, welfare, or the environment based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended (NCP), 40 C.F.R. § 300.415(b)(2). These factors include, but are not limited to, the following:

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants; this factor is present at the Site due to the existence of elevated levels of lead, arsenic, cadmium, and selenium, which have been found in the surface soils and debris on the Site.

Analysis of soil samples collected in surface soils (0 to 6 inches below ground surface) confirmed the presence of high concentrations of lead exceeding the U.S. EPA Removal Management Levels (RML) criteria of 400 parts per million (ppm); and exceeding the RCRA toxicity characteristic leaching procedure (TCLP) levels. Lead is a "hazardous substance" as defined by Section 101(14) of CERCLA. Sensitive populations, including children and pregnant women, can be exposed to the contaminated surface soils through direct contact, inhalation and/or ingestion. Adults and children may be exposed to high levels of lead, arsenic, and cadmium from normal foot traffic, yard work, and play. Surface soils contaminated with lead levels exceeding 400 ppm should be removed to a depth of 18 inches.

The effects of lead exposure are more severe for young children and the developing fetus through exposure to a pregnant woman. The harmful effects of lead include premature births, lower birth weight, decreased mental ability in infants, learning difficulties, and reduced growth in young children. The main target for lead toxicity is the nervous system, in both adults and children. Long-term exposure to lead in adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people, and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children and, ultimately, cause death. Other potential health effects for children who ingest large amounts of lead include anemia, colic (severe stomach ache), muscle weakness, and brain damage. There is little evidence that lead is a human carcinogen, although kidney tumors have developed in rats and mice that

had been given large doses of certain lead compounds. The U.S. EPA has determined that lead is a probable human carcinogen (Reference: ATSDR. August 2007).

Analysis of soil samples in surface soils also confirmed the presence of elevated levels of arsenic exceeding the RML or action/cleanup level of 61 ppm for arsenic in surface soil. Arsenic levels in surface soil exceeding 61 ppm would be removed to a depth of 18 inches.

The U.S. EPA and other public health agencies have classified arsenic as a known human carcinogen. Several studies have shown that arsenic can increase the risk of lung cancer, skin cancer, bladder cancer, liver cancer, kidney cancer, and prostate cancer. Inhaling high levels of arsenic can cause sore throat or irritated lungs. Ingesting high levels of inorganic arsenic can result in death. Lower levels of arsenic exposure can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet. Long-term oral exposure to inorganic arsenic can cause a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso, and are often associated with changes in the blood vessels of the skin. The effects of arsenic exposure are more severe for young children, due to low body weight, and to a developing fetus where a pregnant woman is exposed. Since children often play in the soil and put their hands in their mouth and sometimes intentionally eat soil, ingestion of contaminated soil may be a more important source of arsenic exposure for children than for adults (ATSDR: August 2007).

Analysis of soil samples in surface soils also confirmed the presence of elevated levels of cadmium exceeding the RML or action/cleanup level of 210 ppm for cadmium in surface soil. Cadmium levels in surface soil exceeding 210 ppm would be removed to a depth of 18 inches.

The U.S. Department of Health and Human Services has determined that cadmium and cadmium compounds are known human carcinogens, and the U.S. EPA has determined that cadmium is a probable human carcinogen. Lung cancer has been found in some studies of workers exposed to cadmium in the air and studies of rats that inhaled cadmium. Ingesting high cadmium levels can lead to severe stomach irritation, vomiting

and diarrhea, and sometimes death. Ingesting lower levels of cadmium over a long period of time can lead to kidney damage. Long-term exposure to low levels of cadmium could cause the bones to become fragile and break easily. Anemia, liver disease, and nerve or brain damage have been observed in animals eating or drinking cadmium, but there is little information about what levels of cadmium might cause these health effects in humans. We do not know whether cadmium can cause birth defects in humans, but exposure of animals to high cadmium levels during pregnancy have resulted in reduced body weight and behavioral and learning effects in the developing young. The health effects seen in children from exposure to toxic levels of cadmium are expected to be similar to the effects seen in adults (kidney and lung damage) (ATSDR: September 2012).

Analytical results for TCLP analyses were evaluated against the criteria of Characteristics of Hazardous Waste per 40 CFR Section 261.24. The TCLP maximum concentration limits were exceeded for cadmium, lead, and selenium in both the Site soils and the material collected from the Soda Ash room inside the building. The metal contamination in these areas exhibits toxicity characteristics and the presence of the materials with hazardous characteristic may pose a threat to nearby residents through direct exposure since the Site has a history of trespassing and vandalism. The materials with hazardous characteristic analyzed at the Site meet the criteria of the NCP for initiating a removal action listed under 40 CFR Section 300.415(b)(2).

ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems; this factor is present at the Site due to the existence of high levels of hazardous substances, pollutants or contaminants in soils largely at or near the surface that may migrate.

The Site is located in a residential area and access to the contaminated surface soil is currently marked by temporary fencing installed by the previous property owner. The building at the site is currently secure. Analysis of soil samples collected in surface soils (0 to 6 inches below ground surface) confirmed the presence of high levels of lead exceeding the U.S. EPA RML criteria of 400 ppm. Sensitive populations, including children less than seven years old and pregnant women, may become exposed through normal foot traffic, yard work, or play.

The presence of the contaminants near the surface allows for the migration of the contaminants from the mine tailings pile to residential yards, adjacent communities and other non-contaminated areas via wind, rain, vehicular traffic, or manual dispersion.

iii. Hazardous substances, pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release; this factor is present at the Site due to the existence of weather conditions that may cause hazardous substances, pollutants or contaminants to migrate off site or be released.

This factor is present due to the existence of unsafe levels of lead, arsenic, and cadmium in surface soils on and around the Site. During dry conditions, winds could cause dust particles from the surface soils to migrate off site. During precipitation events, storm water runoff can cause significant migration of contamination from the Site to the surrounding residential properties and to storm sewers. This Site meets the criteria for a removal action due to the high concentrations of toxic metals in soils above health standards, and the direct contact, ingestion, and inhalation threats to public health.

iv. High levels of hazardous substances, pollutants or contaminants in soils largely at or near the surface, that may migrate off site; this factor is present at the Site due to the existence of the availability of other appropriate federal or state response mechanisms to respond to the release.

On April 24, 2013, IEPA requested the assistance of the U.S. EPA Emergency Response Branch in assessing and mitigating potential hazards associated with this Site. IEPA has indicated they do not have the resources to conduct the required removal actions.

g. The removal action required by this Settlement Agreement is necessary to protect the public health, welfare, or the environment and, if carried out in compliance with the terms of this Settlement Agreement, will be consistent with the NCP, as provided in Section 300.700(c)(3)(ii) of the NCP.

## VI. SETTLEMENT AGREEMENT AND ORDER

11. Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, it is hereby ordered and agreed that Respondent shall comply with all provisions of this Settlement Agreement, including, but not limited to, all

attachments to this Settlement Agreement and all documents incorporated by reference into this Settlement Agreement.

## VII. DESIGNATION OF CONTRACTOR, PROJECT COORDINATOR, AND ON-SCENE COORDINATOR

12. Respondent shall retain one or more contractors to perform the Work and shall notify U.S. EPA of the name(s) and qualifications of such contractor(s) within five (5) business days of the Effective Date. Respondent shall also notify U.S. EPA of the name(s) and qualification(s) of any other contractor(s) or subcontractor(s) retained to perform the Work at least 5 business days prior to commencement of such Work. U.S. EPA retains the right to disapprove of any or all of the contractors and/or subcontractors retained by Respondent. If U.S. EPA disapproves of a selected contractor, Respondent shall retain a different contractor and shall notify U.S. EPA of that contractor's name and qualifications within (5) business days of U.S. EPA's disapproval. The contractor must demonstrate compliance with ANSI/ASQC E-4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan (QMP). The QMP should be prepared consistent with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002), or equivalent documentation as required by U.S. EPA. Any decision not to require submission of the contractor's QMP should be documented in a memorandum from the On-Scene Coordinator (OSC) and Regional quality assurance personnel to the Site file.

13. Within five (5) business days after the Effective Date, Respondent shall designate a Project Coordinator who shall be responsible for administration of all actions by Respondent required by this Settlement Agreement and shall submit to U.S. EPA the designated Project Coordinator's name, address, telephone number, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site work. U.S. EPA retains the right to disapprove of the designated Project Coordinator. If U.S. EPA disapproves of the designated Project Coordinator, Respondent shall retain a different Project Coordinator and shall notify U.S. EPA of that person's name, address, telephone number, and qualifications within 4 business days following U.S. EPA's disapproval. Receipt by Respondent's Project Coordinator of any notice or communication from U.S. EPA relating to this Settlement Agreement shall constitute receipt by the Respondent. Respondent has designated, and EPA has not disapproved, the following individual as Project Coordinator, who shall be responsible for administration of all actions by Respondent required by this Settlement Agreement: **[to be designated by the Respondent pursuant to Paragraph 12]**.

14. U.S. EPA has designated Leonard Zintak of the Emergency Response Branch #2, Region 5, as its OSC. Except as otherwise provided in this Settlement Agreement, Respondent shall direct all submissions required by this Settlement Agreement to the OSC at U.S. EPA, Emergency Response, 77 West Jackson Boulevard, Chicago, Illinois 60604. Respondent is encouraged to make their submissions to U.S. EPA electronically or on recycled paper (which

includes significant post-consumer waste paper content where possible) and using two-sided copies.

15. U.S. EPA and Respondent shall have the right, subject to Paragraph 13, to change their respective designated OSC or Project Coordinator. U.S. EPA shall notify the Respondent, and Respondent shall notify U.S. EPA, as early as possible before such a change is made, but in no case less than 24 hours before such a change. The initial notification may be made orally but shall be promptly followed by a written notice.

## VIII. WORK TO BE PERFORMED

16. Respondent shall perform, at a minimum, the following removal activities:

a. Develop a Site Health and Safety Plan;

b. Develop a Site Air Monitoring and Sampling Plan;

c. Remove and dispose of contaminated surface soils to a maximum depth of 18 inches outside of the building, per the Illinois Tier 1 Residential Soil Remediation Objectives in 35(I)(A)(C) Part 742, for each contaminant of concern.

d. Remove and dispose of contaminated floor debris on the surface inside of the building; and,

e. Maintain temporary site fencing and building security during all phases of the removal action, as needed. Building security includes measures such as keeping building doors, windows, and gates locked and secured during the clean-up.

17. Work Plan and Implementation

a. Within ten (10) business days after the Effective Date, Respondent shall submit to U.S. EPA for approval a draft Work Plan for performing the removal action generally described in **Paragraph 16** above. The draft Work Plan shall provide a description of, and an expeditious schedule for, the actions required by this Settlement Agreement. The Work Plan shall include a Quality Assurance Project Plan (QAPP). The following documents shall be used for the development of QAPPs for Region 5 Superfund sites:

- The Uniform Federal Policy for Quality Assurance Projects Plans (UFP-QAPP), OSWER Directive 9272.0-17; the QAPP format can be found at http://www.epa.gov/fedfac/documents/qualityassurance.htm;.EPA Requirements for Quality Assurance Project Plans QA/R-5 (EPA/240/B-01/003), March 2001, Reissued May 2006.

The following guidance may be used in conjunction with the requirements above:

- EPA Guidance for the Quality Assurance Project Plans QA/G-5 (EPA/240/R-02/009), December 2002.
- Guidance on Choosing a Sampling Design for Environmental Data Collection EPA QA/G-5S, December 2002.

b. U.S. EPA may approve, disapprove, require revisions to, or modify the draft Work Plan in whole or in part. If U.S. EPA requires revisions, Respondent shall submit a revised draft Work Plan within 7 business days of receipt of U.S. EPA's notification of the required revisions. Respondent shall implement the Work Plan as approved in writing by U.S. EPA in accordance with the schedule approved by U.S. EPA. Once approved, or approved with modifications, the Work Plan, the schedule, and any subsequent modifications shall be incorporated into and become fully enforceable under this Settlement Agreement.

c. Respondent shall not commence any Work except in conformance with the terms of this Settlement Agreement. Respondent shall not commence implementation of the Work Plan developed hereunder until receiving written U.S. EPA approval pursuant to Paragraph 17(b).

18. Health and Safety Plan. Within 10 business days after the Effective Date, Respondent shall submit for U.S. EPA review and comment a plan that ensures the protection of the public health and safety during performance of on-site work under this Settlement Agreement. This plan shall be prepared consistent with U.S. EPA's Standard Operating Safety Guide (PUB 9285.1-03, PB 92-963414, June 1992). In addition, the plan shall comply with all currently applicable Occupational Safety and Health Administration regulations found at 29 C.F.R. Part 1910. If U.S. EPA determines that it is appropriate, the plan shall also include contingency planning. Respondent shall incorporate all changes to the plan recommended by U.S. EPA and shall implement the plan during the pendency of the removal action.

19. Quality Assurance and Sampling.

a. All sampling and analyses performed pursuant to this Settlement Agreement shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain of custody procedures. Respondent shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with the appropriate U.S. EPA guidance. Respondent shall follow, as appropriate, "Quality Assurance/Quality Control Guidance for Removal Activities: Sampling QA/QC Plan and Data Validation Procedures" (OSWER Directive No. 9360.4-01, April 1, 1990), as guidance for QA/QC and sampling. Respondent shall only use laboratories that have a

documented Quality System that complies with ANSI/ASQC E-4 1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), and EPA Requirements for Quality Management Plans (QA/R-2) (EPA/240/B-01/002, March 2001, Reissued May 2006)," or equivalent documentation as determined by EPA. U.S. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program (NELAP) as meeting the Quality System requirements.

b. Upon request by U.S. EPA, Respondent shall have such a laboratory analyze samples submitted by U.S. EPA for QA monitoring. Respondent shall provide to U.S. EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

c. Upon request by U.S. EPA, Respondent shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples. Respondent shall notify U.S. EPA not less than 3 business days in advance of any sample collection activity, unless shorter notice is agreed to by U.S. EPA. U.S. EPA shall have the right to take any additional samples that U.S. EPA deems necessary. Upon request, U.S. EPA shall allow Respondent to take split or duplicate samples of any samples it takes as part of its oversight of Respondent's implementation of the Work.

20. Post-Removal Site Control. In accordance with the Work Plan schedule, or as otherwise directed by U.S. EPA, Respondent shall submit a proposal for post-removal site control consistent with Section 300.415(*l*) of the NCP and OSWER Directive No. 9360.2-02. Upon U.S. EPA approval, Respondent shall implement such controls and shall provide U.S. EPA with documentation of all post-removal site control arrangements.

21. Reporting.

a. Respondent shall submit a written progress report to U.S. EPA concerning actions undertaken pursuant to this Settlement Agreement every 30th day after the date of receipt of U.S. EPA's approval of the Work Plan until termination of this Settlement Agreement, unless otherwise directed in writing by the OSC. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

b. Respondent shall submit three (3) copies or one (1) electronic copy of all plans, reports or other submissions required by this Settlement Agreement, or any approved work plan. Upon request by U.S. EPA, Respondent shall submit such documents in

electronic form.

c. A Respondent who owns or controls property at the Site shall, at least 30 days prior to the conveyance of any interest in real property at the Site, give written notice to the transferee that the property is subject to this Settlement Agreement and written notice to U.S. EPA and the State of Illinois of the proposed conveyance, including the name and address of the transferee. A Respondent who owns or controls property at the Site also agree to require that their successors comply with the immediately preceding sentence and Sections IX (Site Access) and X (Access to Information).

22. Final Report. Within 60 days after completion of all Work required by Section VIII (Work To Be Performed) of this Settlement Agreement, Respondent shall submit for U.S. EPA review [and approval] a final report summarizing the actions taken to comply with this Settlement Agreement. The final report shall conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled "OSC Reports" and with the guidance set forth in "Superfund Removal Procedures: Removal Response Reporting POLREPS and OSC Reports"okl (OSWER Directive No. 9360.3-03, June 1, 1994). The final report shall include a good faith estimate of total costs or a statement of actual costs incurred in complying with the Settlement Agreement, a listing of quantities and types of materials removed off site or handled on-site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destination(s) of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits). The final report shall also include the following certification signed by a person who supervised or directed the preparation of that report:

> "Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

23. Off-Site Shipments.

a. Respondent shall, prior to any off-site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification of such shipment of Waste Material to the appropriate state environmental official in the receiving facility's state and to the On-Scene Coordinator. However, this notification requirement shall not apply to any off-site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

i. Respondent shall include in the written notification the following information: 1)

the name and location of the facility to which the Waste Material is to be shipped; 2) the type and quantity of the Waste Material to be shipped; 3) the expected schedule for the shipment of the Waste Material; and 4) the method of transportation. Respondent shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

ii. The identity of the receiving facility and state will be determined by Respondent following the award of the contract for the removal action. Respondent shall provide the information required by Paragraph 23(a) and 23(b) as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

b. Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-site location, Respondent shall obtain U.S. EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent shall only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

## IX. SITE ACCESS

24. If the Site, or any other property where access is needed to implement this Settlement Agreement, is owned or controlled by the Respondent, such Respondent shall, commencing on the Effective Date, provide U.S. EPA, the State, and their representatives, including contractors, with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Settlement Agreement.

25. Where any action under this Settlement Agreement is to be performed in areas owned by or in possession of someone other than Respondent, Respondent shall use their best efforts to obtain all necessary access agreements within 10 business days after the Effective Date, or as otherwise specified in writing by the OSC. Respondent shall immediately notify U.S. EPA if after using their best efforts they are unable to obtain such agreements. For purposes of this Paragraph, "best efforts" includes the payment of reasonable sums of money in consideration of access. Respondent shall describe in writing their efforts to obtain access. U.S. EPA may then assist Respondent in gaining access, to the extent necessary to effectuate the response actions described in this Settlement Agreement, using such means as U.S. EPA deems appropriate. Respondent shall reimburse U.S. EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XV (Payment of Response Costs).

26. Notwithstanding any provision of this Settlement Agreement, U.S. EPA and the State retain all of their access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

## X. ACCESS TO INFORMATION

27. Respondent shall provide to U.S. EPA, upon request, copies of all documents and information within their possession or control or that of their contractors or agents relating to activities at the Site or to the implementation of this Settlement Agreement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondent shall also make available to U.S. EPA, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

28. Respondent may assert business confidentiality claims covering part or all of the documents or information submitted to U.S. EPA under this Settlement Agreement to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by U.S. EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to U.S. EPA, or if U.S. EPA has notified Respondent that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Respondent.

29. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Respondent asserts such a privilege in lieu of providing documents, they shall provide U.S. EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the contents of the document, record, or information; and 6) the privilege asserted by Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged or confidential.

30. No claim of privilege or confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

## XI. RECORDS RETENTION

31. Until 6 years after Respondent's receipt of U.S. EPA's notification pursuant to Section XXVI (Notice of Completion of Work), the Respondent shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until 6 years after Respondent's receipt of U.S. EPA's notification pursuant to Section XXVI (Notice of Completion of Work), Respondent shall also instruct their contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to performance of the Work.

32. At the conclusion of this document retention period, Respondent shall notify U.S. EPA at least 60 days prior to the destruction of any such records or documents, and, upon request by U.S. EPA, Respondent shall deliver any such records or documents to U.S. EPA. Respondent may asserts that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondent assert such a privilege, they shall provide U.S. EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the subject of the document, record, or information; and 6) the privilege asserted by Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged or confidential.

33. The Respondent hereby certifies individually that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the Site since the earlier of notification of potential liability by U.S. EPA or the State or the filing of suit against it regarding the Site and that it has fully complied with any and all U.S. EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

## XII. COMPLIANCE WITH OTHER LAWS

34. Respondent shall perform all actions required pursuant to this Settlement Agreement in accordance with all applicable local, state, and federal laws and regulations except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 6921(e), and 40 C.F.R. §§ 300.400(e) and 300.415(j). In accordance with 40 C.F.R. § 300.415(j), all on-Site actions required pursuant to this Settlement Agreement shall, to the extent practicable, as determined by U.S. EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (ARARs) under federal environmental, state environmental or facility siting laws. Respondent

shall identify ARARs in the Work Plan subject to U.S. EPA approval.

## XIII. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

35. In the event of any action or occurrence during performance of the Work that causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action. Respondent shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondent shall also immediately notify the OSC or, in the event of his/her unavailability, the Regional Duty Officer, Emergency Response Branch, Region 5 at (312) 353-2318, of the incident or Site conditions. In the event that Respondent fails to take appropriate response action as required by this Paragraph, and U.S. EPA takes such action instead, Respondent shall reimburse U.S. EPA all costs of the response action not inconsistent with the NCP pursuant to Section XV (Payment of Response Costs).

36. In addition, in the event of any release of a hazardous substance from the Site, Respondent shall immediately notify the OSC at (b) (6) [redacted] and the National Response Center at (800) 424-8802. Respondent shall submit a written report to U.S. EPA within 7 business days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq.*

## XIV. AUTHORITY OF ON-SCENE COORDINATOR

37. The OSC shall be responsible for overseeing Respondent's implementation of this Settlement Agreement. The OSC shall have the authority vested in an OSC by the NCP, including the authority to halt, conduct, or direct any Work required by this Settlement Agreement, or to direct any other removal action undertaken at the Site. Absence of the OSC from the Site shall not be cause for stoppage of work unless specifically directed by the OSC.

## XV. PAYMENT OF RESPONSE COSTS

38. Payments for Response Costs.

a. Payment for Future Response Costs - Respondent shall pay U.S. EPA all Future Response Costs not inconsistent with the NCP. On a periodic basis, U.S. EPA will send Respondent a bill requiring payment that consists of an Itemized Cost Summary. Respondent shall make all payments within 30 days of receipt of each bill requiring

payment, except as otherwise provided in Paragraph 41 of this Settlement Agreement according to the following procedures:

i. Respondent shall make all payments required by this Paragraph to U.S. EPA by Fedwire EFT to:

Federal Reserve Bank of New York,
(b) (6) [redacted]

Field Tag 4200 of the Fedwire message: should read "D 68010727 Environmental Protection Agency"

and, shall reference Site/Spill ID Number C5U1 and the EPA docket number for this action.

ii. If the amount demanded in the bill is $10,000 or less, Respondent may, in lieu of the procedures in subparagraph 38 (a)(i), make all payments required by this Paragraph by official bank check made payable to "U.S. EPA Hazardous Substance Superfund." Each check, or a letter accompanying each check, shall identify the name and address of the party(ies) making payment, the Site name, U.S. EPA Region 5, the Site/Spill ID Number C5U1, and, if any, the U.S. EPA docket number for this action, and shall be sent to:

U.S. Environmental Protection Agency
Superfund Payments
Cincinnati Finance Center
P.O. Box 979076
St. Louis, MO 63197-9000

b. At the time of payment, Respondent shall send notice that payment has been made to the Director, Superfund Division, U.S. EPA Region 5, 77 West Jackson Blvd., Chicago, Illinois, 60604-3590 and to Puja Lakhani, Associate Regional Counsel, 77 West Jackson Boulevard, C-14J, Chicago, Illinois, 60604-3590, and to the U.S. EPA Cincinnati Finance Office by email at acctsreceivable.cinwd@epa.gov, or by mail to: Cincinnati Finance Office, 26 Martin Luther King Drive, Cincinnati, Ohio 45268. Such notice shall reference Site/Spill ID Number C5U1 and the U.S. EPA docket number for this action.

39. Respondent contests payment of any Future Response Costs billed under Paragraph 38 if they determine that U.S. EPA has made a mathematical error, or included a cost item that is not within the definition of Future Response Costs, or if they believe U.S. EPA incurred excess costs as a direct result of a U.S. EPA action that was inconsistent with a specific provision or provisions of the NCP. Such objection shall be made in writing within 30 days of receipt of the bill and must be sent to the OSC. Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, Respondent shall within the 30-day period pay all uncontested Future Response Costs to U.S. EPA in the manner described in Paragraph 38. Simultaneously, Respondent shall establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation (FDIC), and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. Respondent shall send to the U.S. EPA OSC a copy of the transmittal letter and check paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, Respondent shall initiate the Dispute Resolution procedures in Section XVI (Dispute Resolution). If U.S. EPA prevails in the dispute, within 5 days of the resolution of the dispute, Respondent shall pay the sums due (with accrued interest) to U.S. EPA in the manner described in Paragraph 39. If Respondent prevails concerning any aspect of the contested costs, Respondent shall pay that portion of the costs (plus associated accrued interest) for which they did not prevail to U.S. EPA in the manner described in Paragraph 39. Respondent shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XVI (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Respondent's obligation to reimburse U.S. EPA for its Future Response Costs.

## XVI. DISPUTE RESOLUTION

40. Unless otherwise expressly provided for in this Settlement Agreement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

41. If Respondent objects to any U.S. EPA action taken pursuant to this Settlement Agreement, including billings for Future Response Costs, they shall notify U.S. EPA in writing of their objection(s) within 10 days of such action, unless the objection(s) has/have been resolved informally. This written notice shall include a statement of the issues in dispute, the relevant facts upon which the dispute is based, all factual data, analysis or opinion supporting Respondent's position, and all supporting documentation on which such party relies. U.S. EPA and Respondent shall have 10 days from U.S. EPA's receipt of Respondent's written objection(s) to resolve the dispute through formal negotiations. The period for formal negotiations may be extended at the sole discretion of U.S. EPA. If the parties are unable to reach a written

agreement by the conclusion of the formal negotiation period, U.S. EPA shall provide its Statement of Position, including supporting documentation, no later than 10 days after the formal negotiation period concludes. In the event that these 10-day time periods for exchange of written documents may cause a delay in the work, they shall be shortened upon, and in accordance with, notice by U.S. EPA. An administrative record of any dispute under this Section shall be maintained by U.S. EPA. The record shall include the written notification of such dispute, and the Statement of Position served pursuant to the preceding Paragraph. Upon review of the administrative record, the Director of the Superfund Division, U.S. EPA Region 5, shall resolve the dispute consistent with the NCP and the terms of this Settlement Agreement. U.S. EPA's decision shall be incorporated into and become an enforceable part of this Settlement Agreement.

42. Respondent's obligations under this Settlement Agreement shall not be tolled by submission of any objection for dispute resolution under this Section. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with U.S. EPA's decision, whichever occurs.

## XVII. FORCE MAJEURE

43. Respondent agrees to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, a *force majeure* is defined as any event arising from causes beyond the control of Respondent, or of any entity controlled by Respondent, including but not limited to their contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite Respondent's best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work or increased cost of performance.

44. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement, whether or not caused by a *force majeure* event, Respondent shall notify U.S. EPA orally within 24 hours of when Respondent first knew that the event might cause a delay. Within 7 days thereafter, Respondent shall provide to U.S. EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a *force majeure* event if they intend to assert such a claim; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall be grounds for U.S. EPA to deny Respondent an extension of time for performance. Respondent shall have the burden of demonstrating by a preponderance of the evidence that the event is a *force majeure* that the delay is warranted under the circumstances, and that best efforts were exercised to avoid and mitigate the effects of the delay.

45. If U.S. EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Settlement Agreement that are affected by the *force majeure* event will be extended by U.S. EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If U.S. EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, U.S. EPA will notify Respondent in writing of its decision. If U.S. EPA agrees that the delay is attributable to a *force majeure* event, U.S. EPA will notify Respondent in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

## XVIII. STIPULATED PENALTIES

46. Respondent shall be liable to U.S. EPA for stipulated penalties in the amounts set forth in Paragraphs 47 and 48 for failure to comply with the requirements of this Settlement Agreement specified below, unless excused under Section XVII (Force Majeure). "Compliance" by Respondent shall include completion of the activities under this Settlement Agreement or any work plan or other plan approved under this Settlement Agreement identified below in accordance with all applicable requirements of law, this Settlement Agreement, and any plans or other documents approved by U.S. EPA pursuant to this Settlement Agreement within the specified time schedules established by and approved under this Settlement Agreement.

47. Stipulated Penalty Amounts – Work (Including Payments).

a. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in Paragraph 47(b):

| Penalty Per Violation Per Day | Period of Noncompliance |
|---|---|
| $ 500 | 1st through 14th day |
| $1,000 | 15th through 30th day |
| $2,000 | 31st day and beyond |

b. Compliance Milestones:

a. Completion of Workplan

b. Identification of a Project Officer

c. Submission of a Health and Safety Plan

d. Initiating Work at the Site after U.S. EPA Approves the Order

48. Stipulated Penalty Amounts - Reports. The following stipulated penalties shall

accrue per violation per day for failure to submit timely or adequate reports pursuant to Paragraphs 21, 22, and 31-33:

| Penalty Per Violation Per Day | Period of Noncompliance |
|---|---|
| $ 200 | 1st through 14th day |
| $ 500 | 15th through 30th day |
| $1,000 | 31st day and beyond |

49. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: 1) with respect to a deficient submission under Section VIII (Work to be Performed), during the period, if any, beginning on the 31st day after U.S. EPA's receipt of such submission until the date that U.S. EPA notifies Respondent of any deficiency; and 2) with respect to a decision by the Director of the Superfund Division, Region 5, under Paragraph 41 of Section XVI (Dispute Resolution), during the period, if any, beginning on the 21st day after U.S. EPA submits its written statement of position until the date that the Director of the Superfund Division issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

50. Following U.S. EPA's determination that Respondent has failed to comply with a requirement of this Settlement Agreement, U.S. EPA may give Respondent written notification of the failure and describe the noncompliance. U.S. EPA may send Respondent a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether U.S. EPA has notified Respondent of a violation.

51. All penalties accruing under this Section shall be due and payable to U.S. EPA within 30 days of Respondent's receipt from U.S. EPA of a demand for payment of the penalties, unless Respondent invoke the dispute resolution procedures under Section XVI (Dispute Resolution). Respondent shall make all payments required by this Section by official bank check made payable to "U.S. EPA Hazardous Substance Superfund." Each check, or a letter accompanying each check, shall identify the name and address of the party(ies) making payment, the Site name, U.S. EPA Region 5, the Site/Spill ID Number C5U1, and, if any, the U.S. EPA docket number for this action, and shall be sent to:

U.S. Environmental Protection Agency
Superfund Payments
Cincinnati Finance Center
P.O. Box 979076
St. Louis, MO 63197-9000

and shall indicate that the payment is for stipulated penalties, and shall reference the name and address of the party(ies) making payment. At the time of payment, copies of check(s) paid

pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to U.S. EPA as provided in Paragraph 39(b).

52. The payment of penalties shall not alter in any way Respondent's obligation to complete performance of the Work required under this Settlement Agreement.

53. Penalties shall continue to accrue during any dispute resolution period, but need not be paid until 20 days after the dispute is resolved by agreement or by receipt of U.S. EPA's decision.

54. If Respondent fails to pay stipulated penalties when due, U.S. EPA may institute proceedings to collect the penalties, as well as Interest. Respondent shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 47. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of U.S. EPA to seek any other remedies or sanctions available by virtue of Respondent's violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Sections 106(b) and 122(*l*) of CERCLA, 42 U.S.C. §§ 9606(b) and 9622(*l*), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that U.S. EPA shall not seek civil penalties pursuant to Section 106(b) or 122(*l*) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided in this Section, except in the case of a willful violation of this Settlement Agreement. Should Respondent violate this Settlement Agreement or any portion hereof, U.S. EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and/or may seek judicial enforcement of this Settlement Agreement pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606. Notwithstanding any other provision of this Section, U.S. EPA may, in its unreviewable discretion, waive in writing any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

## XIX. COVENANT NOT TO SUE BY U.S. EPA

55. In consideration of the actions that will be performed and the payments that will be made by Respondent under the terms of this Settlement Agreement, and except as otherwise specifically provided in this Settlement Agreement, U.S. EPA covenants not to sue or to take administrative action against Respondent pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work and Future Response Costs. This covenant not to sue shall take effect upon the Effective Date and is conditioned upon the complete and satisfactory performance by Respondent of all obligations under this Settlement Agreement, including, but not limited to, payment of Future Response Costs pursuant to Section XV (Payment of Response Costs). This covenant not to sue extends only to Respondent and does not extend to any other person.

## XX. RESERVATIONS OF RIGHTS BY U.S. EPA

56. Except as specifically provided in this Settlement Agreement, nothing in this Settlement Agreement shall limit the power and authority of U.S. EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing in this Settlement Agreement shall prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring the Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

57. The covenant not to sue set forth in Section XIX (Covenant Not to Sue by U.S. EPA) above does not pertain to any matters other than those expressly identified therein. U.S. EPA reserves, and this Settlement Agreement is without prejudice to, all rights against Respondent with respect to all other matters, including, but not limited to:

a. claims based on a failure by Respondent to meet a requirement of this Settlement Agreement;

b. liability for costs not included within the definition of Future Response Costs;

c. liability for performance of response action other than the Work;

d. criminal liability;

e. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

f. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and

g. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site.

## XXI. COVENANT NOT TO SUE BY RESPONDENT

58. Respondent covenants not to sue and agrees not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, Future Response Costs, or this Settlement Agreement, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111,

112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

b. any claim arising out of response actions at or in connection with the Site, including any claim under the United States Constitution, the Illinois Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law; or

c. any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Work , Past Response Costs, or Future Response Costs.

These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to any of the reservations set forth in Paragraphs 57 (b), (c), and (e) - (g), but only to the extent that Respondent's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

59. Nothing in this Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

This waiver shall not apply to any claim or cause of action against any person meeting the above criteria if such person asserts a claim or cause of action relating to the Site against such Respondent. This waiver also shall not apply to any claim or cause of action against any person meeting the above criteria if U.S. EPA determines: (1) has determined that the materials contributed to the Site by such person have contributed significantly or could contribute significantly, either individually or in the aggregate, to the costs of response or natural resource restoration at the Site; or (2) such person has failed to comply with any EPA requests for information or administrative subpoenas issued pursuant to Section 104(e) or 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) or 9622(e), or Section 3007 of RCRA, 42 U.S.C. § 6972, or has impeded or is impeding, through action or inaction, the performance of a response action or natural resource restoration with respect to the Site, or has been convicted of a criminal violation for the conduct to which this waiver would apply and that conviction has not been vitiated on appeal or otherwise.

## XXII. OTHER CLAIMS

60. By issuance of this Settlement Agreement, the United States and U.S. EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. The United States or U.S. EPA shall not be deemed a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Settlement Agreement.

61. Except as expressly provided in Section XXI (Covenant Not to Sue by Respondent), Paragraph 58 and Section XIX (Covenant Not to Sue by U.S. EPA), nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against Respondent or any person not a party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

62. No action or decision by U.S. EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

## XXIII. EFFECT OF SETTLEMENT/CONTRIBUTION

a. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), and that Respondent are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), or as may otherwise be provided by law, for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are the Work and Future Response Costs.

b. The Parties further agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B), pursuant to which the Respondent has, as of the Effective Date, resolved their liability to the United States for the Work and Future Response Costs.

63. The Respondent shall, with respect to any suit or claim brought by it for matters related to this Settlement Agreement, notify U.S. EPA in writing no later than 60 days prior to the initiation of such suit or claim. The Respondent also shall, with respect to any suit or claim brought against it for matters related to this Settlement Agreement, notify U.S. EPA in writing within 10 days of service of the complaint or claim upon it. In addition, the Respondent shall notify U.S. EPA within 10 days of service or receipt of any Motion for Summary Judgment and within 10 days of receipt of any order from a court setting a case for trial, for matters related to this Settlement Agreement.

64. In any subsequent administrative or judicial proceeding initiated by U.S. EPA, or by the United States on behalf of U.S. EPA, for injunctive relief, recovery of response costs, or other relief relating to the Site, Respondent shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, *res judicata*, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised in the subsequent proceeding were or should have been brought in the instant case; provided, however,

that nothing in this Paragraph affects the enforceability of the covenant by U.S. EPA set forth in Section XIX.

65. Effective upon signature of this Settlement Agreement by the Respondent, such Respondent agrees that the time period after the date of its signature shall not be included in computing the running of any statute of limitations potentially applicable to any action brought by the United States related to the "matters addressed" as defined in Paragraph 62 and that, in any action brought by the United States related to the "matters addressed," such Respondent will not assert, and may not maintain, any defense or claim based upon principles of statute of limitations, waiver, laches, estoppel, or other defenses based on the passage of time after its signature of this Settlement Agreement. If U.S. EPA gives notice to Respondent that it will not make this Settlement Agreement effective, the statute of limitations shall begin to run again commencing ninety days after the date such notice is sent by U.S. EPA.

## XXIV. INDEMNIFICATION

66. Respondent shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Settlement Agreement. In addition, Respondent agrees to pay the United States all costs incurred by the United States, including but not limited to attorney's fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out activities pursuant to this Settlement Agreement. Neither Respondent nor any such contractor shall be considered an agent of the United States. The Federal Tort Claims Act (28 U.S.C. §§ 2671, 2680) provides coverage for injury or loss of property, or injury or death caused by the negligent or wrongful act or omission of an employee of U.S. EPA while acting within the scope of his or her employment, under circumstances where U.S. EPA, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred.

67. The United States shall give Respondent notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondent prior to settling such claim.

68. Respondent waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between any one or more of Respondent and any person for performance of Work on or relating to the Site, including, but not

limited to, claims on account of construction delays. In addition, Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

## XXV. MODIFICATIONS

69. The OSC may make modifications to any plan or schedule in writing or by oral direction. Any oral modification will be memorialized in writing by U.S. EPA promptly, but shall have as its effective date the date of the OSC's oral direction. Any other requirements of this Settlement Agreement may be modified in writing by mutual agreement of the parties.

70. If Respondent seeks permission to deviate from any approved work plan or schedule, Respondent's Project Coordinator shall submit a written request to U.S. EPA for approval outlining the proposed modification and its basis. Respondent may not proceed with the requested deviation until receiving oral, email or written approval from the OSC. Oral or email approval must be followed by written approval.

71. No informal advice, guidance, suggestion, or comment by the OSC or other U.S. EPA representatives regarding reports, plans, specifications, schedules, or any other writing submitted by Respondent shall relieve Respondent of its obligation to obtain any formal approval required by this Settlement Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

## XXVI. NOTICE OF COMPLETION OF WORK

72. When U.S. EPA determines, after U.S. EPA's review of the Final Report, that all Work has been fully performed in accordance with this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including, e.g., post-removal site controls, payment of Future Response Costs, and record retention, U.S. EPA will provide written notice to Respondent. If U.S. EPA determines that such Work has not been completed in accordance with this Settlement Agreement, U.S. EPA will notify Respondent, provide a list of the deficiencies, and require that Respondent modify the Work Plan, if appropriate, in order to correct such deficiencies. Respondent shall implement the modified and approved Work Plan and shall submit a modified Final Report in accordance with the U.S. EPA notice. Failure by Respondent to implement the approved modified Work Plan shall be a violation of this Settlement Agreement.

## INSURANCE

At least seven (7) days prior to commencing any on-Site work under this Settlement Agreement, Respondent shall secure and shall maintain, for the duration of this Settlement

Agreement, comprehensive general liability insurance and automobile insurance with limits of one million dollars, combined single limit. Within the same time period, Respondent shall provide U.S. EPA with certificates of such insurance and a copy of each insurance policy. In addition, for the duration of the Settlement Agreement, Respondent shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondent in furtherance of this Settlement Agreement. If Respondent demonstrates by evidence satisfactory to U.S. EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondent need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

## XXVII. SEVERABILITY/INTEGRATION/ATTACHMENTS

73. If a court issues an order that invalidates any provision of this Settlement Agreement or finds that Respondent has sufficient cause not to comply with one or more provisions of this Settlement Agreement, Respondent shall remain bound to comply with all provisions of this Settlement Agreement not invalidated or determined to be subject to a sufficient cause defense by the court's order.

74. This Settlement Agreement and its attachments constitute the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Settlement Agreement.

## XXVIII. EFFECTIVE DATE

75. This Settlement Agreement shall be effective upon receipt by Respondent of a copy of this Settlement Agreement signed by the Director, Superfund Division, U.S. EPA Region 5.

The undersigned representatives of Respondent each certify that they are fully authorized to enter into the terms and conditions of this Settlement Agreement and to bind the party they represent to this document.

Agreed this 20th day of August, 2015.

For Respondent

By: _____

Title: Co-President Lucas Group, Inc

IN THE MATTER OF:

**PELTIER GLASS**
**OTTAWA, ILLINOIS**

It is so ORDERED and Agreed this 25 day of AUGUST, 2015.

BY: Richard C Karl

Richard C. Karl, Director
Superfund Division
United States Environmental Protection Agency
Region 5

AL-17-000-3143
Incoming

KEN CALVERT
42ND DISTRICT, CALIFORNIA

WASHINGTON OFFICE
2205 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0542
(202) 225-1986
FAX (202) 225-2004

DISTRICT OFFICE
4160 TEMESCAL CANYON ROAD
SUITE 214
CORONA, CA 92883
(951) 277-0042
FAX (951) 277-0420

UNITED STATES
HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEES

CHAIRMAN
INTERIOR, ENVIRONMENT, AND RELATED AGENCIES

DEFENSE
(LEGISLATIVE BRANCH)

ENERGY AND WATER DEVELOPMENT

WWW.CALVERT.HOUSE.GOV
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@KENCALVERT

January 6, 2017

Ms. Nichole Distefano
Office of Congressional and Intergovernmental Relations
Environmental Protection Agency
1200 Pennsylvania Avenue, NW, Room 3426 ARN
Washington, D.C. 20460-0001

Dear Ms. Distefano,

My office has received an authorization for a Congressional Inquiry on behalf of my constituent, (b) (6) [redacted] regarding his business located at (b) (6) [redacted] I am enclosing a copy for your review along with paperwork (b) (6) [redacted] feels will be pertinent to this case.

According to (b) (6) [redacted], he is not able to move forward with refinancing or sale of the above building in question due to an ongoing investigation with the U.S. EPA regarding groundwater contamination within the perimeter of his building. This investigation was previously being handled by the State of California Department of Toxic Substances Control (DTSC), but has been referred back to the U.S. EPA. (b) (6) [redacted] has submitted all of the documentation that the DTSC and U.S. EPA requested in order for those agencies to conduct their investigation. He has been in communication via email with Leslie Ramirez at the EPA and claims, that after a few months, he has not been able to receive exact information from her as to the status of the investigation and that the EPA continues to delay their completion. In the meantime, (b) (6) [redacted] is at a standstill and cannot proceed with his plans for retirement.

Therefore, I respectfully request that your office note congressional interest in (b) (6) [redacted] case and expedite your review of investigating this issue of groundwater contamination. Please provide my office with a detailed response that informs me of what progress has been made since the DTSC referred this investigation to the EPA, as well as an expected date of conclusion.

Thank you for your interest in (b) (6) [redacted]. If we may be of further assistance in this matter, you may contact Kathleen McGavran of my Corona District Office. I am looking forward to your reply.

Sincerely,

Ken Calvert

KEN CALVERT
Member of Congress

KC: KM

KEN CALVERT
42ND DISTRICT CALIFORNIA

WASHINGTON OFFICE
2205 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0542
(202) 225-1986
FAX (202) 225-2004

DISTRICT OFFICE
4160 TEMESCAL CANYON ROAD
SUITE 214
CORONA, CA 92883
(951) 277-0042
FAX (951) 277-0420

UNITED STATES
HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEES
CHAIRMAN
INTERIOR, ENVIRONMENT AND RELATED AGENCIES

DEFENSE
(LIAISON TO HOUSE INTELLIGENCE)

ENERGY AND WATER DEVELOPMENT

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@REPCALVERT

RESET

## CONGRESSIONAL CASEWORK AUTHORIZATION FORM

**PLEASE TYPE OR PRINT ONLY**

Name: Mr. Mrs. Ms. (b) (6) [redacted]

Address: (b) (6) [redacted]

Telephone: (Home) [redacted] (Work)

E-Mail: (b) (6) [redacted]

Social Security Number: [redacted] Date of Birth: [redacted] (b) (6) [redacted]

Federal Agency Involved: EPA

I request the assistance of Congressman Ken Calvert in the following federal matter:
**(Please provide a brief explanation of your problem and what specifically you are requesting from my office. Attach photocopies of documents relevant to this case. Use additional paper as necessary.)**

BECAUSE OF THE EPA PETROLEUM REGULATIONS OF BUILDING
[illegible] ON [illegible] TO [illegible]
[illegible] IN MARCH OF THIS YEAR
EPA CAME MY HOUSE TO INFORM ME OF [illegible]
OF PROBLEMS IN MY AREA. I GAVE THEM [illegible]
SAW THAT I HAD PAID [illegible] WHO I REPORTED [illegible]
IN 2006 - SINCE THEN I HAVE TRIED TO GET THEM TO INSPECT THE
REMAIN OF MY PROPERTY [illegible] TO ME [illegible]. THEY HAVE NOT YET

I authorize Congressman Ken Calvert to act on my behalf to transmit and/or receive information pertinent to my request for assistance.

Signed: (b) (6) [redacted] Date: [illegible]

READ MY PHASE I + PHASE II. AT ONE TIME THEY WANTED ME TO AGREE TO A VOLUNTARY CLEAN UP AND SAID THEY WOULD READ THE DOCUMENT IF I PAID THEM $4,000 — SINCE THEN WHEN I AGREED TO PAY THEM TO DO THEIR JOB THEY HAVE DELAYED + DELAYED TO MOVE FORWARD

Thank you for your help
IN THIS MATTER

See ATTACHED DOCUMENTATION FOR HISTORY OF MY ATTEMPTS.

MY LIFE IS AT A STANDSTILL BECAUSE OF THE EPA

# Department of Toxic Substances Control

*Matthew Rodriquez*
Secretary for
Environmental Protection

Barbara A. Lee, Director
5796 Corporate Avenue
Cypress, California 90630

*Edmund G. Brown Jr.*
Governor

[redacted]

(b) (6) [redacted]
(b) (6) [redacted]

SITE SCREENING ASSESSMENT AND REQUEST FOR INFORMATION FOR
AMERICAN PACIFIC CASTER AND WHEEL CO., LOCATED AT:
350 ELECTRA STREET, UNIT A, POMONA, CALIFORNIA 91766

Dear (b) (6) [redacted]:

The California Department of Toxic Substances Control (DTSC) is in the process of conducting an environmental assessment in the City of Pomona generally located between Holt Avenue and Phillips Boulevard to the north and south, and End Avenue and Garey Avenue to the east and west. The purpose of the assessment is to help determine the sources and extent of groundwater contamination detected in this general area. DTSC is interested in the former Southwest Photo Chemical Inc. which was previously located at your address.

DTSC has a Cooperative Agreement with the United States Environmental Protection Agency (U.S. EPA) to conduct Site Screening Assessments (SSAs). Under this contractual relationship with U.S. EPA, DTSC is responsible for assisting in identifying and investigating potential sites. U.S. EPA has requested DTSC to conduct an SSA of the above site (Site). According to DTSC's information, American Pacific Caster and Wheel currently operates at the subject location in Unit A of the building.

SSA investigators collect available information, conduct a "walk around" of the Site and its immediate environs, and interview the Site representative. Upon arrival at the Site, DTSC representatives will take photographs and collect information about the Site, which will be incorporated into the SSA. After the Site tour, we would like to meet with you to discuss the information requested by this letter.

As an agent for U.S. EPA, pursuant to applicable provisions of Section 104 of CERCLA; Section 3007 of the Resource Conservation and Recovery Act (RCRA); Section 9 of the Federal Insecticide, Fungicide, and Rodenticide Act; Section 3 of the Toxic Substances Control Act; and Section 308 of the Clean Water Act, DTSC hereby requests that you make the following information available at the time of the Site visit:

- Past and present ownership and operational history of the Site.

- Site building plans, facility maps, and historical aerial photographs, if available, showing the locations of any hazardous substances, pollutant, or contaminant, manufacturing processes, management activities, wells, buildings, drainage, dimensions of the buildings and the lot, and any other relevant features.

- Description of past and present waste management practices, including on-site generation, storage, treatment, disposal, or removal of hazardous substances, pollutants, or contaminants.

- Description of all on-site hazardous substances or pollutants and contaminant storage, treatment, or disposal areas, including size, containment features, dates used, and amounts of materials stored, treated, or disposed of.

- Description of any releases of hazardous substances to the environment, including dates and regulatory agency response to the releases, if any.

- Description of any environmental or public health regulatory or enforcement agency involvement at the facility.

- Any Phase I and Phase II environmental assessment reports, and any soil, soil gas and groundwater sampling data in your possession or your company's possession.

Your company may assert a claim of confidentiality for any information entitled to protection under 40 CFR, Part 2, Subpart B. All confidential material must be separately submitted, marked "confidential", and include the basis of your claim. U.S. EPA and DTSC will treat such information as set forth in the cited subpart.

DTSC plans to visit the Site within ten (10) days of the date of this letter. Please call me at (714) 484-5429 if you wish to discuss this letter or the upcoming visit.

Sincerely,

Alice Gimeno-O'Brien
Project Manager/Senior Environmental Scientist
Brownfields and Environmental Restoration Program
alice.gimeno-obrien@dtsc.ca.gov

cc: See Next Page.

cc: **Ms. Leslie Ramirez**
Site Assessment Manager
U.S. Environmental Protection Agency
Superfund Division SFD 9-1
75 Hawthorne Street
San Francisco, California 94105
ramirez.leslie@epa.gov

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

# ENVIROSTOR

All Statuses ▼ GO

**SEARCH CRITERIA:** SOUTHWEST PHOTO CHEMICAL

1 RECORDS FOUND

EXPORT TO EXCEL

PAGE 1 OF 1

| | SITE / FACILITY NAME | ESTOR / EPA ID | PROGRAM TYPE | STATUS | ADDRESS DESCRIPTION | CITY | ZIP | COUNTY |
|---|---|---|---|---|---|---|---|---|
| [REPORT] | SOUTHWEST PHOTO CHEMICAL INC | 60002264 | **EVALUATION** | **REFER: EPA** | (b) [redacted] (6) | POMONA | 9[redacted] (b) | LOS ANGELES |

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0.1875 seconds

Now the Case is Referred to EPA, San Fanciscu

Date : **Thu Nov 03 12:58:57** PDT 2016
From : Ramirez, Leslie(Ramirez.Leslie@epa.gov);
To :(b) (6) [redacted]
Subject : RE: property (b) (6) [redacted]

Hi (b) [redacted] – I have my contractor working on this site now and we will conduct our own preliminary assessment, which is the same as a phase I. Our preliminary assessment will include a review of the previous phase I and II assessments. I hope to have the preliminary assessment completed by March at the earliest. I can try to ask my contractor to complete it sooner, and will notify you if it that happens.

After I finish my review of the preliminary assessment, I have to make a determination on the site, whether we pursue further investigation or no further action. I cannot provide a "no further action" letter until I receive the preliminary assessment from my contractor. I know this timing is probably not ideal for you, but I cannot make a final determination on the site at this time. I understand that you do not use or manufacture any hazardous chemicals, but that does not mean that previous or historic operations at your property did not. That's what I'm trying to determine. Please let me know if you have any further questions.

**********

Leslie Ramirez

U.S. EPA, Region 9

Brownfields & Site Assessment

75 Hawthorne Street (SFD-6-1)

San Francisco, CA 94105

Ph: 415-972-3978

**From:** (b) (6) [redacted]
**Sent:** Thursday, November 03, 2016 11:55 AM
**To:** Ramirez, Leslie <Ramirez.Leslie@epa.gov>
**Subject:** (b) (6) [redacted]

Date : Thu Dec 08 20:09:39 PST 2016
From : (b) (6) [redacted]
To : ramirez.leslie@epa.gov;
Subject : Re: (b) (6) [redacted]

Dear Ms Ramirez:

I am following up to update on our conversation last month if we are on schedule hopefully no delays you will have an answer of your assessment of Phase I and Phase II by the end of the month of January. Please let me know. Thank you very much for your help.

Best Regards,

(b) (6) [redacted]

Date : Fri Dec 09 15:47:21 PST 2016
From : Ramirez, Leslie(Ramirez.Leslie@epa.gov);
To : (b) (6) [redacted]
Subject : RE: Property 350 electra street Pomona

Hi (b) (6) [redacted] – I don't think I will be able to complete the evaluation by the end of January, and I can't guarantee when but I will try to get this report expedited as best as I can. I have competing priorities right now through December and January, and this might be pushed back to February or March, but again, I can't make any guarantees. If you have any more questions, please contact me.

**********

Leslie Ramirez

U.S. EPA, Region 9

Brownfields & Site Assessment

75 Hawthorne Street (SFD-6-1)

San Francisco, CA 94105

Ph: 415-972-3978

**From:** (b) (6) [redacted]
**Sent:** Thursday, December 08, 2016 8:10 PM
**To:** Ramirez, Leslie <Ramirez.Leslie@epa.gov>
**Subject:** Re: [redacted] (b) (6) [redacted]

Dear Ms Ramirez:

I am following up to update on our conversation last month if we are on schedule hopefully no delays you will have an answer of your assessment of Phase I and Phase II by the end of the month of January. Please let me know. Thank you very much for your help.

AL-17-000-3143
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION IX**
**75 Hawthorne Street**
**San Francisco, CA 94105-3901**

**OFFICE OF THE**
**REGIONAL ADMINISTRATOR**

The Honorable Ken Calvert
U.S. House of Representatives
Corona District Office – Attn: Ms. Kathleen McGavran
4160 Temescal Canyon Road, Suite 214
Corona, CA 92883

Dear Congressman Calvert:

Thank you for your January 6, 2017 letter to Nichole Distefano in EPA's Office of Congressional and Intergovernmental Relations regarding your constituent, Mr. Nicholas Varelas. Your letter was forwarded to EPA's San Francisco Regional Office for response.

We are pleased to clarify EPA's role in the investigation of Mr. Varelas's business property at 350 Electra Street in Pomona, California, also known as the Southwest Photo Chemical site. This property was the subject of an EPA Superfund soil removal action in 1999. Recently, it is one of many sites the Agency is evaluating as a possible source of groundwater contamination within the City of Pomona. Within four miles of Mr. Varelas' property, approximately 114 drinking water wells show varying concentrations of contaminants, including total chromium and hexavalent chromium, and tetrachloroethylene and trichloroethylene.

Under a cooperative agreement with the California Department of Toxic Substances Control (DTSC), Mr. Varelas' property was one of several identified, based on past operations that used hazardous substances. An initial screening completed by DTSC in June 2016 concluded the property was appropriate for further investigation. DTSC and EPA agreed to initiate a Preliminary Assessment.

The Preliminary Assessment process can take 3 to 6 months or sometimes longer, depending on the availability of funding and resources. However, we understand Mr. Varelas desires to sell or refinance the property, and has requested we expedite the Preliminary Assessment. We expect the U.S. Army Corps of Engineers, under contract to EPA, to complete it by the end of March 2017, when a final report will be provided to Mr. Varelas. That report will serve as the basis for our determination that either no further federal action is warranted, or that further action such as a site inspection should be taken. If a site inspection is necessary, that could take 6 months or longer and require the collection of soil and groundwater samples for laboratory analysis.

Meanwhile, our staff has been in contact with Ms. Kathleen McGavran of your office to answer questions regarding this ongoing investigation. We trust this information is helpful in responding to your concerns. If we can be of further assistance, please refer staff to our Congressional Liaison, Brent Maier, at (415) 947-4256.

Sincerely yours,

Alexis Strauss 24 Jan. 2017

Alexis Strauss
Acting Regional Administrator

AL-17-000-6415
incoming

# Congress of the United States
Washington, DC 20515

March 14, 2017

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Pruitt:

We saw your comments last week on CNBC's Squawk Box.[1] It's clear that you need to read the enclosed reports. We look forward to hearing your response.

Sincerely,

Earl Blumenauer
Member of Congress

Donald S. Beyer Jr
Member of Congress

Suzanne Bonamici
Member of Congress

Emanuel Cleaver, II
Member of Congress

Colleen Hanabusa
Member of Congress

Alcee L. Hastings
Member of Congress

Denny Heck
Member of Congress

Brenda L. Lawrence
Member of Congress

Barbara Lee
Member of Congress

Ted Lieu
Member of Congress

[1] http://www.cnbc.com/2017/03/09/epa-chief-scott-pruitt.html

PRINTED ON RECYCLED PAPER

Steve Cohen
Member of Congress

Peter DeFazio
Member of Congress

Mark DeSaulnier
Member of Congress

Lloyd Doggett
Member of Congress

Adriano Espaillat
Member of Congress

Raul Grijalva
Member of Congress

Pramila Jayapal
Member of Congress

Betty McCollum
Member of Congress

Donald McEachin
Member of Congress

James P. McGovern
Member of Congress

Jerrold Nadler
Member of Congress

Ed Perlmutter
Member of Congress

Mark Pocan
Member of Congress

Jared Polis
Member of Congress

Mike Quigley
Member of Congress

Jamie Raskin
Member of Congress

Jan Schakowsky
Member of Congress

Darren Soto
Member of Congress

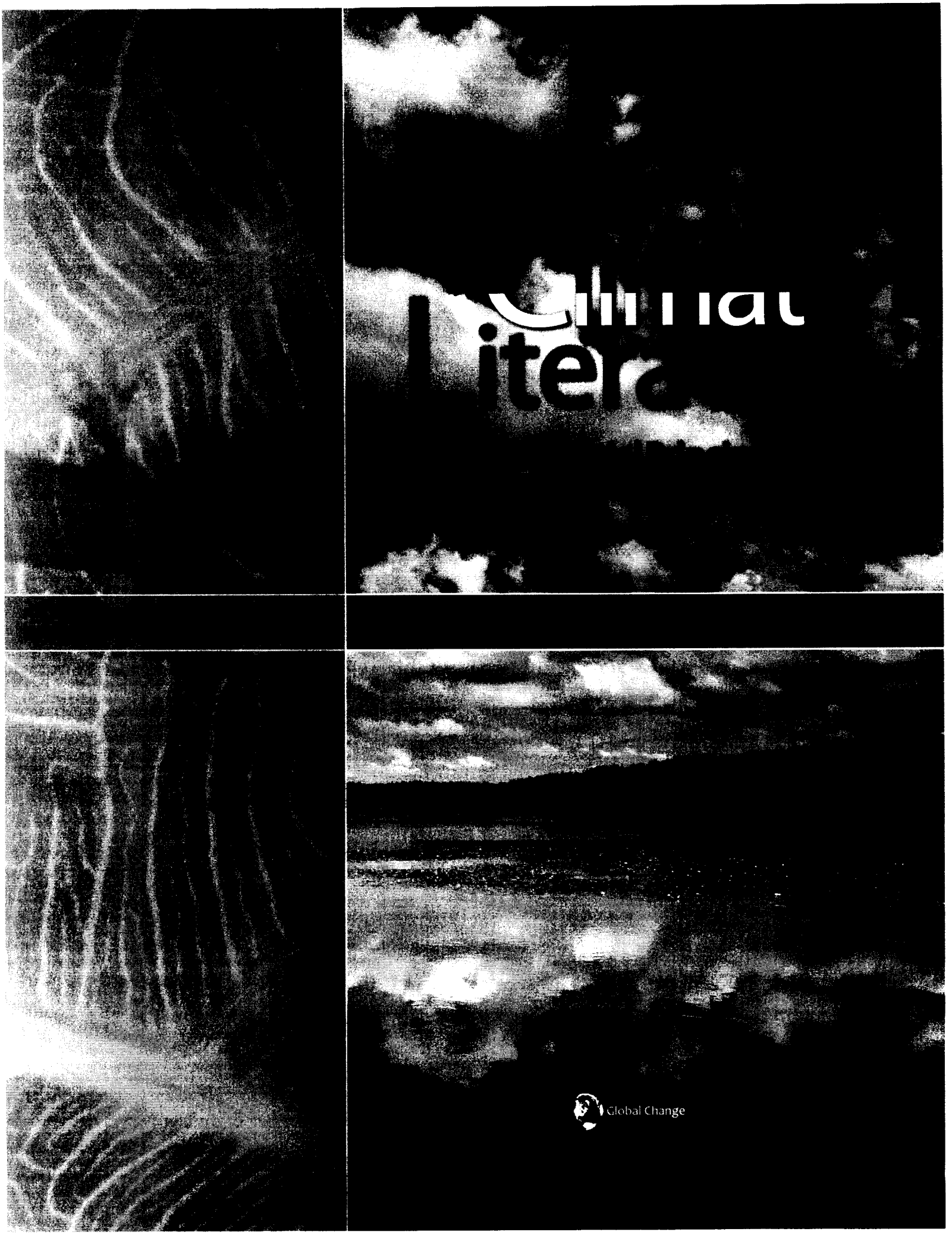
Niki Tsongas
Member of Congress

Juan Vargas
Member of Congress

Nydia M. Velázquez
Member of Congress

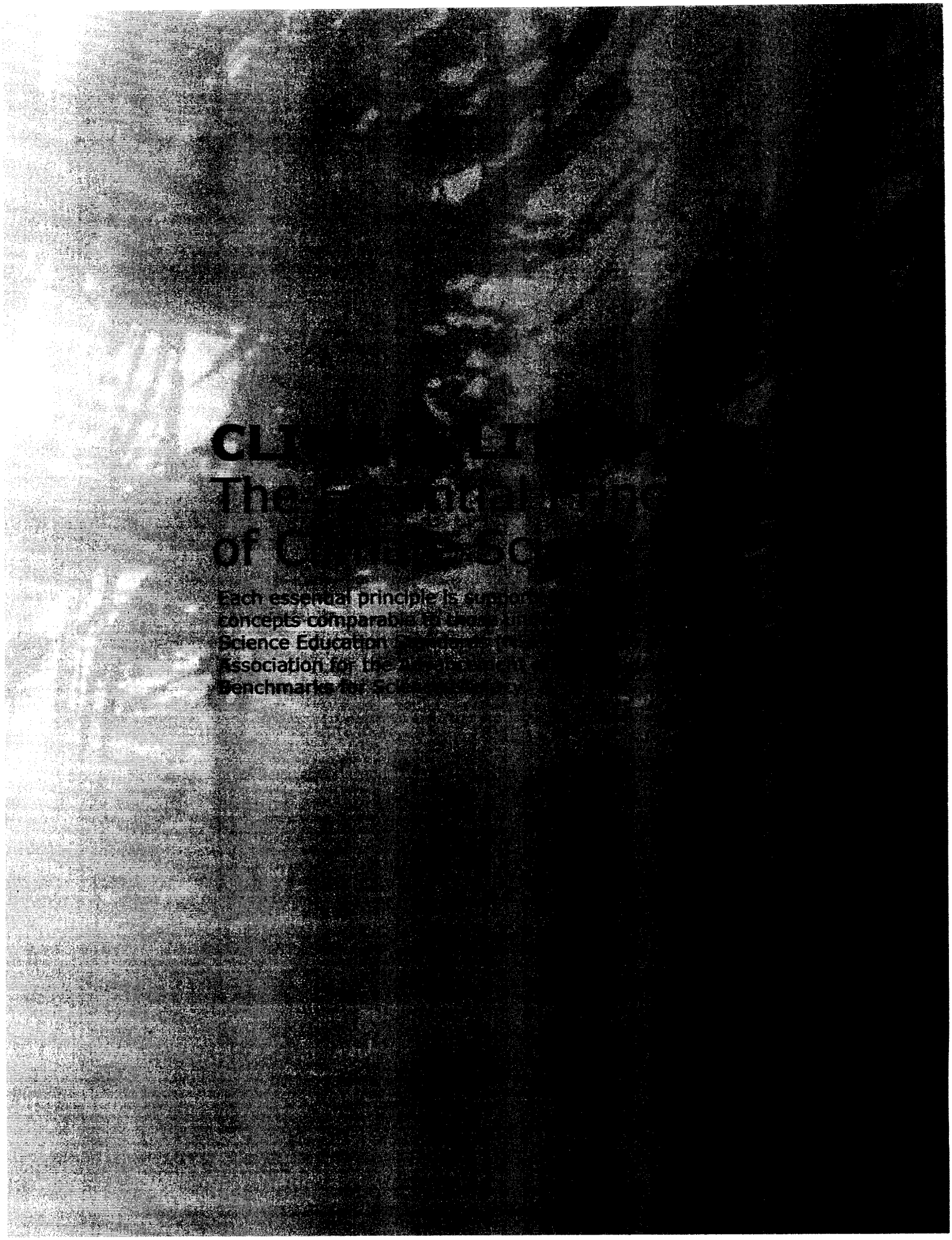
Bonnie Watson Coleman
Member of Congress

John Yarmuth
Member of Congress


Global Change

## ABOUT THIS GUIDE

Climate Literacy: The Essential Principles of Climate Science presents information that is deemed important for individuals and communities to know and understand about Earth's climate, impacts of climate change, and approaches to adaptation or mitigation. Principles in the guide can serve as discussion starters or launching points for scientific inquiry. The guide aims to promote greater climate science literacy by providing this educational framework of principles and concepts. The guide can also serve educators and teach climate science as a way to [illegible]



# CL[illegible]
# The [illegible]
# of C[illegible]

Each essential principle is suppor[illegible]
concepts comparable to those [illegible]
Science Education [illegible]
Association for the [illegible]
Benchmarks for Sci[illegible]

## WHAT IS CLIMATE SCIENCE LITERACY?

Climate Science Literacy is an understanding of your influence on climate and climate's influence on you and society.

**A climate-literate person:**

- understands the essential principles of Earth's climate system,
- knows how to assess scientifically credible information about climate,
- communicates about climate and climate change in a meaningful way, and
- is able to make informed and responsible decisions with regard to actions that may affect climate.

## WHY DOES CLIMATE SCIENCE LITERACY MATTER?

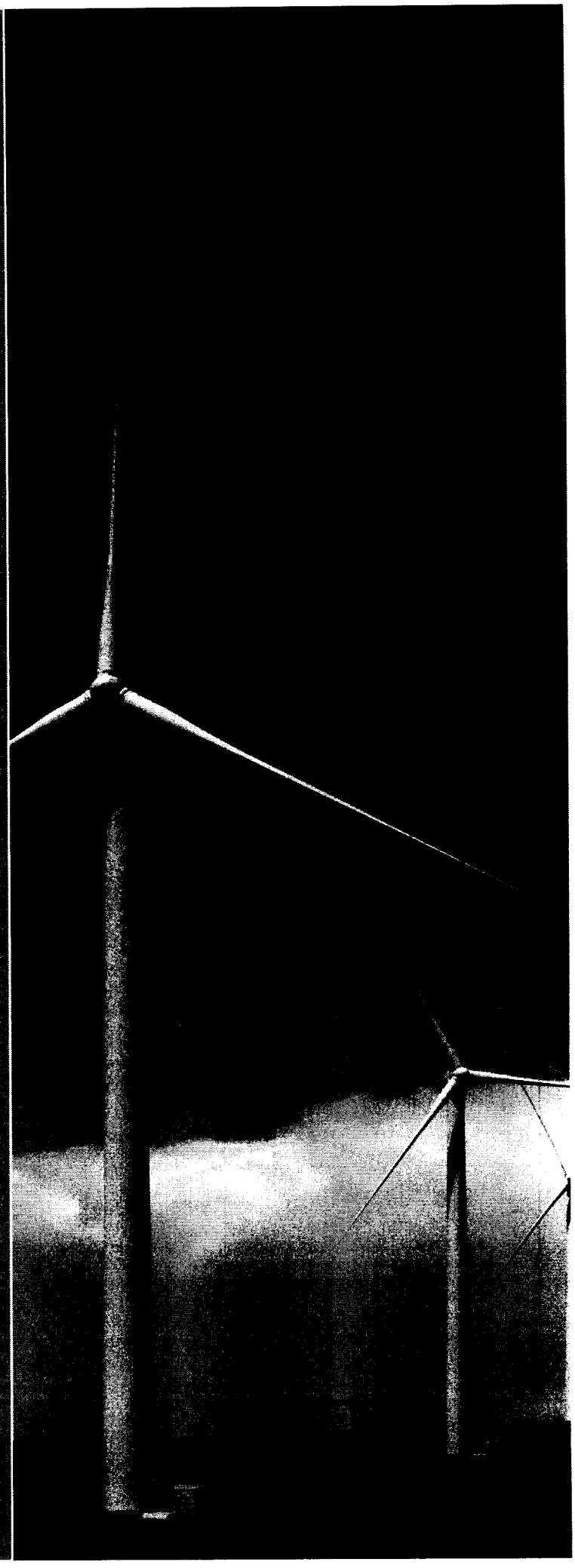
- During the 20th century, Earth's globally averaged surface temperature rose by approximately 1.08°F (0.6°C). Additional warming of more than 0.25°F (0.14°C) has been measured since 2006. Though the total increase may seem small, it likely represents an extraordinarily rapid rate of change compared to changes in the previous 10,000 years.
- Over the 21st century, climate scientists expect Earth's temperature to continue increasing, very likely more than it did during the 20th century. Two anticipated results are rising global sea level and increasing frequency and intensity of heat waves, droughts, and floods. These changes will affect almost every aspect of human society, including economic prosperity, human and environmental health, and national security.
- Scientific observations and climate model results indicate that human activities are now the primary cause of most of the ongoing increase in Earth's globally averaged surface temperature.
- Climate change will bring economic and environmental challenges as well as opportunities, and citizens who have an understanding of climate science will be better prepared to respond to both.
- Society needs citizens who understand the climate system and know how to apply that knowledge in their careers and in their engagement as active members of their communities.
- Climate change will continue to be a significant element of public discourse. Understanding the essential principles of climate science will enable all people to assess news stories and contribute to their everyday conversations as informed citizens.

## CLIMATE SCIENCE LITERACY IS A PART OF SCIENCE LITERACY.

*"Science, mathematics, and technology have a profound impact on our individual lives and our culture. They play a role in almost all human endeavors, and they affect how we relate to one another and the world around us. . . . Science Literacy enables us to make sense of real-world phenomena, informs our personal and social decisions, and serves as a foundation for a lifetime of learning."*

From the American Association for the Advancement of Science, Atlas of Science Literacy, Volume 2, Project 2061.

People who are climate science literate know that climate science can inform our decisions that improve quality of life. They have a basic understanding of the climate system, including the natural and human-caused factors that affect it. Climate science literate individuals understand how climate observations and records as well as computer modeling contribute to scientific knowledge about climate. They are aware of the fundamental relationship between climate and human life and the many ways in which climate has always played a role in human health. They have the ability to assess the validity of scientific arguments about climate and to use that information to support their decisions.



## CLIMATE SCIENCE LITERACY IS AN ONGOING PROCESS

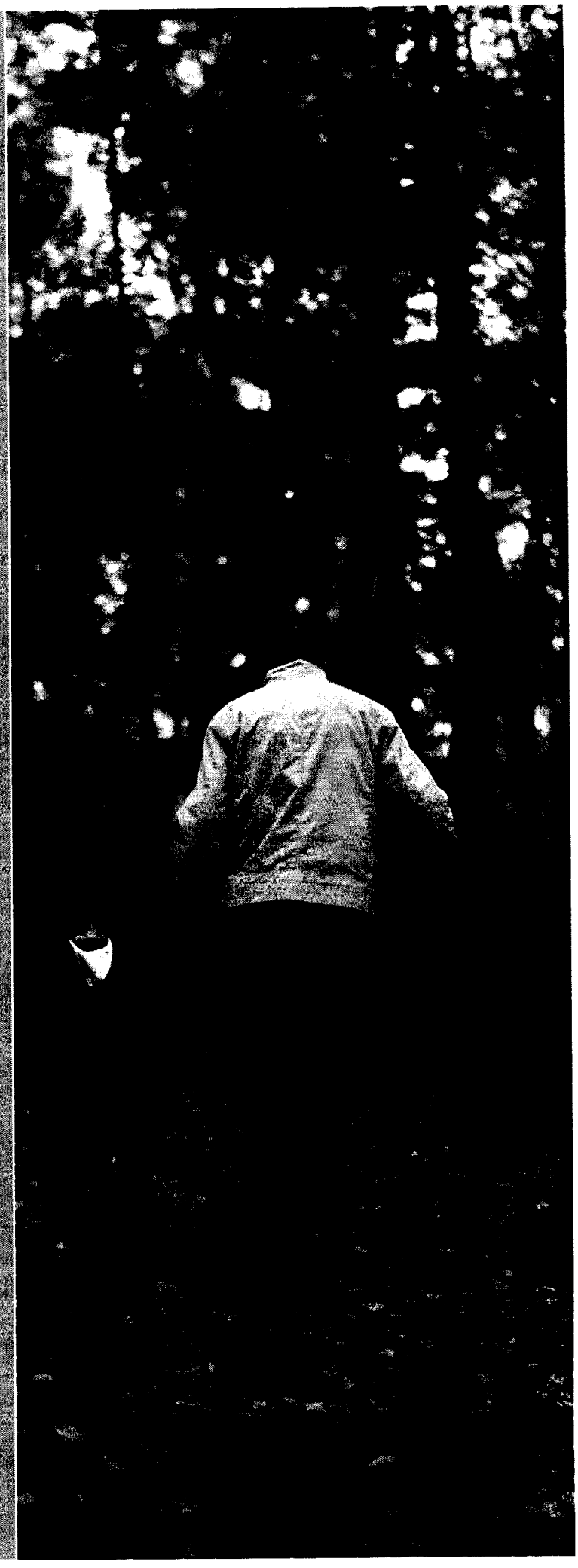
No single person is expected to understand every detail about all of the fundamental climate science literacy concepts. Full comprehension of these interconnected concepts will require a systems-thinking approach, meaning the ability to understand complex interconnections among all of the components of the climate system. However, as climate science progresses and as efforts to educate the people about climate's influence on them and their influence on the climate system mature, public understanding will hopefully grow.

Climate is an ideal interdisciplinary theme for learning about the scientific process and the ways in which humans affect and are affected by the Earth's systems. This rich topic can be approached at many levels, from comparing the daily weather with long-term records to exploring statistical representations of climate in computer models to examining how climate change impacts human and ecosystem health. Learners of all ages can use data from their own experiments, data collected by satellites and other observation systems, or records from a range of physical, chemical, biological, geographical, social, economic, and historical sources to assess the impacts of climate and potential adaptation and mitigation strategies.

## HOW DO WE KNOW WHAT IS SCIENTIFICALLY CORRECT?

### The Peer Review Process

Science is an ongoing process of making observations and using evidence to test hypotheses. As new ideas are developed and new data are obtained, oftentimes enabled by new technologies, our understanding evolves. The scientific community uses a highly formalized version of peer review to validate research results and our understanding of their significance. Researchers describe their experiments, results, and interpretations in scientific manuscripts and submit them to a scientific journal that specializes in their field of science. Scientists who are experts in that field serve as "referees" for the journal. They read the manuscript carefully to judge the reliability of the research design and check that the interpretations are supported by the data. Based on the reviews, journal editors may accept or reject manuscripts or ask the authors to make revisions if the study has insufficient data or unsound interpretations. Through this process, only those concepts that have been described through well-documented research and subjected to the scrutiny of other experts in the field become published papers in science journals and accepted as current science knowledge. Although peer review does not guarantee that any particular published result is valid, it does provide a high assurance that the work has been carefully vetted for accuracy by informed experts prior to publication. The overwhelming majority of peer-reviewed papers about global climate change acknowledge that human activities are substantially contributing factors.



Bourgeois Scott Bauer, USDA

## INFORMED CLIMATE DECISIONS REQUIRE AN INTEGRATED APPROACH.

In the coming decades, scientists expect climate change to have an increasing impact on human and natural systems. In a warmer world, accessibility to food, water, raw materials, and energy are likely to change. Human health, biodiversity, economic stability, and national security are also expected to be affected by climate change. Climate model projections suggest that negative effects of climate change will significantly outweigh positive ones. The nation's ability to prepare for and adapt to new conditions may be exceeded as the rate of climate change increases.

Reducing our vulnerability to these impacts depends not only upon our ability to understand climate science and the implications of climate change, but also upon our ability to integrate and use that knowledge effectively. Changes in our economy and infrastructure as well as individual attitudes, societal values, and government policies will be required to alter the current trajectory of climate's impact on human lives. The resolve of individuals, communities, and countries to identify and implement effective management strategies for critical institutional and natural resources will be necessary to ensure the stability of both human and natural systems as temperatures rise.

This climate science literacy document focuses primarily on the physical and biological science aspects of climate and climate change. Yet as nations and the international community seek solutions to global climate change over the coming decades, a more comprehensive, interdisciplinary approach to climate literacy—one that includes economic and social considerations—will play a vital role in knowledgeable planning, decision making, and governance. A new effort is in development within the social sciences community to produce a companion document that will address these aspects of climate literacy. Together, these documents will promote informed decision-making and effective systems-level responses to climate change that reflect a fundamental understanding of climate science. It is imperative that these responses to climate change embrace the following guiding principle.

# GUIDING PRINCIPLE FOR INFORMED CLIMATE DECISIONS:

## Humans can take actions to reduce climate change and its impacts.

**A.** Climate information can be used to reduce vulnerabilities or enhance the resilience of communities and ecosystems affected by climate change. Continuing to improve scientific understanding of the climate system and the quality of reports to policy and decision-makers is [illegible].

**B.** Reducing human vulnerability to the impacts of climate change depends not only upon our ability to understand climate science, but also upon our ability to integrate that knowledge into human society. Decisions that involve Earth's climate must be made with an understanding of the complex inter-connections among the physical and biological components of the Earth system as well as the consequences of such decisions on social, economic, and cultural systems.

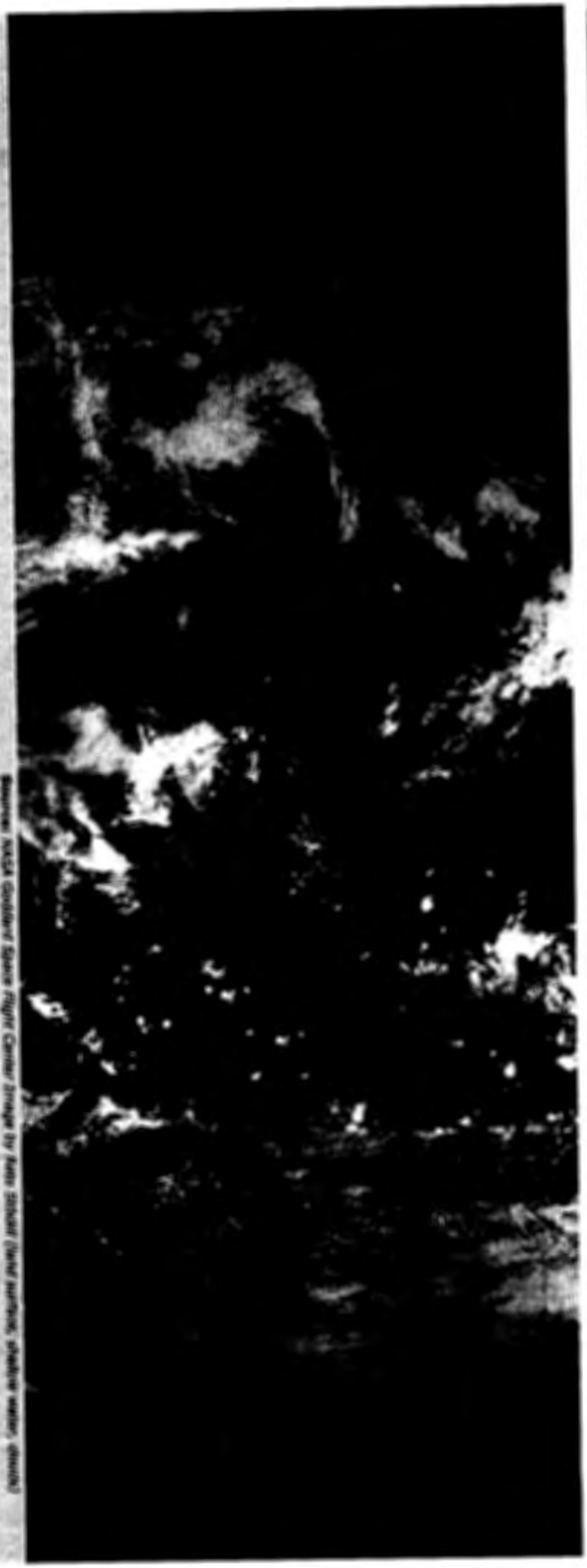
**C.** The impacts of climate change may affect the security of nations. Reduced availability of water, food, and land can lead to competition and conflict among humans, potentially resulting in large groups of climate refugees.

**D.** Humans may be able to mitigate climate change or lessen its severity by reducing greenhouse gas concentrations through processes that move carbon out of the atmosphere or reduce greenhouse gas emissions.

**E.** A combination of strategies is needed to reduce greenhouse gas emissions. The most immediate strategy is conservation of oil, gas, and coal, which we rely on as fuels for most of our transportation, heating, cooling, agriculture, and electricity. Short-term strategies involve switching from carbon-intensive to renewable energy sources, which also requires building new infrastructure for alternative energy sources. Long-term strategies involve innovative research and a fundamental change in the way humans use energy.

**F.** Humans can adapt to climate change by reducing their vulnerability to its impacts. Actions such as moving to higher ground to avoid rising sea levels, planting new crops that will thrive under new climate conditions, or using new building technologies represent adaptation strategies. Adaptation often requires financial investment in new or enhanced research, technology, and infrastructure.

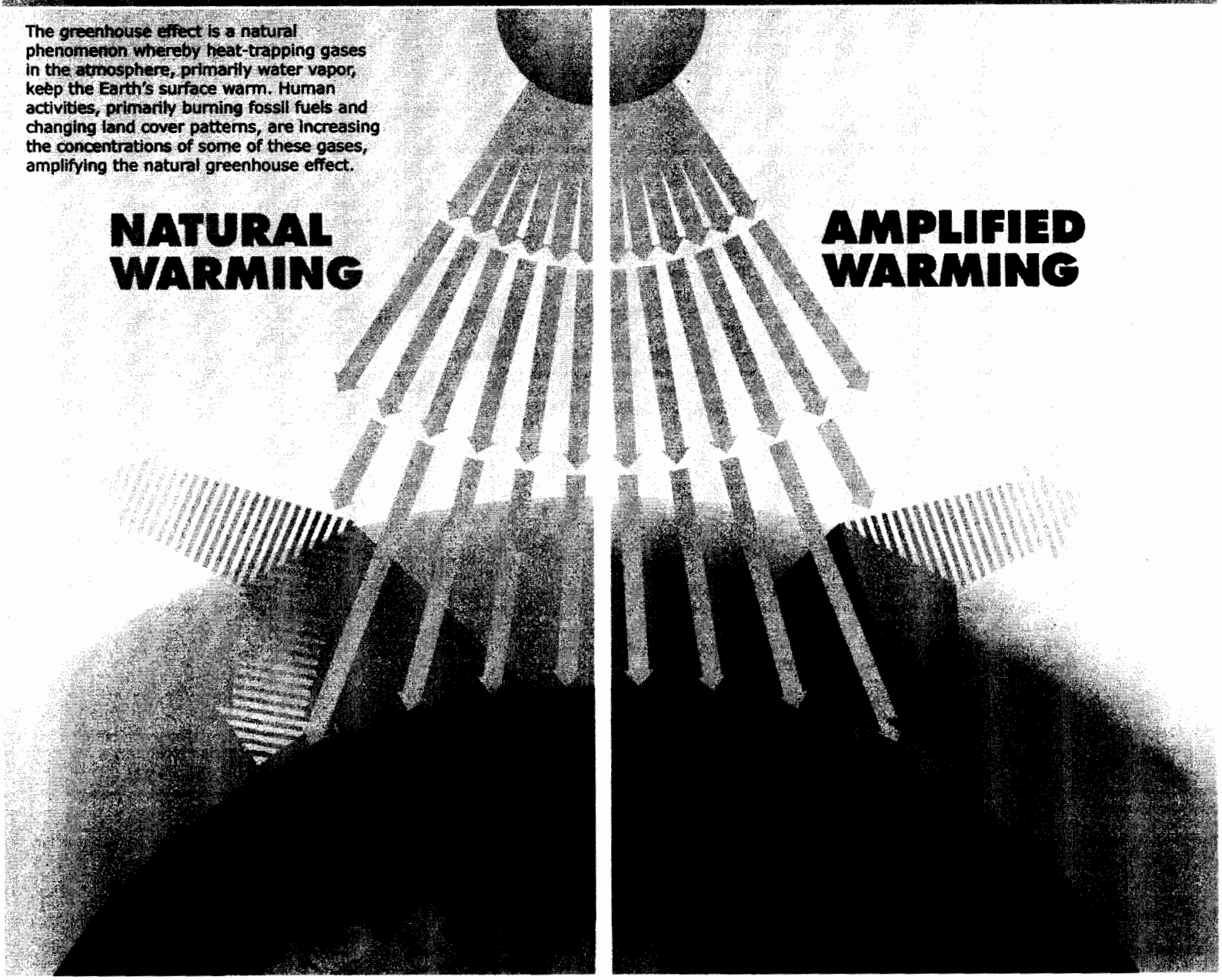
**G.** Actions taken by individuals, communities, states, and countries all influence climate. Practices and policies followed in homes, schools, businesses, and governments can affect climate. Climate-related decisions made by one generation can provide opportunities as well as limit the range of possibilities open to the next generation. Steps toward reducing the impact of climate change may influence the present generation by providing other benefits such as improved public health infrastructure and sustainable built environments.



Source: NASA Goddard Space Flight Center Image by Reto Stöckli (land surface, shallow water, clouds)

1

The greenhouse effect is a natural phenomenon whereby heat-trapping gases in the atmosphere, primarily water vapor, keep the Earth's surface warm. Human activities, primarily burning fossil fuels and changing land cover patterns, are increasing the concentrations of some of these gases, amplifying the natural greenhouse effect.



2

A. [illegible]

B. [illegible]

C. [illegible]

D. [illegible]

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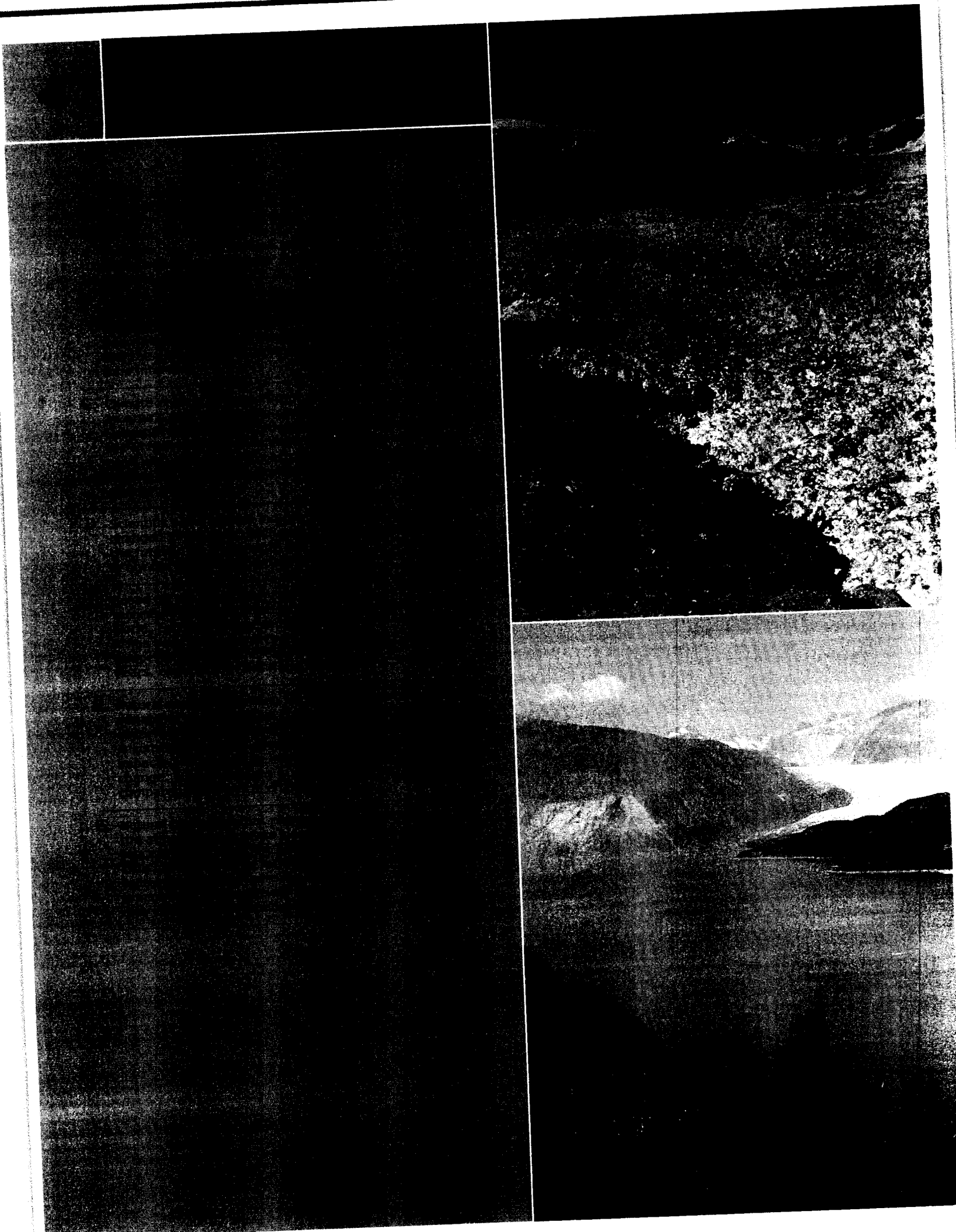


A. The components and processes of Earth's climate system are subject to the same physical laws as the rest of the Universe. Therefore, the [illegible] of the climate system can be understood and predicted through careful, systematic study.

B. Environmental observations are the foundation for understanding the climate system. From the [illegible] of the ocean to the surface of the [illegible] on weather stations, buoys, satellites, and other platforms collect [illegible] data. To learn about past climates, scientists use natural records, such as tree rings, ice cores, and sedimentary layers. Historical observations, such as native knowledge and personal journals, also document past climate change.

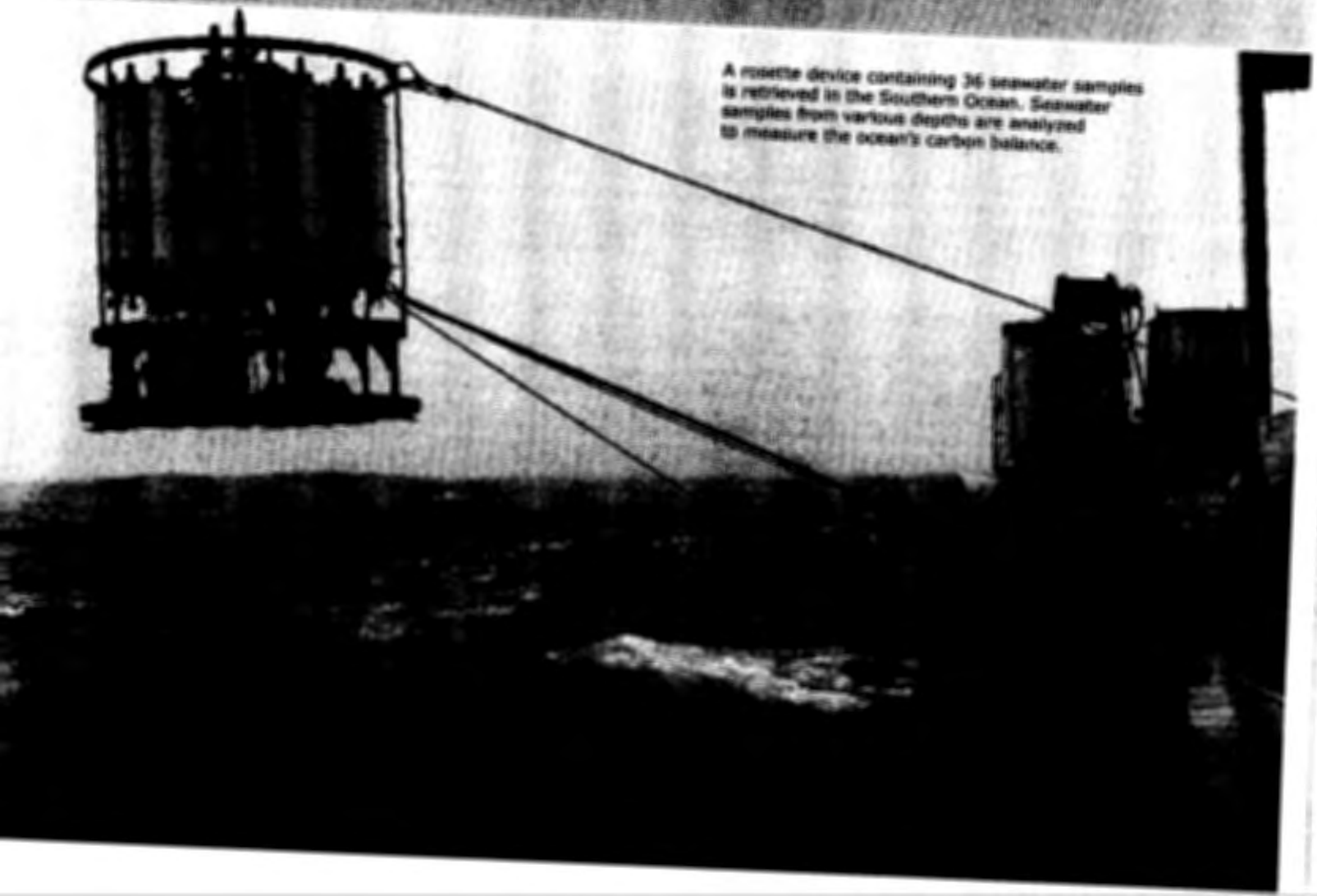
C. Observations, experiments, and theory are used to construct and refine computer models that represent the climate system and make predictions about its future behavior. Results from these models lead to better understanding of the [illegible] between the atmosphere-ocean system and climate conditions and inspire more observations and experiments. Over time, this iterative process will result in more reliable projections of future climate conditions.

D. Our understanding of climate differs in important [illegible] understanding of weather. Climate [illegible] ability to predict climate patterns months, [illegible] or decades into the future is constrained [illegible] than those faced by [illegible] in forecasting weather days to weeks into the future.[1]

E. [illegible] have conducted extensive research on the [illegible] characteristics of the climate system and [illegible] understanding will continue to improve. Current [illegible] change projections are reliable enough to help [illegible] evaluate potential decisions and actions in [illegible] to climate change.

1. [illegible] "Climate Change: An Information Statement of the American Meteorological Society," 2007

Source: B. Campworth © 2008



A rosette device containing 36 seawater samples is retrieved in the Southern Ocean. Seawater samples from various depths are analyzed to measure the ocean's carbon balance.

A. The overwhelming consensus of scientific studies on climate indicates that most of the observed increase in global average temperatures since the latter part of the 20th century is very likely due to human activities, primarily from increases in greenhouse gas concentrations resulting from the burning of fossil fuels.[2]

B. Emissions from the widespread burning of fossil fuels since the start of the Industrial Revolution have increased the concentration of greenhouse gases in the atmosphere. Because these gases can remain in the atmosphere for hundreds of [illegible] being removed by natural processes, their [illegible] influence is projected to persist into the [illegible].

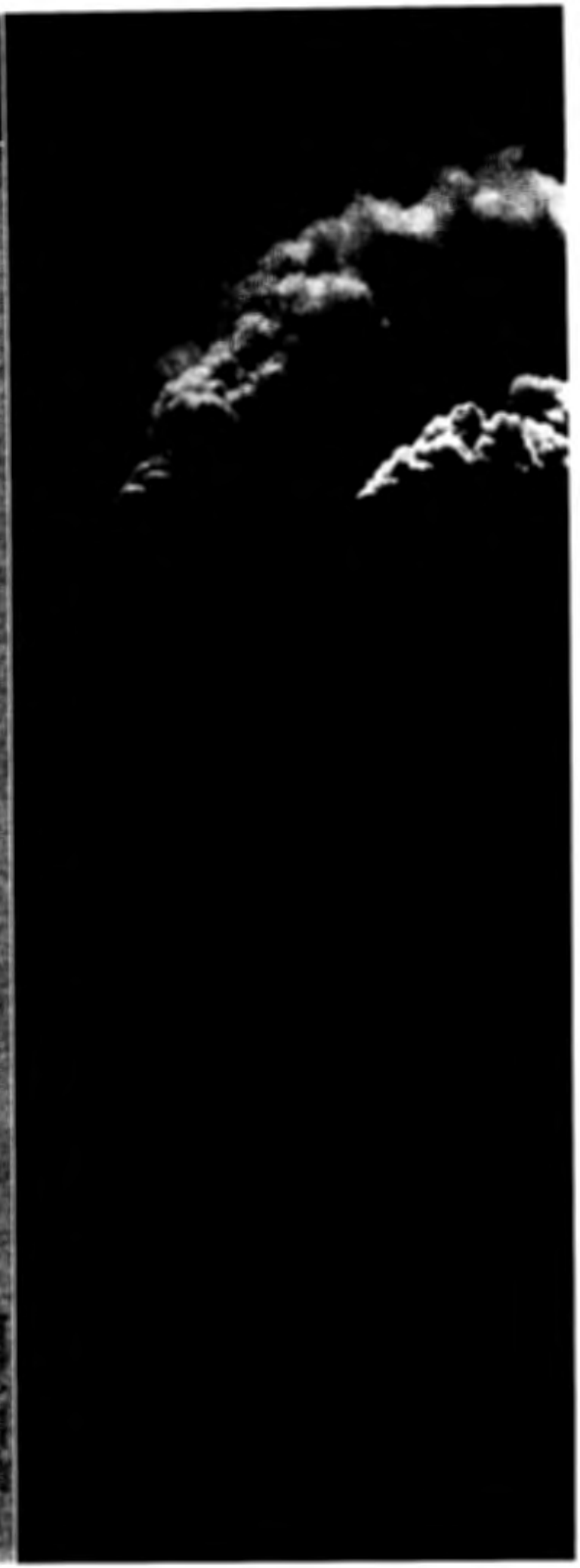
C. Human activities have affected the [illegible], [illegible], and atmosphere, and these changes have altered global climate patterns. Burning fossil fuels, [illegible] chemicals into the atmosphere, reducing the amount of forest cover, and rapid expansion of farming, development, and industrial activities [illegible] carbon dioxide into the atmosphere [illegible] the balance of the climate system.

D. Growing evidence shows that changes in many physical and biological systems are linked to human-caused global warming.[3] Some changes resulting from human activities have decreased the capacity of the environment to support [illegible] and have substantially reduced ecosystem [illegible] and ecological resilience.

E. Scientists and economists predict that there will be both positive and negative impacts from global climate change. If warming exceeds 2 to 4°C (2.8 to 5.4°F) over the next century, the consequences of the negative impacts are likely to be much greater than the consequences of the positive impacts.

2. Based on IPCC, 2007: The Physical Science Basis. Contribution of Working Group I.

3. Based on IPCC, 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II.



*Climate Literacy: The Essential Principles of Climate*

## FURTHER INFORMATION

For future revisions and changes to this document or to see documentation of the process used to develop this brochure, please visit www.climate.noaa.gov/education.

In addition, further information relating to climate literacy and climate resources can be found at:

- earthobservatory.nasa.gov
- www.epa.gov/climatechange
- http://nsdl.org
- www.climate.gov


U.S. Global Change Research Program
1717 Pennsylvania Avenue, NW Suite 250 Washington DC 20006 USA
+1.202.223.6262 (Voice) + 1.202.223.3065 (Fax)
http://www.globalchange.gov
climate.literacy@globalchange.gov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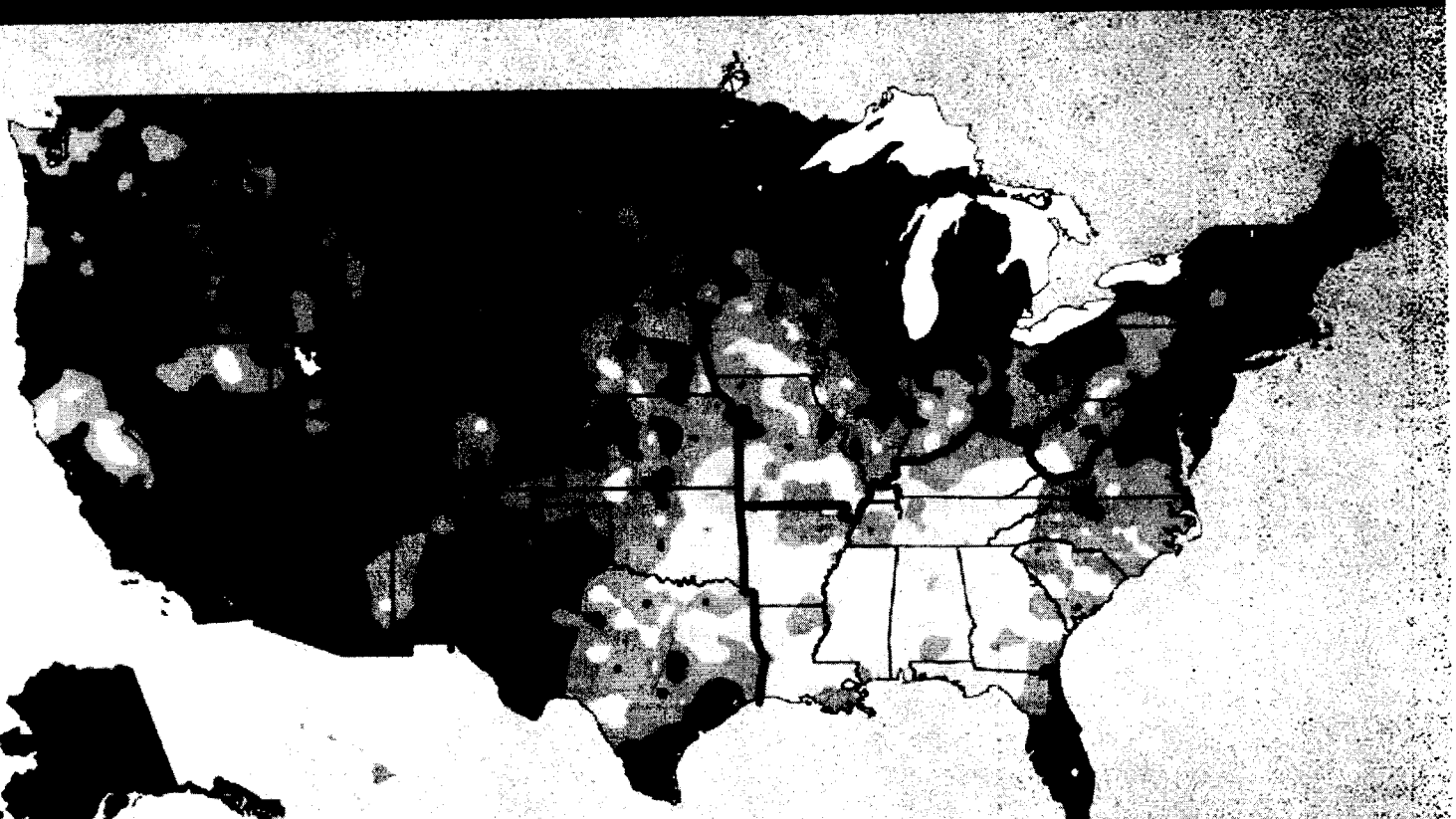

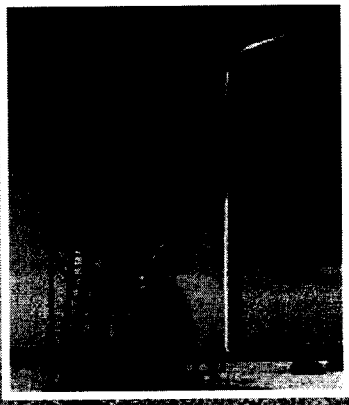

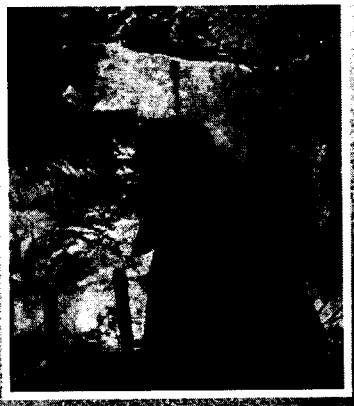

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May 2014

Members of Congress:

On behalf of the National Science and Technology Council and the U.S. Global Change Research Program, we are pleased to transmit the report of the Third National Climate Assessment: *Climate Change Impacts in the United States.* As required by the Global Change Research Act of 1990, this report has collected, evaluated, and integrated observations and research on climate change in the United States. It focuses both on changes that are happening now and further changes that we can expect to see throughout this century.

This report is the result of a three-year analytical effort by a team of over 300 experts, overseen by a broadly constituted Federal Advisory Committee of 60 members. It was developed from information and analyses gathered in over 70 workshops and listening sessions held across the country. It was subjected to extensive review by the public and by scientific experts in and out of government, including a special panel of the National Research Council of the National Academy of Sciences. This process of unprecedented rigor and transparency was undertaken so that the findings of the National Climate Assessment would rest on the firmest possible base of expert judgment.

We gratefully acknowledge the authors, reviewers, and staff who have helped prepare this Third National Climate Assessment. Their work in assessing the rapid advances in our knowledge of climate science over the past several years has been outstanding. Their findings and key messages not only describe the current state of that science but also the current and future impacts of climate change on major U.S. regions and key sectors of the U.S. economy. This information establishes a strong base that government at all levels of U.S. society can use in responding to the twin challenges of changing our policies to mitigate further climate change and preparing for the consequences of the climate changes that can no longer be avoided. It is also an important scientific resource to empower communities, businesses, citizens, and decision makers with information they need to prepare for and build resilience to the impacts of climate change.

When President Obama launched his Climate Action Plan last year, he made clear that the essential information contained in this report would be used by the Executive Branch to underpin future policies and decisions to better understand and manage the risks of climate change. We strongly and respectfully urge others to do the same.

Sincerely,

Dr. John P. Holdren
Assistant to the President for Science and Technology
Director, Office of Science and Technology Policy
Executive Office of the President

Dr. Kathryn D. Sullivan
Under Secretary for Oceans and Atmosphere
NOAA Administrator
U.S. Department of Commerce

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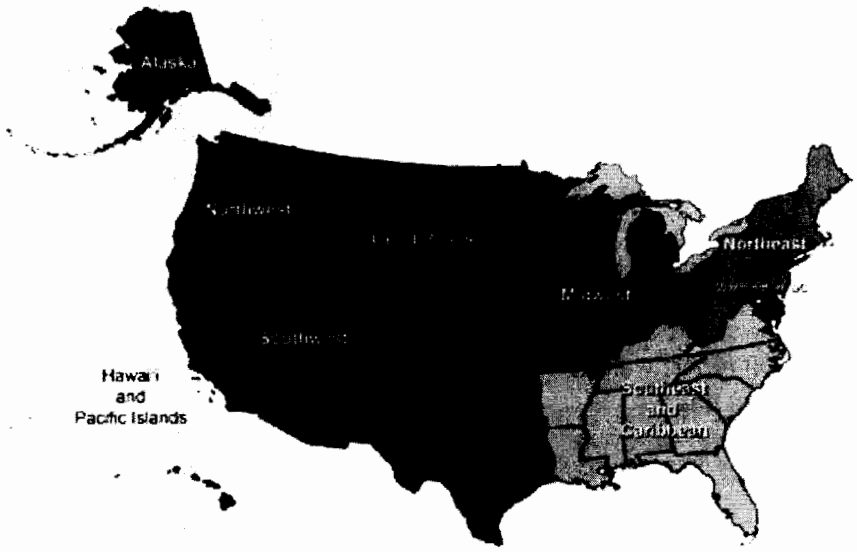


# CHAPTER ICONS

In the lower left corner of each section, these icons identify which chapters of the full report were drawn upon for that section.

- Our Changing Climate
- Water Resources
- Energy Supply and Use
- Transportation
- Agriculture
- Forests
- Ecosystems and Biodiversity
- Human Health
- Energy, Water, and Land Use
- Urban Systems and Infrastructure
- Indigenous Peoples, Lands, and Resources
- Land Use and Land Cover Change
- Rural Communities
- Biogeochemical Cycles
- Northeast
- Southeast and Caribbean
- Midwest
- Great Plains
- Southwest
- Northwest
- Alaska
- Hawai'i and U.S. Affiliated Pacific Islands
- Oceans and Marine Resources
- Coastal Zones
- Decision Support
- Mitigation
- Adaptation
- APP — Appendix 3: Climate Science Supplement
- FAQ — Appendix 4: Frequently Asked Questions

Climate change, once considered an issue for a distant future, has moved firmly into the present. Corn producers in Iowa, oyster growers in Washington State, and maple syrup producers in Vermont are all observing climate-related changes that are outside of recent experience. So, too, are coastal planners in Florida, water managers in the arid Southwest, city dwellers from Phoenix to New York, and Native Peoples on tribal lands from Louisiana to Alaska. This National Climate Assessment concludes that the evidence of human-induced climate change continues to strengthen and that impacts are increasing across the country.

Americans are noticing changes all around them. Summers are longer and hotter, and extended periods of unusual heat last longer than any living American has ever experienced. Winters are generally shorter and warmer. Rain comes in heavier downpours. People are seeing changes in the length and severity of seasonal allergies, the plant varieties that thrive in their gardens, and the kinds of birds they see in any particular month in their neighborhoods.

Other changes are even more dramatic. Residents of some coastal cities see their streets flood more regularly during storms and high tides. Inland cities near large rivers also experience more flooding, especially in the Midwest and Northeast. Insurance rates are rising in some vulnerable locations, and insurance is no longer available in others. Hotter and drier weather and earlier snow melt mean that wildfires in the West start earlier in the spring, last later into the fall, and burn more acreage. In Arctic Alaska, the summer sea ice that once protected the coasts has receded, and autumn storms now cause more erosion, threatening many communities with relocation.

Scientists who study climate change confirm that these observations are consistent with significant changes in Earth's climatic trends. Long-term, independent records from weather stations, satellites, ocean buoys, tide gauges, and many other data sources all confirm that our nation, like the rest of the world, is warming. Precipitation patterns are changing, sea level is rising, the oceans are becoming more acidic, and the frequency and intensity of some extreme weather events are increasing. Many lines of independent evidence demonstrate that the rapid warming of the past half-century is due primarily to human activities.

The observed warming and other climatic changes are triggering wide-ranging impacts in every region of our country and throughout our economy. Some of these changes can be beneficial over the short run, such as a longer growing season in some regions and a longer shipping season on the Great Lakes. But many more are detrimental, largely because our society and its infrastructure were designed for the climate that we have had, not the rapidly changing climate we now have and can expect in the future. In addition, climate change does not occur in isolation. Rather, it is superimposed on other stresses, which combine to create new challenges.

This National Climate Assessment collects, integrates, and assesses observations and research from around the country, helping us to see what is actually happening and understand what it means for our lives,

our livelihoods, and our future. The report includes analyses of impacts on seven sectors – human health, water, energy, transportation, agriculture, forests, and ecosystems – and the interactions among sectors at the national level. The report also assesses key impacts on all U.S. regions: Northeast, Southeast and Caribbean, Midwest, Great Plains, Southwest, Northwest, Alaska, Hawai`i and Pacific Islands, as well as the country's coastal areas, oceans, and marine resources.

Over recent decades, climate science has advanced significantly. Increased scrutiny has led to increased certainty that we are now seeing impacts associated with human-induced climate change. With each passing year, the accumulating evidence further expands our understanding and extends the record of observed trends in temperature, precipitation, sea level, ice mass, and many other variables recorded by a variety of measuring systems and analyzed by independent research groups from around the world. It is notable that as these data records have grown longer and climate models have become more comprehensive, earlier predictions have largely been confirmed. The only real surprises have been that some changes, such as sea level rise and Arctic sea ice decline, have outpaced earlier projections.

What is new over the last decade is that we know with increasing certainty that climate change is happening now. While scientists continue to refine projections of the future, observations unequivocally show that climate is changing and that the warming of the past 50 years is primarily due to human-induced emissions of heat-trapping gases. These emissions come mainly from burning coal, oil, and gas, with additional contributions from forest clearing and some agricultural practices.

Global climate is projected to continue to change over this century and beyond, but there is still time to act to limit the amount of change and the extent of damaging impacts.

This report documents the changes already observed and those projected for the future.

It is important that these findings and response options be shared broadly to inform citizens and communities across our nation. Climate change presents a major challenge for society. This report advances our understanding of that challenge and the need for the American people to prepare for and respond to its far-reaching implications.

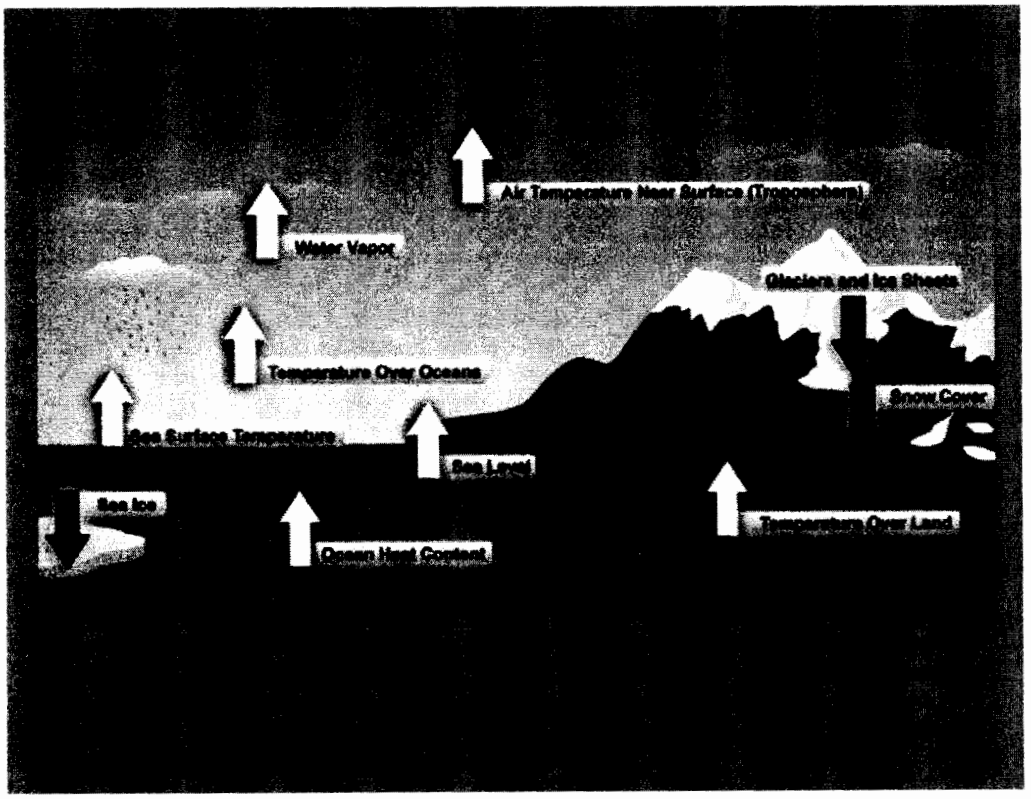
Climate change is already affecting the American people in far-reaching ways. Certain types of extreme weather events with links to climate change have become more frequent and/or intense, including prolonged periods of heat, heavy downpours, and, in some regions, floods and droughts. In addition, warming is causing sea level to rise and glaciers and Arctic sea ice to melt, and oceans are becoming more acidic as they absorb carbon dioxide. These and other aspects of climate change are disrupting people's lives and damaging some sectors of our economy.

Coal-fired power plants emit heat-trapping carbon dioxide to the atmosphere.

## Climate Change: Present and Future

Evidence for climate change abounds, from the top of the atmosphere to the depths of the oceans. Scientists and engineers from around the world have meticulously collected this evidence, using satellites and networks of weather balloons, thermometers, buoys, and other observing systems. Evidence of climate change is also visible in the observed and measured changes in location and behavior of species and functioning of ecosystems. Taken together, this evidence tells an unambiguous story: the planet is warming, and over the last half century, this warming has been driven primarily by human activity.

Multiple lines of independent evidence confirm that human activities are the primary cause of the global warming of the past 50 years. The burning of coal, oil, and gas, and clearing of forests have increased the concentration of carbon dioxide in the atmosphere by more than 40% since the Industrial Revolution, and it has been known for almost two centuries that this carbon dioxide traps heat. Methane and nitrous oxide emissions from agriculture and other human activities add to the atmospheric burden of heat-trapping gases. Data show that natural factors like the sun and volcanoes cannot have caused the warming observed over the past 50 years. Sensors on satellites have measured the sun's output with great accuracy and found no overall increase during the past half century. Large volcanic eruptions during this period, such as Mount Pinatubo in 1991, have exerted a short-term *cooling* influence. In fact, if not for human activities, global climate would actually have cooled slightly over the past 50 years. The pattern of temperature change through the layers of the atmosphere, with warming near the surface and cooling higher up in the stratosphere, further confirms that it is the buildup of heat-trapping gases (also known as "greenhouse gases") that has caused most of the Earth's warming over the past half century.

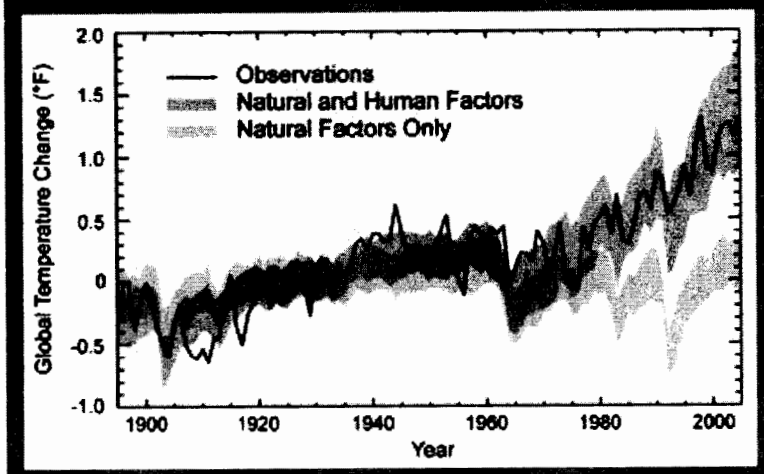



Because human-induced warming is superimposed on a

background of natural variations in climate, warming is not uniform over time. Short-term fluctuations in the long-term upward trend are thus natural and expected. For example, a recent slowing in the rate of surface air temperature rise appears to be related to cyclic changes in the oceans and in the sun's energy output, as well as a series of small volcanic eruptions and other factors. Nonetheless, global temperatures are still on the rise and are expected to rise further.

U.S. average temperature has increased by 1.3°F to 1.9°F since 1895, and most of this increase has occurred since 1970. The most recent decade was the nation's and the world's hottest on record, and 2012 was the hottest year on record in the continental United States. All U.S. regions have experienced warming in recent decades, but the extent of warming has not been uniform. In general, temperatures are rising more quickly in the north. Alaskans have experienced some of the largest increases in temperature between 1970 and the present. People living in the Southeast have experienced some of the smallest temperature increases over this period.

## Separating Human and Natural Influences on Climate

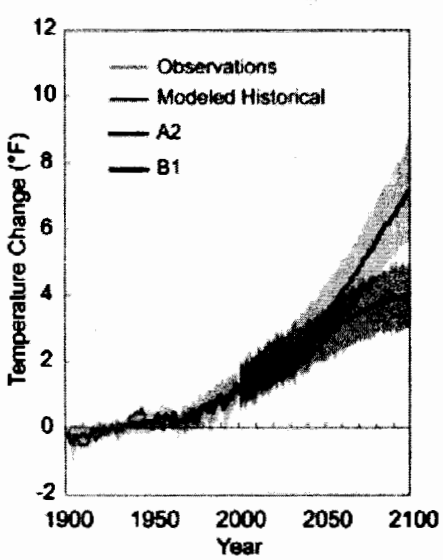



sion of human influences can models reproduce the observed temperature

Temperatures are projected to rise another 2°F to 4°F in most areas of the United States over the next few decades. Reductions in some short-lived human-induced emissions that contribute to warming, such as black carbon (soot) and methane, could reduce some of the projected warming over the next couple of decades, because, unlike carbon dioxide, these gases and particles have relatively short atmospheric lifetimes.

The amount of warming projected beyond the next few decades is directly linked to the cumulative global emissions of heat-trapping gases and particles. By the end of this century, a roughly 3°F to 5°F rise is projected under a lower emissions scenario, which would require substantial reductions in emissions (referred to as the "B1 scenario"), and a 5°F to 10°F rise for a higher emissions scenario assuming continued increases in emissions, predominantly from fossil fuel combustion (referred to as the "A2 scenario"). These projections are based on results from 16 climate models that used the two emissions scenarios in a formal inter-model comparison study. The range of model projections for each emissions scenario is the result of the differences in the ways the models represent key factors such as water vapor, ice and snow reflectivity, and clouds, which can either dampen or amplify the initial effect of human influences on temperature. The net effect of these feedbacks is expected to amplify warming. More information about the models and scenarios used in this report can be found in Appendix 5 of the full report.[1]

## Projected Global Temperature Change




Different amounts of heat-trapping gases released into the atmosphere by human activities produce different projected increases in Earth's temperature. The lines on the graph represent a central estimate of global average temperature rise (relative to the 1901-1960 average) for the two main scenarios used in this report. A2 assumes continued increases in emissions throughout this century, and B1 assumes significant emissions reductions, though not due explicitly to climate change policies. Shading indicates the range (5th to 95th percentile) of results from a suite of climate models. In both cases, temperatures are expected to rise, although the difference between lower and higher emissions pathways is substantial. (Figure source: NOAA NCDC / CICS-NC).

# OVERVIEW

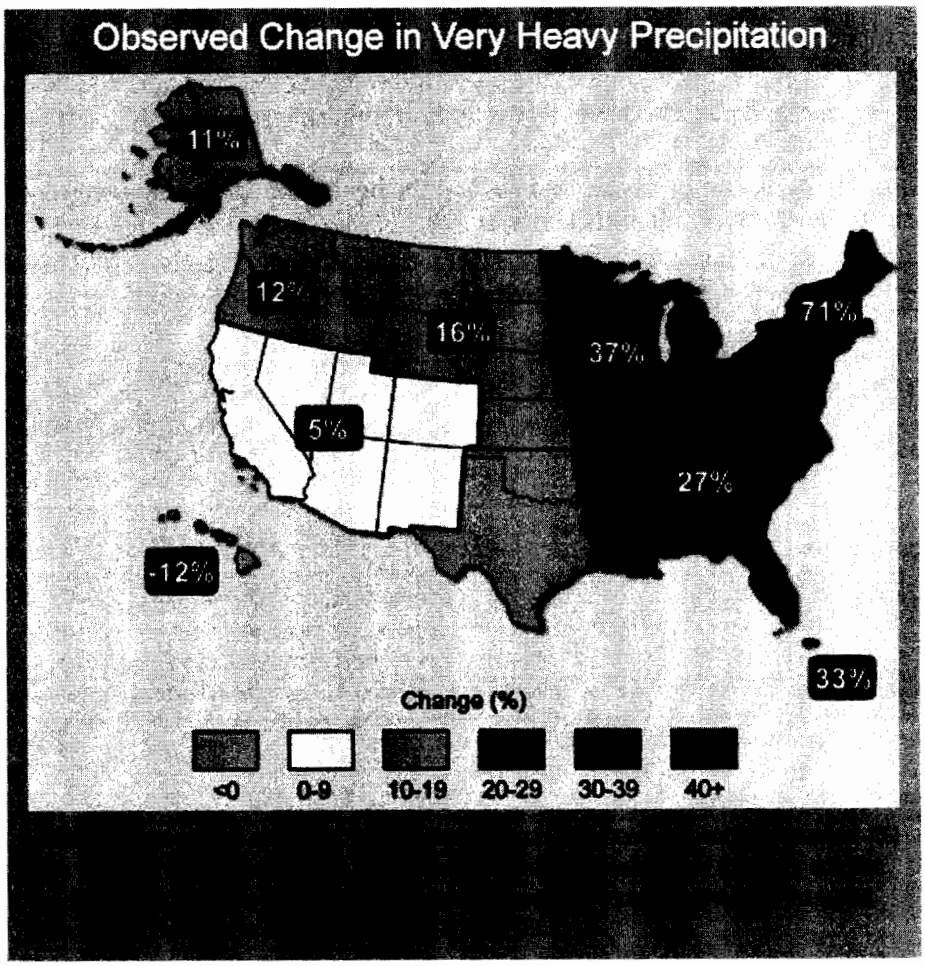
Prolonged periods of high temperatures and the persistence of high nighttime temperatures have increased in many locations (especially in urban areas) over the past half century. High nighttime temperatures have widespread impacts because people, livestock, and wildlife get no respite from the heat. In some regions, prolonged periods of high temperatures associated with droughts contribute to conditions that lead to larger wildfires and longer fire seasons. As expected in a warming climate, recent trends show that extreme heat is becoming more common, while extreme cold is becoming less common. Evidence indicates that the human influence on climate has already roughly doubled the probability of extreme heat events such as the record-breaking summer heat experienced in 2011 in Texas and Oklahoma. The incidence of record-breaking high temperatures is projected to rise.[2]

Human-induced climate change means much more than just hotter weather. Increases in ocean and freshwater temperatures, frost-free days, and heavy downpours have all been documented. Global sea level has risen, and there have been large reductions in snow-cover extent, glaciers, and sea ice. These changes and other climatic changes have affected and will continue to affect human health, water supply, agriculture, transportation, energy, coastal areas, and many other sectors of society, with increasingly adverse impacts on the American economy and quality of life.[3]

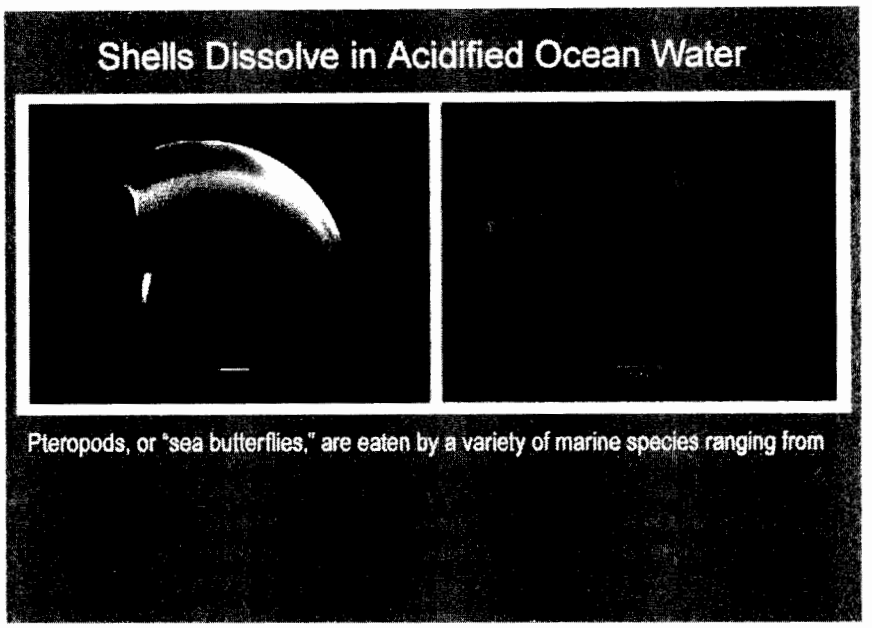
Some of the changes discussed in this report are common to many regions. For example, large increases in heavy precipitation have occurred in the Northeast, Midwest, and Great Plains, where heavy downpours have frequently led to runoff that exceeded the capacity of storm drains and levees, and caused flooding events and accelerated erosion. Other impacts, such as those associated with the rapid thawing of permafrost in Alaska, are unique to a particular U.S. region. Permafrost thawing is causing extensive damage to infrastructure in our nation's largest state.[4]

Some impacts that occur in one region ripple beyond that region. For example, the dramatic decline of summer sea ice in the Arctic – a loss of ice cover roughly equal to half the area of the continental United States – exacerbates global warming by reducing the reflectivity of Earth's surface and increasing the amount of heat absorbed. Similarly, smoke from wildfires in one location can contribute to poor air quality in faraway regions, and evidence suggests that particulate matter can affect atmospheric properties and therefore weather patterns. Major storms and the higher storm surges exacerbated by sea level rise that hit the Gulf Coast affect the entire country through their cascading effects on oil and gas production and distribution.[5]

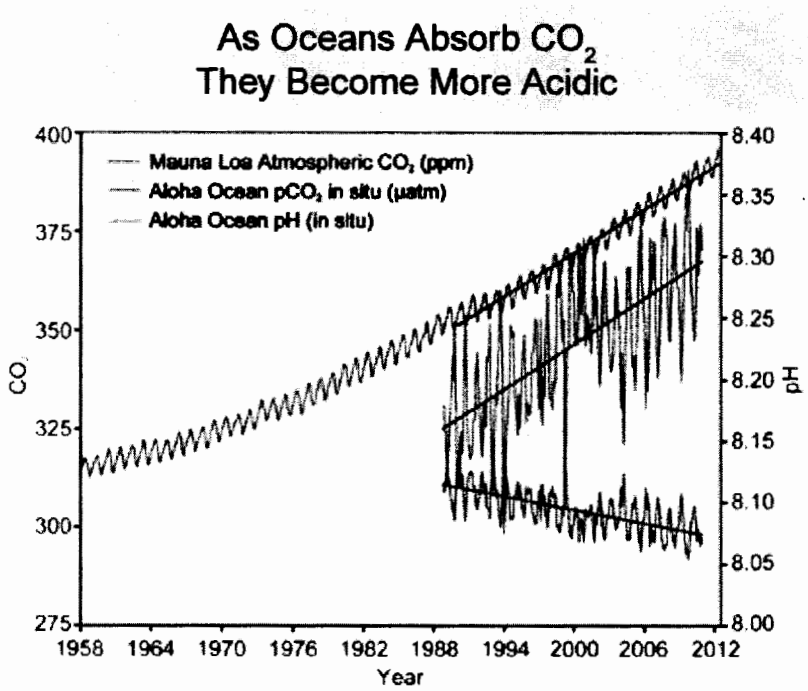
Water expands as it warms, causing global sea levels to rise; melting of land-based ice also raises sea level by adding water to the oceans. Over the past century, global average sea level has risen by about 8 inches. Since 1992, the rate of global sea level rise measured by satellites has been roughly twice the rate observed over the last century, providing evidence of acceleration. Sea level rise,



combined with coastal storms, has increased the risk of erosion, storm surge damage, and flooding for coastal communities, especially along the Gulf Coast, the Atlantic seaboard, and in Alaska. Coastal infrastructure, including roads, rail lines, energy infrastructure, airports, port facilities, and military bases, are increasingly at risk from sea level rise and damaging storm surges. Sea level is projected to rise by another 1 to 4 feet in this century, although the rise in sea level in specific regions is expected to vary from this global average for a number of reasons. A wider range of scenarios, from 8 inches to more than 6 feet by 2100, has been used in risk-based analyses in this report. In general, higher emissions scenarios that lead to more warming would be expected to lead to higher amounts of sea level rise. The stakes are high, as nearly five million Americans and hundreds of billions of dollars of property are located in areas that are less than four feet above the local high-tide level.[6]




In addition to causing changes in climate, increasing levels of carbon dioxide from the burning of fossil fuels and other human activities have a direct effect on the world's oceans. Carbon dioxide interacts with ocean water to form carbonic acid, increasing the ocean's acidity. Ocean surface waters have become 30% more acidic over the last 250 years as they have absorbed large amounts of carbon dioxide from the atmosphere. This ocean acidification makes water more corrosive, reducing the capacity of marine organisms with shells or skeletons made of calcium carbonate (such as corals, krill, oysters, clams, and crabs) to survive, grow, and reproduce, which in turn will affect the marine food chain.[7]




The correlation between rising levels of carbon dioxide in the atmosphere (red) with rising carbon dioxide levels (blue) and falling pH in the ocean (green). As carbon dioxide accumulates in the ocean, the water becomes more acidic (the pH declines). (Figure source: modified from Feely et al. 2009[8]).

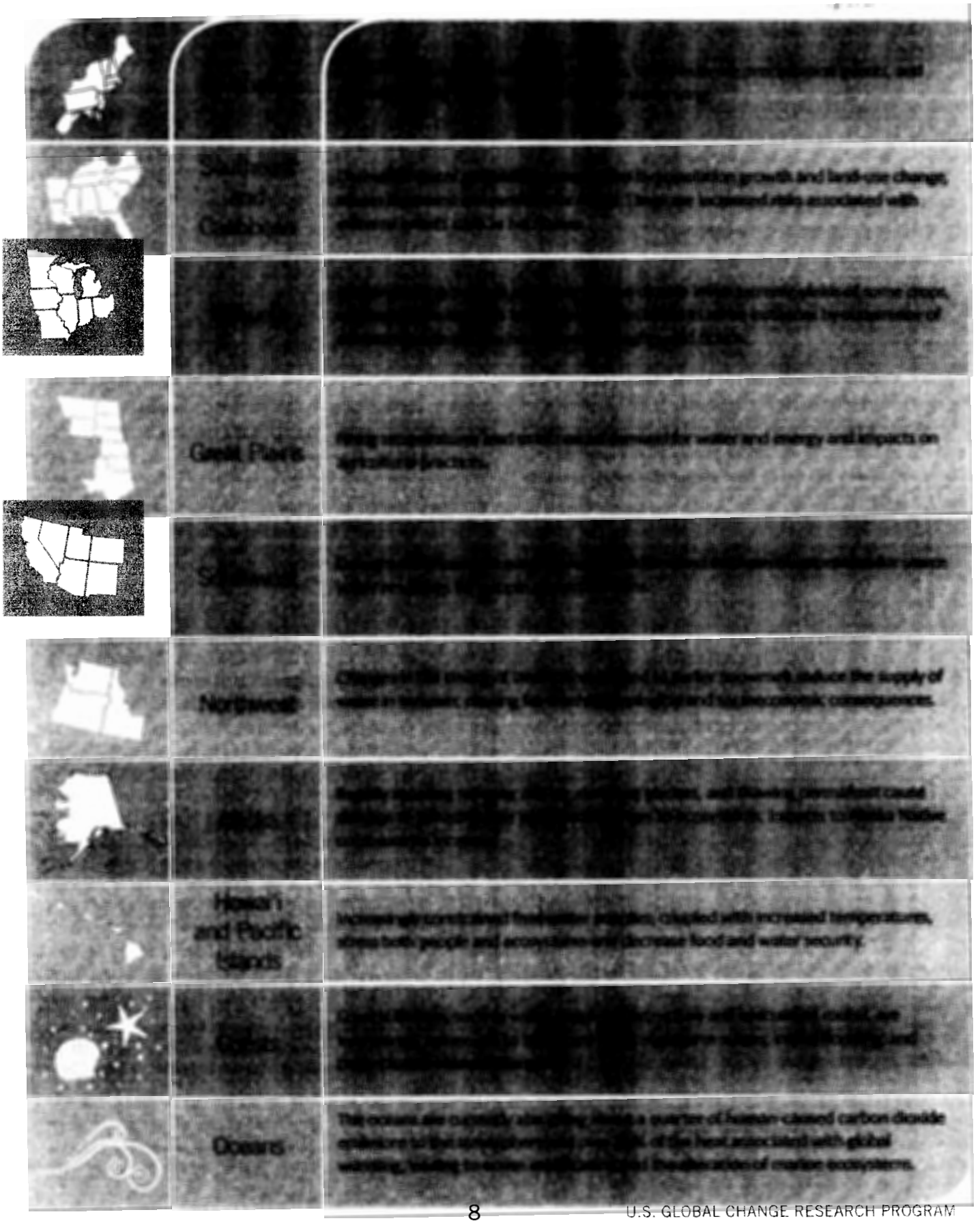
## Widespread Impacts

Impacts related to climate change are already evident in many regions and sectors and are expected to become increasingly disruptive across the nation throughout this century and beyond. Climate changes interact with other environmental and societal factors in ways that can either moderate or intensify these impacts.

Some climate changes currently have beneficial effects for specific sectors or regions. For example, current benefits of warming include longer growing seasons for agriculture and longer ice-free periods for shipping on the Great Lakes. At the same time, however, longer growing seasons, along with higher temperatures and carbon dioxide levels, can increase pollen production, intensifying and lengthening the allergy season. Longer ice-free periods on the Great Lakes can result in more lake-effect snowfalls.

# OVERVIEW

Observed and projected climate change impacts vary across the regions of the United States. Selected impacts emphasized in the regional chapters are shown below, and many more are explored in detail in this report.



Sectors affected by climate changes include agriculture, water, human health, energy, transportation, forests, and ecosystems. Climate change poses a major challenge to U.S. agriculture because of the critical dependence of agricultural systems on climate. Climate change has the potential to both positively and negatively affect the location, timing, and productivity of crop, livestock, and fishery systems at local, national, and global scales. The United States produces nearly $330 billion per year in agricultural commodities. This productivity is vulnerable to direct impacts on crops and livestock from changing climate conditions and extreme weather events and indirect impacts through increasing pressures from pests and pathogens. Climate change will also alter the stability of food supplies and create new food security challenges for the United States as the world seeks to feed nine billion people by 2050. While the agriculture sector has proven to be adaptable to a range of stresses, as evidenced by continued growth in production and efficiency across the United States, climate change poses a new set of challenges.[8]

Water quality and quantity are being affected by climate change. Changes in precipitation and runoff, combined with changes in consumption and withdrawal, have reduced surface and groundwater supplies in many areas. These trends are expected to continue, increasing the likelihood of water shortages for many uses. Water quality is also diminishing in many areas, particularly due to sediment and contaminant concentrations after heavy downpours.

Increasing air and water temperatures, more intense precipitation and runoff, and intensifying droughts can decrease water quality in many ways. Here, middle school students in Colorado test water quality.

Climate change can exacerbate respiratory and asthma-related conditions through increases in pollen, ground-level ozone, and wildfire smoke.

Sea level rise, storms and storm surges, and changes in surface and groundwater use patterns are expected to compromise the sustainability of coastal freshwater aquifers and wetlands. In most U.S. regions, water resources managers and planners will encounter new risks, vulnerabilities, and opportunities that may not be properly managed with existing practices.[9]

Certain groups of people are more vulnerable to the range of climate change related health impacts, including the elderly, children, the poor, and the sick.

Climate change affects human health in many ways. For example, increasingly frequent and intense heat events lead to more heat-related illnesses and deaths and, over time, worsen drought and wildfire risks, and intensify air pollution. Increasingly frequent extreme precipitation and associated flooding can lead to injuries and increases in waterborne disease. Rising sea surface temperatures have been linked with increasing levels and ranges of diseases. Rising sea levels intensify coastal flooding and storm surge, and thus exacerbate threats to public safety during storms. Certain groups of people are more vulnerable to the range of climate change related health impacts, including the elderly, children, the poor, and the sick. Others are vulnerable because of where they live, including those in floodplains, coastal zones, and some urban areas. Improving and properly supporting the public health infrastructure will be critical to managing the potential health impacts of climate change.[10]

Climate change also affects the living world, including people, through changes in ecosystems and biodiversity. Ecosystems provide a rich array of benefits and services to humanity, including habitat for fish and wildlife, drinking water storage and filtration, fertile soils for growing crops, buffering against a range of stressors including climate change impacts, and aesthetic and cultural values. These

benefits are not always easy to quantify, but they support jobs, economic growth, health, and human well-being. Climate change driven disruptions to ecosystems have direct and indirect human impacts, including reduced water supply and quality, the loss of iconic species and landscapes, effects on food chains and the timing and success of species migrations, and the potential for extreme weather and climate events to destroy or degrade the ability of ecosystems to provide societal benefits.[11]

Human modifications of ecosystems and landscapes often increase their vulnerability to damage from extreme weather events, while simultaneously reducing their natural capacity to moderate the impacts of such events. For example, salt marshes, reefs, mangrove forests, and barrier islands defend coastal ecosystems and infrastructure, such as roads and buildings, against storm surges. The loss of these natural buffers due to coastal development, erosion, and sea level rise increases the risk of catastrophic damage during or after extreme weather events. Although floodplain wetlands are greatly reduced from their historical extent, those that remain still absorb floodwaters and reduce the effects of high flows on river-margin lands. Extreme weather events that produce sudden increases in water flow, often carrying debris and pollutants, can decrease the natural capacity of ecosystems to cleanse contaminants.[12]

The amount of future climate change will still largely be determined by choices society makes about emissions.

The climate change impacts being felt in the regions and sectors of the United States are affected by global trends and economic decisions. In an increasingly interconnected world, U.S. vulnerability is linked to impacts in other nations. It is thus difficult to fully evaluate the impacts of climate change on the United States without considering consequences of climate change elsewhere.

## Response Options

As the impacts of climate change are becoming more prevalent, Americans face choices. Especially because of past emissions of long-lived heat-trapping gases, some additional climate change and related impacts are now unavoidable. This is due to the long-lived nature of many of these gases, as well as the amount of heat absorbed and retained by the oceans and other responses within the climate system. The amount of future climate change, however, will still largely be determined by choices society makes about emissions. Lower emissions of heat-trapping gases and particles mean less future warming and less-severe impacts; higher emissions mean more warming and more severe impacts. Efforts to limit emissions or increase carbon uptake fall into a category of response options known as "mitigation," which refers to reducing the amount and speed of future climate change by reducing emissions of heat-trapping gases or removing carbon dioxide from the atmosphere.[13]

The other major category of response options is known as "adaptation," and refers to actions to prepare for and adjust to new conditions, thereby reducing harm or taking advantage of new opportunities. Mitigation and adaptation actions are linked in multiple ways, including that effective mitigation reduces the need for adaptation in the future. Both are essential parts of a comprehensive climate change response strategy. The threat of irreversible impacts makes the timing of mitigation efforts particularly critical. This report includes chapters on Mitigation, Adaptation, and Decision Support that offer an overview of the options and activities being planned or implemented around the country as local, state, federal, and tribal governments, as well as businesses, organizations, and individuals begin to respond to climate change. These chapters conclude that while response actions are under development, current implementation efforts are insufficient to avoid increasingly negative social, environmental, and economic consequences.[14]

Large reductions in global emissions of heat-trapping gases, similar to the lower emissions scenario (B1) analyzed in this assessment, would reduce the risks of some of the damaging impacts of climate change. Some targets called for in international climate negotiations to date would require even larger reductions than those outlined in the B1 scenario. Meanwhile, global emissions are still rising and are on a path to be even higher than the high emissions scenario (A2) analyzed in this report. The recent U.S. contribution to annual global emissions is about 18%, but the U.S. contribution to cumulative global emissions over the last century is much higher. Carbon dioxide lasts for a long time in the atmosphere, and it is the cumulative carbon emissions that determine the amount of global climate change. After decades of increases, U.S. $CO_2$ emissions from energy use (which account for 97% of total U.S. emissions) declined by around 9% between 2008 and 2012, largely due to a shift from coal to less $CO_2$-intensive nat-

ural gas for electricity production. Governmental actions in city, state, regional, and federal programs to promote energy efficiency have also contributed to reducing U.S. carbon emissions. Many, if not most of these programs are motivated by other policy objectives, but some are directed specifically at greenhouse gas emissions. These U.S. actions and others that might be undertaken in the future are described in the Mitigation chapter of this report. Over the remainder of this century, aggressive and sustained greenhouse gas emission reductions by the United States and by other nations would be needed to reduce global emissions to a level consistent with the lower scenario (B1) analyzed in this assessment.[15]

With regard to adaptation, the pace and magnitude of observed and projected changes emphasize the need to be prepared for a wide variety and intensity of impacts. Because of the growing influence of human activities, the climate of the past is not a good basis for future planning. For example, building codes and landscaping ordinances could be updated to improve energy efficiency, conserve water supplies, protect against insects that spread disease (such as dengue fever), reduce susceptibility to heat stress, and improve protection against extreme events. The fact that climate change impacts are increasing points to the urgent need to develop and refine approaches that enable decision-making and increase flexibility and resilience in the face of ongoing and future impacts. Reducing non-climate-related stresses that contribute to existing vulnerabilities can also be an effective approach to climate change adaptation.[16]

Adaptation can involve considering local, state, regional, national, and international jurisdictional objectives. For example, in managing water supplies to adapt to a changing climate, the implications of international treaties should be considered in the context of managing the Great Lakes, the Columbia River, and the Colorado River to deal with increased drought risk. Both "bottom up" community planning and "top down" national strategies may help regions deal with impacts such as increases in electrical brownouts, heat stress, floods, and wildfires.[17]

Proactively preparing for climate change can reduce impacts while also facilitating a more rapid and efficient response to changes as they happen. Such efforts are beginning at the federal, regional, state, tribal, and local levels, and in the corporate and non-governmental sectors, to build adaptive capacity and resilience to climate change impacts. Using scientific information to prepare for climate changes in advance can provide economic opportunities, and proactively managing the risks can reduce impacts and costs over time.[18]

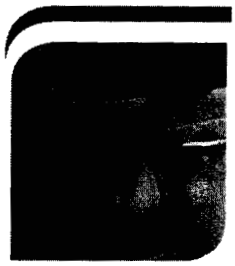
There are a number of areas where improved scientific information or understanding would enhance the capacity to estimate future climate change impacts. For example, knowledge of the mechanisms controlling the rate of ice loss in Greenland and Antarctica is limited, making it difficult for scientists to narrow the range of expected future sea level rise. Improved understanding of ecological and social responses to climate change is needed, as is understanding of how ecological and social responses will interact.[19]

A sustained climate assessment process could more efficiently collect and synthesize the rapidly evolving science and help supply timely and relevant information to decision-makers. Results from all of these efforts could continue to deepen our understanding of the interactions of human and natural systems in the context of a changing climate, enabling society to effectively respond and prepare for our future.[20]

The cumulative weight of the scientific evidence contained in this report confirms that climate change is affecting the American people now, and that choices we make will affect our future and that of future generations.

Cities providing transportation options including bike lanes, buildings designed with energy saving features such as green roofs, and houses elevated to allow storm surges to pass underneath are among the many response options being pursued around the country.

These findings distill important results that arise from this National Climate Assessment. They do not represent a full summary of all of the chapters' findings, but rather a synthesis of particularly noteworthy conclusions.

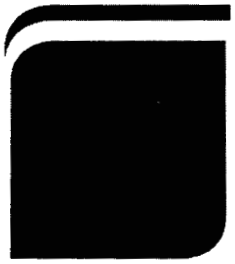


**1. Global climate is changing and this is apparent across the United States in a wide range of observations. The global warming of the past 50 years is primarily due to human activities, predominantly the burning of fossil fuels.**

Many independent lines of evidence confirm that human activities are affecting climate in unprecedented ways. U.S. average temperature has increased by 1.3°F to 1.9°F since record keeping began in 1895; most of this increase has occurred since about 1970. The most recent decade was the warmest on record. Because human-induced warming is superimposed on a naturally varying climate, rising temperatures are not evenly distributed across the country or over time.[21] See page 18.

**2. Some extreme weather and climate events have increased in recent decades, and new and stronger evidence confirms that some of these increases are related to human activities.**

Changes in extreme weather events are the primary way that most people experience climate change. Human-induced climate change has already increased the number and strength of some of these extreme events. Over the last 50 years, much of the United States has seen an increase in prolonged periods of excessively high temperatures, more heavy downpours, and in some regions, more severe droughts.[22] See page 24.



**3. Human-induced climate change is projected to continue, and it will accelerate significantly if global emissions of heat-trapping gases continue to increase.**

Heat-trapping gases already in the atmosphere have committed us to a hotter future with more climate-related impacts over the next few decades. The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases that human activities emit globally, now and in the future.[23] See page 28.

**4. Impacts related to climate change are already evident in many sectors and are expected to become increasingly disruptive across the nation throughout this century and beyond.**

Climate change is already affecting societies and the natural world. Climate change interacts with other environmental and societal factors in ways that can either moderate or intensify these impacts. The types and magnitudes of impacts vary across the nation and through time. Children, the elderly, the sick, and the poor are especially vulnerable. There is mounting evidence that harm to the nation will increase substantially in the future unless global emissions of heat-trapping gases are greatly reduced.[24] See page 32.

## 5. Climate change threatens human health and well-being in many ways, including through more extreme weather events and wildfire, decreased air quality, and diseases transmitted by insects, food, and water.

Climate change is increasing the risks of heat stress, respiratory stress from poor air quality, and the spread of waterborne diseases. Extreme weather events often lead to fatalities and a variety of health impacts on vulnerable populations, including impacts on mental health, such as anxiety and post-traumatic stress disorder. Large-scale changes in the environment due to climate change and extreme weather events are increasing the risk of the emergence or reemergence of health threats that are currently uncommon in the United States, such as dengue fever.[25] See page 34.

## 6. Infrastructure is being damaged by sea level rise, heavy downpours, and extreme heat; damages are projected to increase with continued climate change.

Sea level rise, storm surge, and heavy downpours, in combination with the pattern of continued development in coastal areas, are increasing damage to U.S. infrastructure including roads, buildings, and industrial facilities, and are also increasing risks to ports and coastal military installations. Flooding along rivers, lakes, and in cities following heavy downpours, prolonged rains, and rapid melting of snowpack is exceeding the limits of flood protection infrastructure designed for historical conditions. Extreme heat is damaging transportation infrastructure such as roads, rail lines, and airport runways.[26] See page 38.

## 7. Water quality and water supply reliability are jeopardized by climate change in a variety of ways that affect ecosystems and livelihoods.

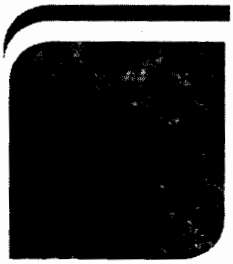
Surface and groundwater supplies in some regions are already stressed by increasing demand for water as well as declining runoff and groundwater recharge. In some regions, particularly the southern part of the country and the Caribbean and Pacific Islands, climate change is increasing the likelihood of water shortages and competition for water among its many uses. Water quality is diminishing in many areas, particularly due to increasing sediment and contaminant concentrations after heavy downpours.[27] See page 42.

## 8. Climate disruptions to agriculture have been increasing and are projected to become more severe over this century.

Some areas are already experiencing climate-related disruptions, particularly due to extreme weather events. While some U.S. regions and some types of agricultural production will be relatively resilient to climate change over the next 25 years or so, others will increasingly suffer from stresses due to extreme heat, drought, disease, and heavy downpours. From mid-century on, climate change is projected to have more negative impacts on crops and livestock across the country – a trend that could diminish the security of our food supply.[28] See page 46.

**9. Climate change poses particular threats to Indigenous Peoples' health, well-being, and ways of life.**

Chronic stresses such as extreme poverty are being exacerbated by climate change impacts such as reduced access to traditional foods, decreased water quality, and increasing exposure to health and safety hazards. In parts of Alaska, Louisiana, the Pacific Islands, and other coastal locations, climate change impacts (through erosion and inundation) are so severe that some communities are already relocating from historical homelands to which their traditions and cultural identities are tied. Particularly in Alaska, the rapid pace of temperature rise, ice and snow melt, and permafrost thaw are significantly affecting critical infrastructure and traditional livelihoods.[29] See page 48.

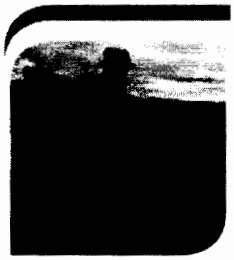


**10. Ecosystems and the benefits they provide to society are being affected by climate change. The capacity of ecosystems to buffer the impacts of extreme events like fires, floods, and severe storms is being overwhelmed.**

Climate change impacts on biodiversity are already being observed in alteration of the timing of critical biological events such as spring bud burst and substantial range shifts of many species. In the longer term, there is an increased risk of species extinction. These changes have social, cultural, and economic effects. Events such as droughts, floods, wildfires, and pest outbreaks associated with climate change (for example, bark beetles in the West) are already disrupting ecosystems. These changes limit the capacity of ecosystems, such as forests, barrier beaches, and wetlands, to continue to play important roles in reducing the impacts of these extreme events on infrastructure, human communities, and other valued resources.[30] See page 50.

**11. Ocean waters are becoming warmer and more acidic, broadly affecting ocean circulation, chemistry, ecosystems, and marine life.**

More acidic waters inhibit the formation of shells, skeletons, and coral reefs. Warmer waters harm coral reefs and alter the distribution, abundance, and productivity of many marine species. The rising temperature and changing chemistry of ocean water combine with other stresses, such as overfishing and coastal and marine pollution, to alter marine-based food production and harm fishing communities.[31] See page 58.

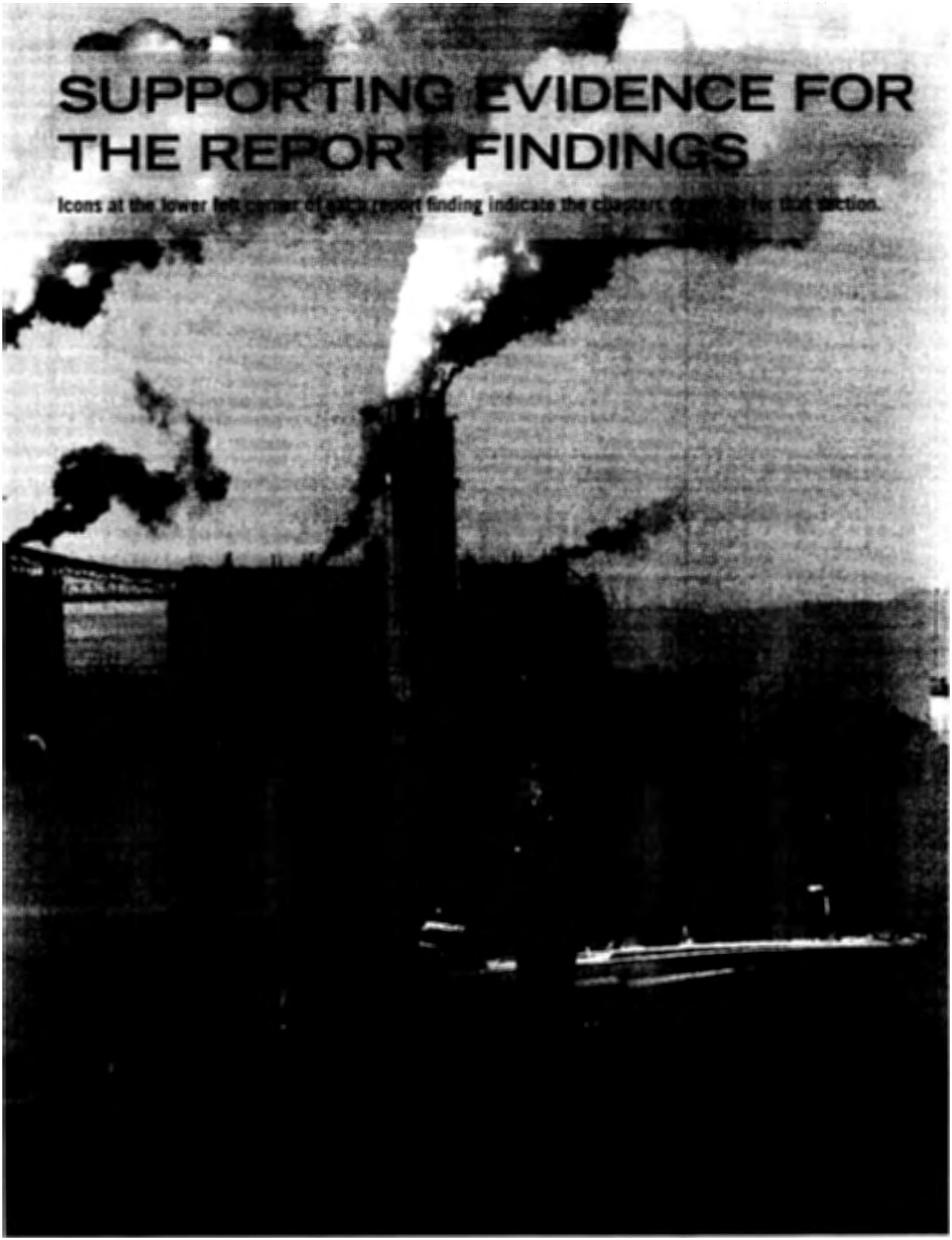


**12. Planning for adaptation (to address and prepare for impacts) and mitigation (to reduce future climate change, for example by cutting emissions) is becoming more widespread, but current implementation efforts are insufficient to avoid increasingly negative social, environmental, and economic consequences.**

Actions to reduce emissions, increase carbon uptake, adapt to a changing climate, and increase resilience to impacts that are unavoidable can improve public health, economic development, ecosystem protection, and quality of life.[32] See page 62.

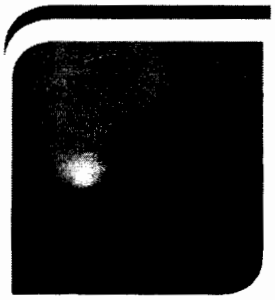
# SUPPORTING EVIDENCE FOR THE REPORT FINDINGS

Icons at the lower left corner of each report finding indicate the chapters [illegible] for that section.



These two pages present the Key Messages from the "Our Changing Climate" chapter of the full report. They pertain to Report Findings 1, 2, and 3, evidence for which appears on the following pages.

**Global climate is changing and this change is apparent across a wide range of observations. The global warming of the past 50 years is primarily due to human activities. Global climate is projected to continue to change over this century and beyond. The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases emitted globally, and how sensitive the Earth's climate is to those emissions.**



## Temperature

U.S. average temperature has increased by 1.3°F to 1.9°F since record keeping began in 1895; most of this increase has occurred since about 1970. The most recent decade was the nation's warmest on record. Temperatures in the United States are expected to continue to rise. Because human-induced warming is superimposed on a naturally varying climate, the temperature rise has not been, and will not be, uniform or smooth across the country or over time.

## Extreme Weather

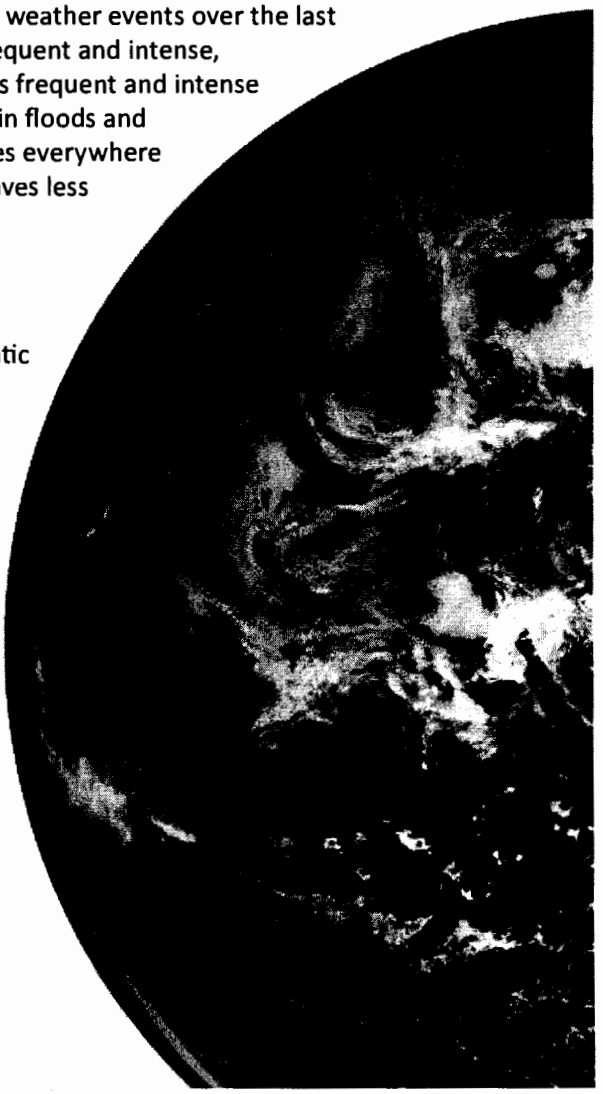
There have been changes in some types of extreme weather events over the last several decades. Heat waves have become more frequent and intense, especially in the West. Cold waves have become less frequent and intense across the nation. There have been regional trends in floods and droughts. Droughts in the Southwest and heat waves everywhere are projected to become more intense, and cold waves less intense everywhere.

## Hurricanes

The intensity, frequency, and duration of North Atlantic hurricanes, as well as the frequency of the strongest (Category 4 and 5) hurricanes, have all increased since the early 1980s. The relative contributions of human and natural causes to these increases are still uncertain. Hurricane-associated storm intensity and rainfall rates are projected to increase as the climate continues to warm.

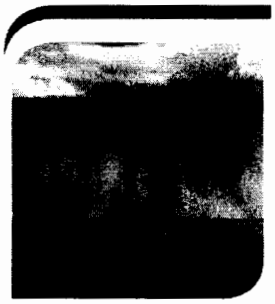
## Severe Storms

Winter storms have increased in frequency and intensity since the 1950s, and their tracks have shifted northward over the United States. Other trends in severe storms, including the intensity and frequency of tornadoes, hail, and damaging thunderstorm winds, are uncertain and are being studied intensively.



## Precipitation

Average U.S. precipitation has increased since 1900, but some areas have had increases greater than the national average, and some areas have had decreases. More winter and spring precipitation is projected for the northern United States, and less for the Southwest, over this century.

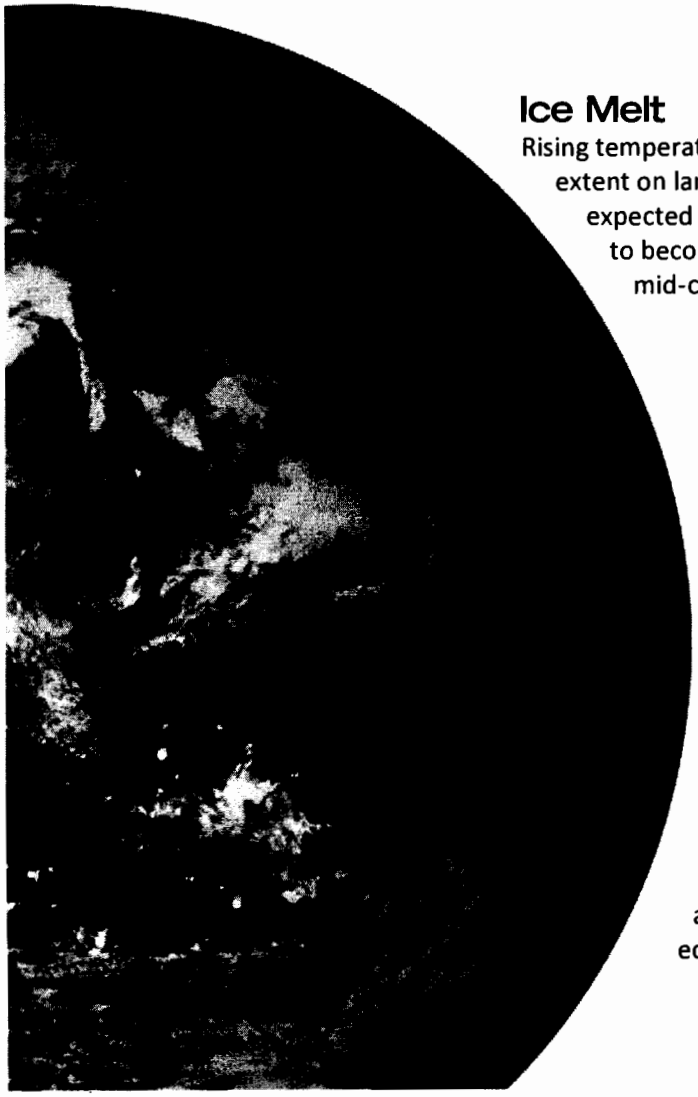


## Heavy Downpours

Heavy downpours are increasing nationally, especially over the last three to five decades. Largest increases are in the Midwest and Northeast. Increases in the frequency and intensity of extreme precipitation events are projected for all U.S. regions.

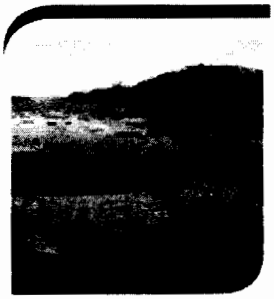
## Frost-free Season

The length of the frost-free season (and the corresponding growing season) has been increasing nationally since the 1980s, with the largest increases occurring in the western United States, affecting ecosystems and agriculture. Across the United States, the growing season is projected to continue to lengthen.



## Ice Melt

Rising temperatures are reducing ice volume and surface extent on land, lakes, and sea. This loss of ice is expected to continue. The Arctic Ocean is expected to become essentially ice free in summer before mid-century.



## Sea Level

Global sea level has risen by about 8 inches since reliable record keeping began in 1880. It is projected to rise another 1 to 4 feet by 2100.

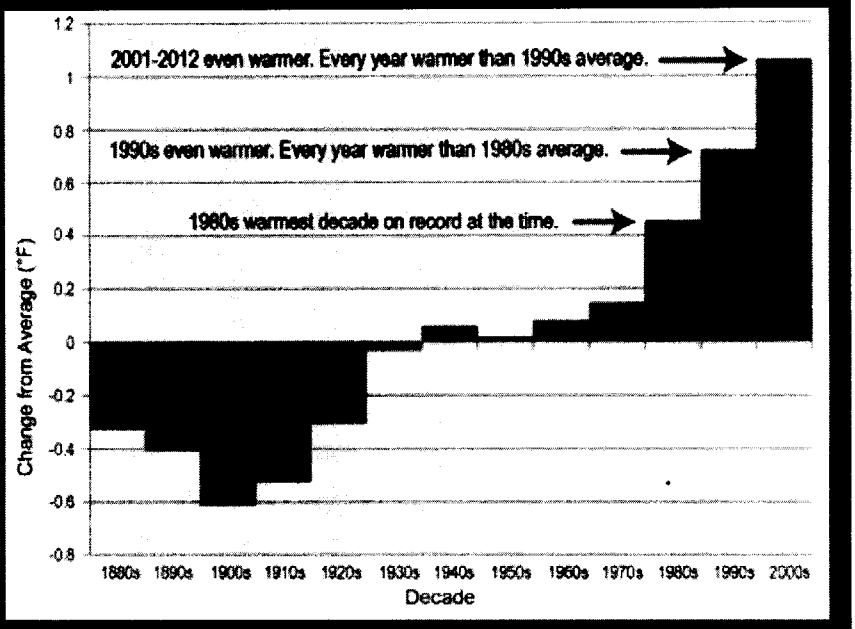
## Ocean Acidification

The oceans are currently absorbing about a quarter of the carbon dioxide emitted to the atmosphere annually and are becoming more acidic as a result, leading to concerns about intensifying impacts on marine ecosystems. See page 60.

# FINDING

## Global climate is changing and this is apparent across a wide range of observations.

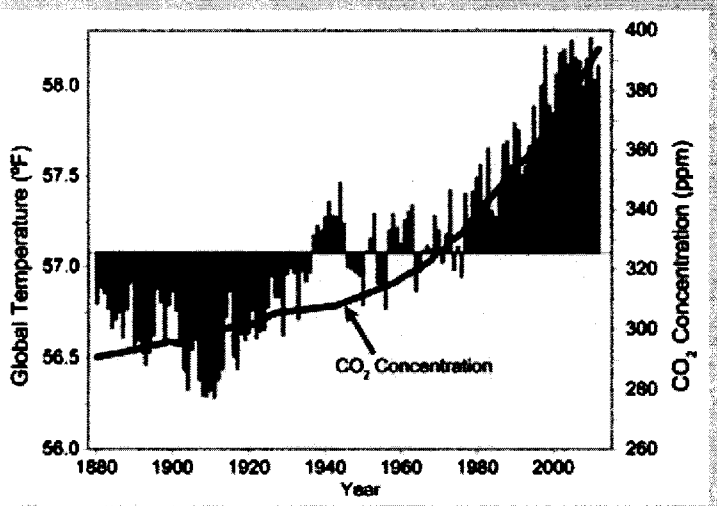
Evidence for changes in Earth's climate can be found from the top of the atmosphere to the depths of the oceans. Researchers from around the world have compiled this evidence using satellites, weather balloons, thermometers at surface stations, and many other types of observing systems that monitor the Earth's weather and climate. The sum total of this evidence tells an unambiguous story: the planet is warming.




The last five decades have seen a progressive rise in the Earth's average surface temperature. Bars show the difference between each decade's average temperature and the overall average for 1901-2000. (Figure source: NOAA NCDC).

Temperatures at Earth's surface, in the troposphere (the active weather layer extending up to about 5 to 10 miles above the ground), and in the oceans have all increased over recent decades. The largest increases in temperature are occurring closer to the poles, especially in the Arctic. This warming has triggered many other changes to the Earth's climate. Snow and ice cover have decreased in most areas. Atmospheric water vapor is increasing in the lower atmosphere because a warmer atmosphere can hold more water. Sea level is increasing because water expands as it warms and because melting ice on land adds water to the oceans. Changes in other climate-relevant indicators such as growing season length have been observed in many areas. Worldwide, the observed changes in average conditions have been accompanied by increasing trends in extremes of heat and heavy precipitation events, and decreases in extreme cold. It is the sum total of these indicators that leads to the conclusion that warming of our planet is unequivocal.

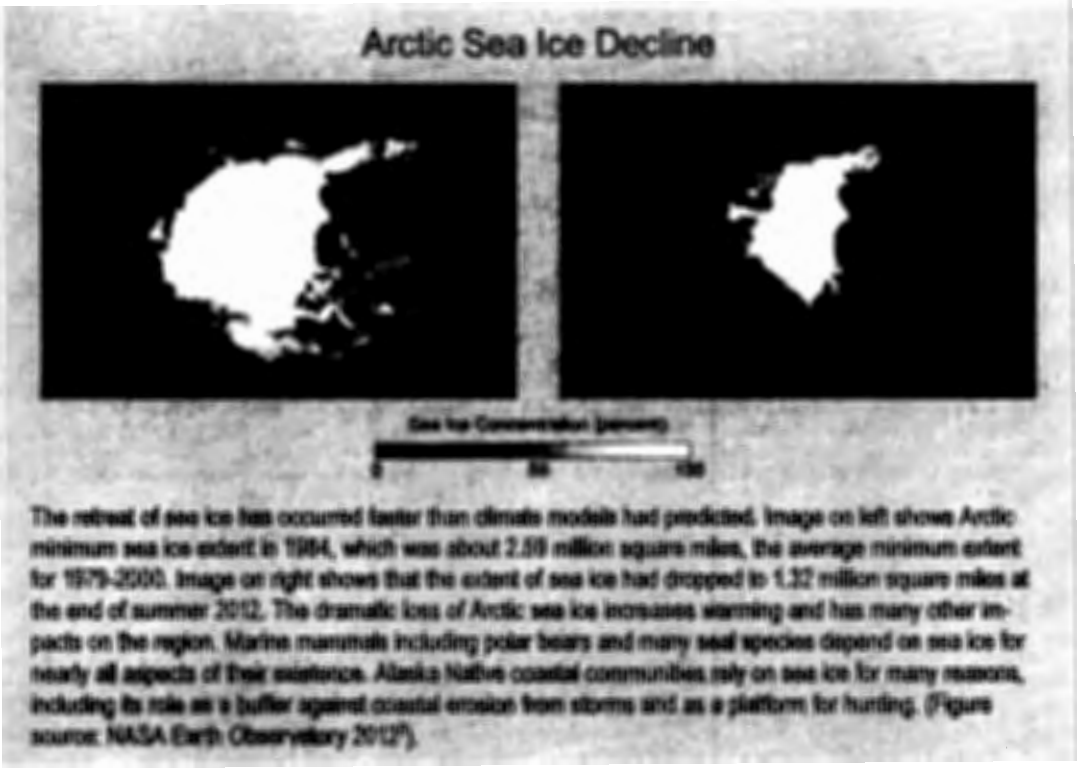
### Global Temperature and Carbon Dioxide




Global annual average temperature (as measured over both land and oceans) has increased by more than 1.5°F (0.8°C) since 1880 (through 2012). Red bars show temperatures above the long-term average, and blue bars indicate temperatures below the long-term average. The black line shows atmospheric carbon dioxide ($CO_2$) concentration in parts per million (ppm). While there is a clear long-term global warming trend, some years do not show a temperature increase relative to the previous year, and some years show greater changes than others. These year-to-year fluctuations in temperature are due to natural processes, such as the effects of El Niños, La Niñas, and volcanic eruptions. (Figure source: updated from Karl et al. 2009[1]).

FAQ

Sea ice in the Arctic has decreased dramatically since the satellite record began in 1978. Minimum Arctic sea ice extent (which occurs in early to mid-September) has decreased by more than 40%.[2] This decline is unprecedented in the historical record, and the reduction of ice volume and thickness is even greater. Ice thickness decreased by more than 50% from 1958-1976 to 2003-2008.[3] The percentage of the March ice cover made up of thicker ice (ice that has survived a summer melt season) decreased from 75% in the mid-1980s to 45% in 2011.[4]

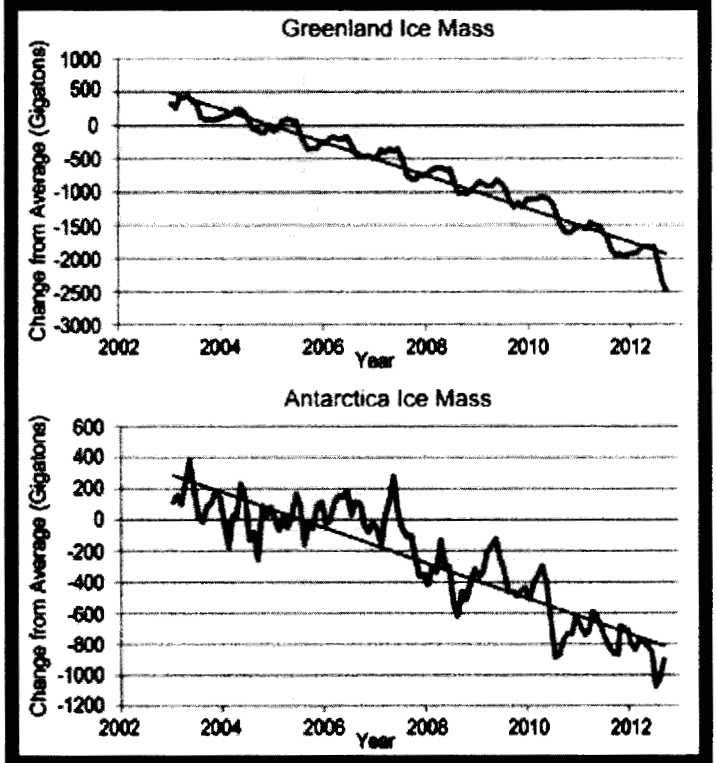



The retreat of sea ice has occurred faster than climate models had predicted. Image on left shows Arctic minimum sea ice extent in 1984, which was about 2.59 million square miles, the average minimum extent for 1979-2000. Image on right shows that the extent of sea ice had dropped to 1.32 million square miles at the end of summer 2012. The dramatic loss of Arctic sea ice increases warming and has many other impacts on the region. Marine mammals including polar bears and many seal species depend on sea ice for nearly all aspects of their existence. Alaska Native coastal communities rely on sea ice for many reasons, including its role as a buffer against coastal erosion from storms and as a platform for hunting. (Figure source: NASA Earth Observatory 2012[8]).

Ice loss increases Arctic warming by replacing white, reflective ice with dark water that absorbs more energy from the sun. More open water can also increase snowfall over northern land areas[5] and increase the north-south meanders of the jet stream, consistent with the occurrence of unusually cold and snowy winters at mid-latitudes in several recent years.[5,6] Significant uncertainties remain in interpreting the effect of Arctic ice changes on mid-latitude weather patterns.[7]

In addition to the rapid decline of Arctic sea ice, rising temperatures are reducing the volume and surface extent of ice on land and lakes. Snow cover on land has also decreased over the past several decades, especially in late spring.

The ice sheets on Greenland and Antarctica are losing mass, adding to global sea level rise.




Satellite measurements show that both Greenland and Antarctica are losing ice as the atmosphere and oceans warm. Melting of the polar ice sheets and glaciers on land add water to the oceans and raise sea level. How fast these two polar ice sheets melt will largely determine how quickly sea level rises. (Figure source: adapted from Wouters et al. 2013[9]).

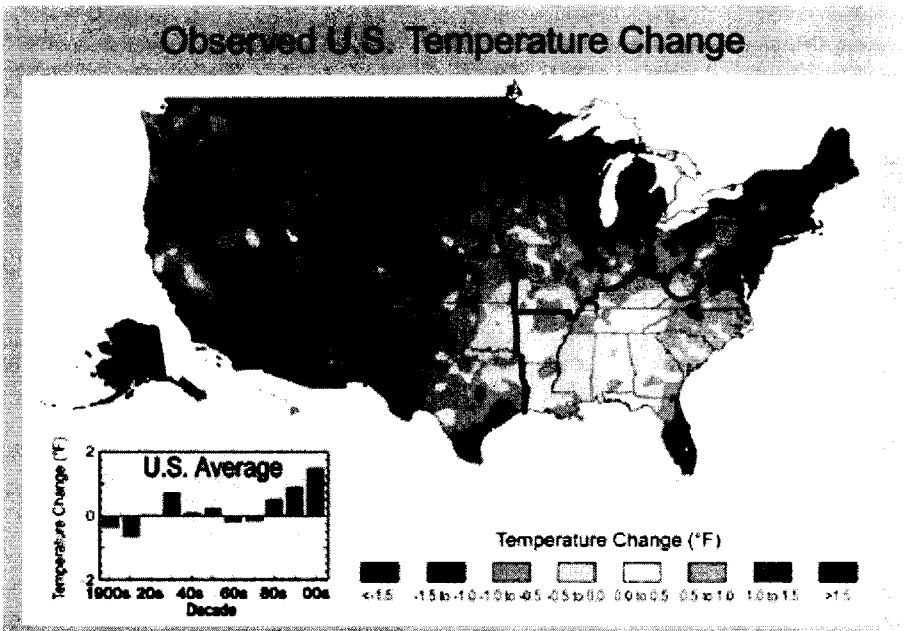
# Finding 1: OUR CHANGING CLIMATE

## Climate in the United States is changing.

U.S. average temperature has increased by 1.3°F to 1.9°F since record keeping began in 1895; most of this increase has occurred since about 1970. The most recent decade was the nation's warmest on record. Because human-induced warming is superimposed on a naturally varying climate, the temperature rise has not been, and will not be, uniform or smooth across the country or over time.

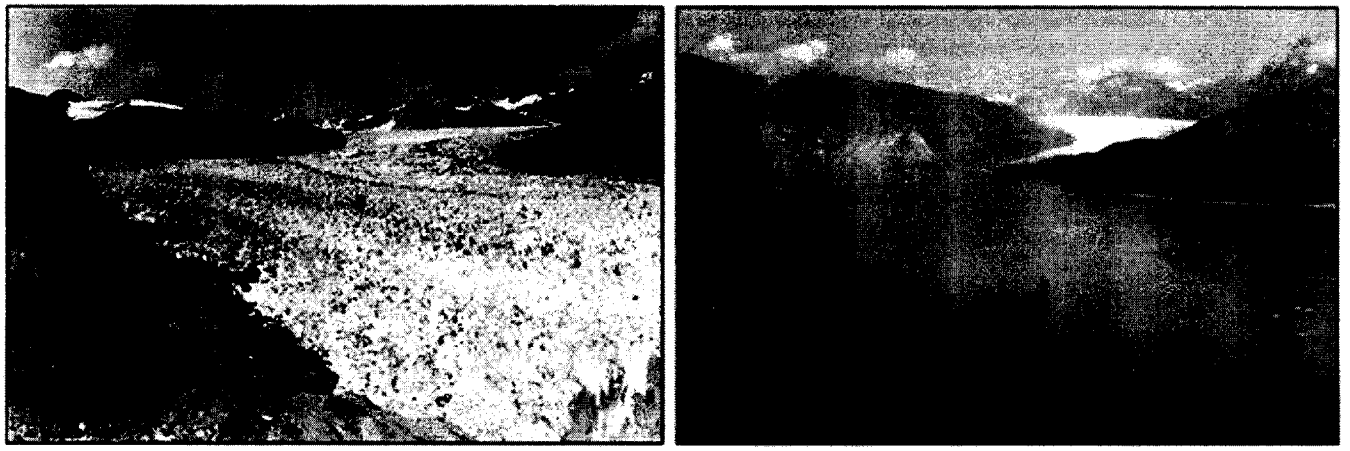
While surface air temperature is the most widely cited measure of climate change, other aspects of climate that are affected by temperature are often more directly relevant to both human society and the natural environment. Examples include shorter duration of ice on lakes and rivers, reduced glacier extent, earlier melting of snowpack, reduced lake levels due to increased evaporation, lengthening of the growing season, changes in plant hardiness zones, increased humidity, rising ocean temperatures, rising sea level, and changes in some types of extreme weather.

Taken as a whole, these changes provide compelling evidence that increasing temperatures are affecting both ecosystems and human society.



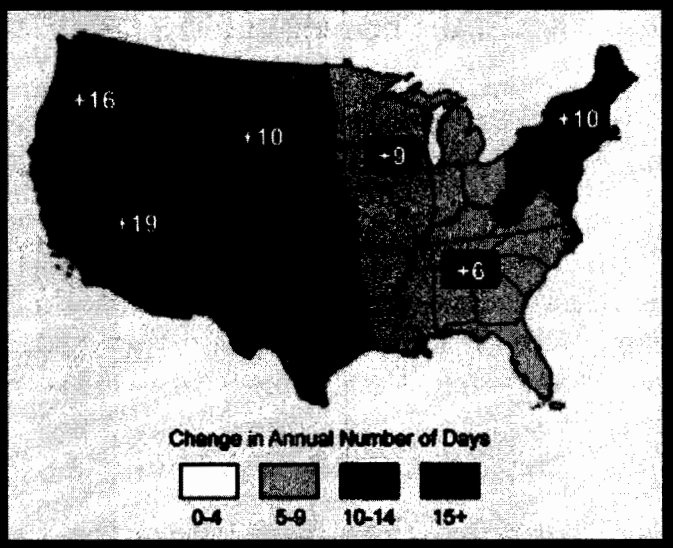

The colors on the map show temperature changes over the past 22 years (1991-2012) compared to the 1901-1960 average for the contiguous U.S., and to the 1951-1980 average for Alaska and Hawaii. The bars on the graph show the average temperature changes for the U.S. by decade for 1901-2012 (relative to the 1901-1960 average). The far right bar (2000s decade) includes 2011 and 2012. The period from 2001 to 2012 was warmer than any previous decade in every region. (Figure source: NOAA NCDC / CICS-NC).

A longer growing season provides a longer period for plant growth and productivity and can slow the increase in atmospheric $CO_2$ concentrations through increased $CO_2$ uptake by living things and their environment.[10] The longer growing season can increase the growth of beneficial plants (such as crops and forests) as well as undesirable ones (such as ragweed).[11] In some cases where moisture is limited, the greater evaporation and loss of moisture through plant transpiration (release of water from plant leaves) associated with a longer growing season can mean less productivity because of increased drying[12] and earlier and longer fire seasons.



On the left is a photograph of Muir Glacier in Alaska taken on August 13, 1941; on the right, a photograph taken from the same vantage point on August 31, 2004. Total glacial mass has declined sharply around the globe, adding to sea level rise. (Left photo by glaciologist William O. Field; right photo by geologist Bruce F. Molnia of the United States Geological Survey.)

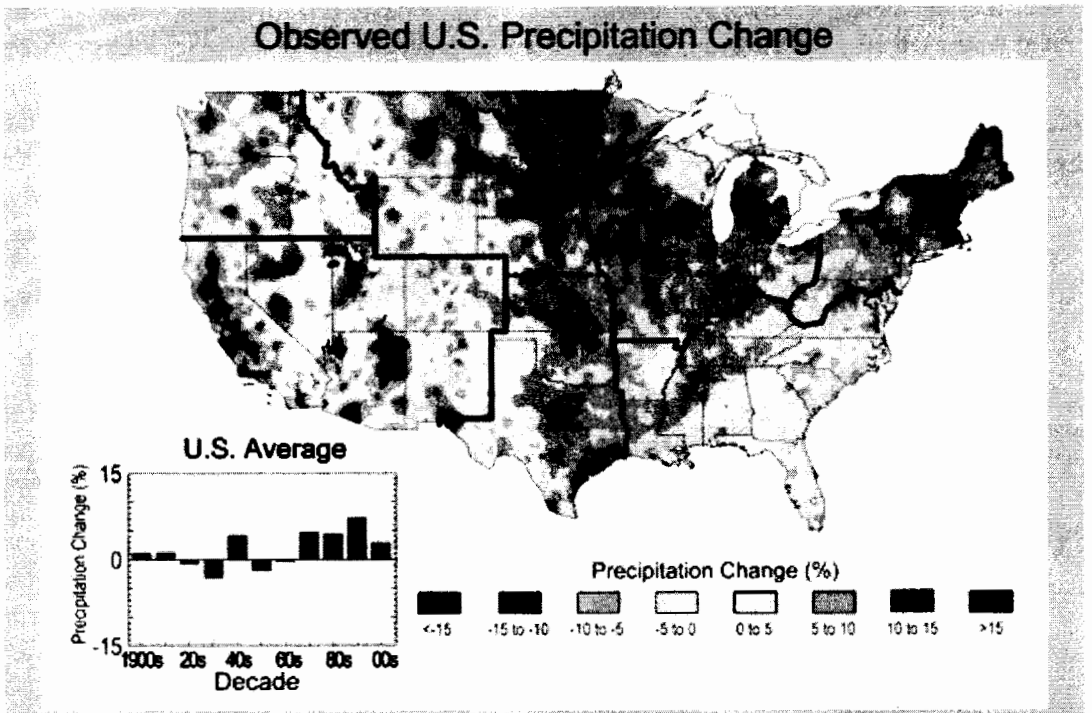
Increased frost-free season length, especially in already hot and moisture-stressed regions like the Southwest, can lead to further heat stress on plants and increased water demands for crops. Higher temperatures and fewer frost-free days during winter can lead to early bud burst or bloom of some perennial plants, resulting in frost damage when cold conditions occur in late spring. In addition, with higher winter temperatures, some agricultural pests can persist year-round, and new pests and diseases may become established.[13]




The frost-free season length, defined as the period between the last occurrence of 32°F in the spring and the first occurrence of 32°F in the fall, has increased in each U.S. region during 1991-2012 relative to 1901-1960. Increases in frost-free season length correspond to similar increases in growing season length. (Figure source: NOAA NCDC / CICS-NC).

The lengthening of the frost-free season has been somewhat greater in the western U.S. than the eastern U.S.,[1] increasing by 2 to 3 weeks in the Northwest and Southwest, 1 to 2 weeks in the Midwest, Great Plains, and Northeast, and slightly less than 1 week in the Southeast. These differences mirror the overall trend of more warming in the north and west and less warming in the Southeast.

Average annual precipitation over the U.S. has increased in recent decades, although there are important regional differences. For example, precipitation since 1991 (relative to 1901-1960) increased the most in the Northeast (8%), Midwest (9%), and southern Great Plains (8%), while much of the Southeast and Southwest had a mix of areas of increases and decreases.




The colors on the map show annual total precipitation changes for 1991-2012 compared to the 1901-1960 average, and show wetter conditions in most areas. The bars on the graph show average precipitation differences by decade for 1901-2012 (relative to the 1901-1960 average). The far right bar is for 2001-2012. (Figure source: NOAA NCDC / CICS-NC).

# Finding 1: OUR CHANGING CLIMATE

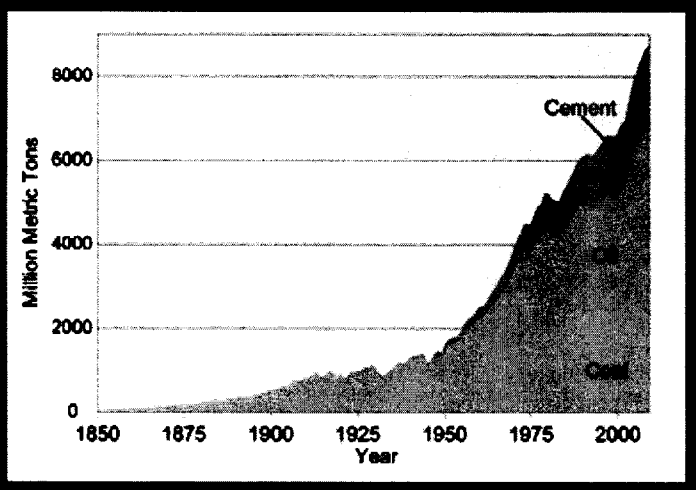
## The global warming of the past 50 years is primarily due to human activities, predominantly the burning of fossil fuels.

Climate has changed naturally throughout Earth's history. However, natural factors cannot explain the recent observed warming.

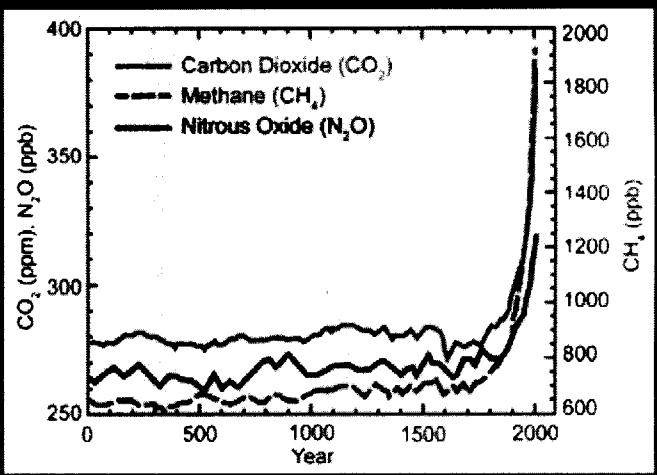
In the past, climate change was driven exclusively by natural factors: explosive volcanic eruptions that injected reflective particles into the upper atmosphere, changes in energy from the sun, periodic variations in the Earth's orbit, natural cycles that transfer heat between the ocean and the atmosphere, and slowly changing natural variations in heat-trapping gases in the atmosphere.

All of these natural factors, and their interactions with each other, have altered global average temperature over periods ranging from months to thousands of years. For example, past glacial periods were initiated by shifts in the Earth's orbit, and then amplified by resulting decreases in atmospheric levels of carbon dioxide and subsequently by greater reflection of the sun's energy by ice and snow as the Earth's climate system responded to a cooler climate.

Natural factors are still affecting the planet's climate today. The difference is that, since the beginning of the Industrial Revolution, humans have been increasingly affecting global climate, to the point where we are now the primary cause of recent and projected future change.




Carbon emissions from burning coal, oil, and gas and producing cement, in units of million metric tons of carbon. These emissions account for about 80% of the total emissions of carbon from human activities, with land-use changes (like cutting down forests) accounting for the other 20% in recent decades. (Data from Boden et al. 2012[15]).




Increases in concentrations of these gases since 1750 are due to human activities in the industrial era. Concentrations are parts per million (ppm) or parts per billion (ppb), indicating the number of molecules of the greenhouse gas per million or billion molecules of air. (Figure source: Forster et al. 2007 ).

The majority of the warming at the global scale over the past 50 years can only be explained by the effects of human influences, especially the emissions from burning fossil fuels (coal, oil, and natural gas) and from deforestation.

The emissions from human influences affecting climate include heat-trapping gases such as carbon dioxide ($CO_2$), methane, and nitrous oxide, and particles such as black carbon (soot), which has a warming influence, and sulfates, which have an overall cooling influence. In addition to human-induced global climate change, local climate can also be affected by other human factors (such as crop irrigation) and natural variability.

Carbon dioxide has been building up in the atmosphere since the beginning of the industrial era in the mid-1700s, primarily due to burning coal, oil, and gas, and secondarily due to clearing of forests. Atmospheric levels have increased by about 40% relative to pre-industrial levels.

Methane levels in the atmosphere have increased due to human activities including agriculture (with livestock producing methane in their digestive tracts and rice farming producing it via bacteria that live in the flooded fields); mining coal, extraction and transport of natural gas, and other fossil fuel-related activities;

and waste disposal including sewage and decomposing garbage in landfills. Since pre-industrial times, methane levels have increased by 250%.

Other heat-trapping gases produced by human activities include nitrous oxide, halocarbons, and ozone. Nitrous oxide levels are increasing, primarily as a result of fertilizer use and fossil fuel burning. The concentration of nitrous oxide has increased by about 20% relative to pre-industrial times.

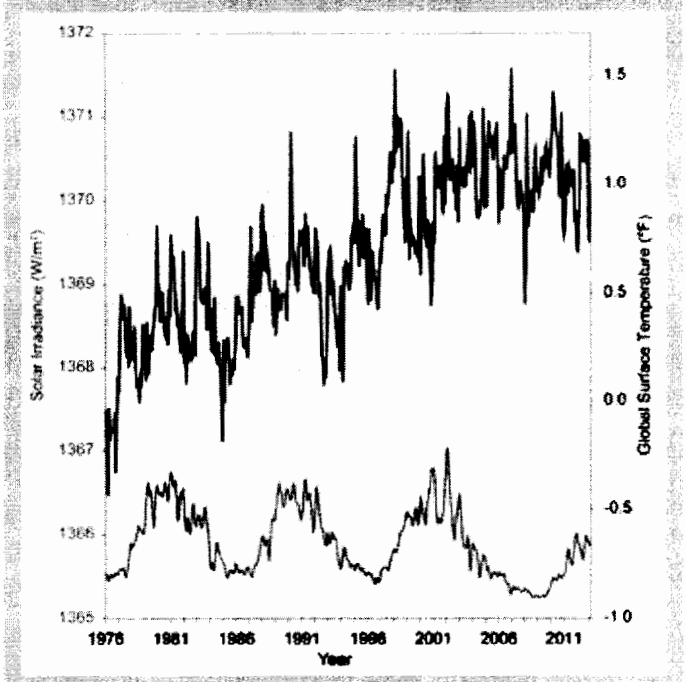
The conclusion that human influences are the primary driver of recent climate change is based on multiple lines of independent evidence. The first line of evidence is our fundamental understanding of how certain gases trap heat, how the climate system responds to increases in these gases, and how other human and natural factors influence climate. The second line of evidence is from reconstructions of past climates using evidence such as tree rings, ice cores, and corals. These show that global surface temperatures over the last several decades are clearly unusual, with the last decade (2000-2009) warmer than any time in at least the last 1,300 years and perhaps much longer.

The third line of evidence comes from using climate models to simulate the climate of the past century, separating the human and natural factors that influence climate. When the human factors are removed, these models show that solar and volcanic activity would have tended to slightly cool the earth, and other natural variations are too small to explain the amount of warming. Only when the human influences are included do the models reproduce the warming observed over the past 50 years.

Another line of evidence involves so-called "fingerprint" studies that are able to attribute observed climate changes to particular causes. For example, the fact that the stratosphere (the layer above the troposphere) is cooling while the Earth's surface and lower atmosphere are warming is a fingerprint that the warming is due to increases in heat-trapping gases. In contrast, if the observed warming had been due to increases in solar output, Earth's atmosphere would have warmed throughout its entire extent, including the stratosphere. In addition to such temperature analyses, scientific attribution of observed changes to human influence extends to many other aspects of climate, such as changing patterns in precipitation, increasing humidity, changes in pressure, and increasing ocean heat content.

Oil used for transportation and coal used for electricity generation are the largest contributors to the rise in carbon dioxide that is the primary driver of recent climate change.

## Measurements of Surface Temperature and Sun's Energy

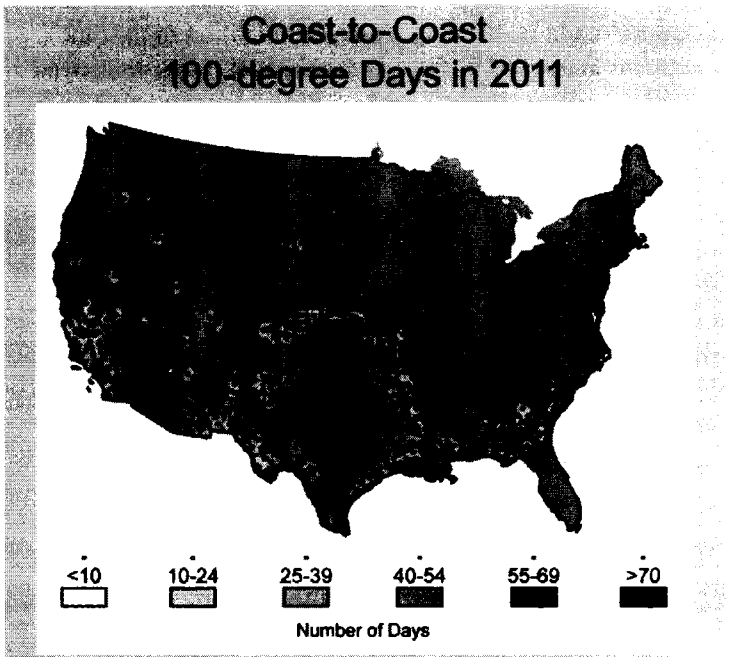



The full record of satellite measurements of the sun's energy received at the top of the Earth's atmosphere is shown in red, following its natural 11-year cycle of small ups and downs, without any net increase. Over the same period, global temperature relative to 1961-1990 average (shown in blue) has risen markedly. This is a clear indication that changes in the sun are not responsible for the observed warming over recent decades. (Figure source: NOAA NCDC / CICS-NC).

# FINDING

**Some extreme weather and climate events have increased in recent decades, and new and stronger evidence confirms that some of these increases are related to human activities.**

As the world has warmed, that warming has triggered many other changes to the Earth's climate. Changes in extreme weather and climate events, such as heat waves and droughts, are the primary way that most people experience climate change. Human-induced climate change has already increased the number and strength of some of these extreme events. Over the last 50 years, much of the U.S. has seen increases in prolonged periods of excessively high temperatures, heavy downpours, and in some regions, severe floods and droughts.



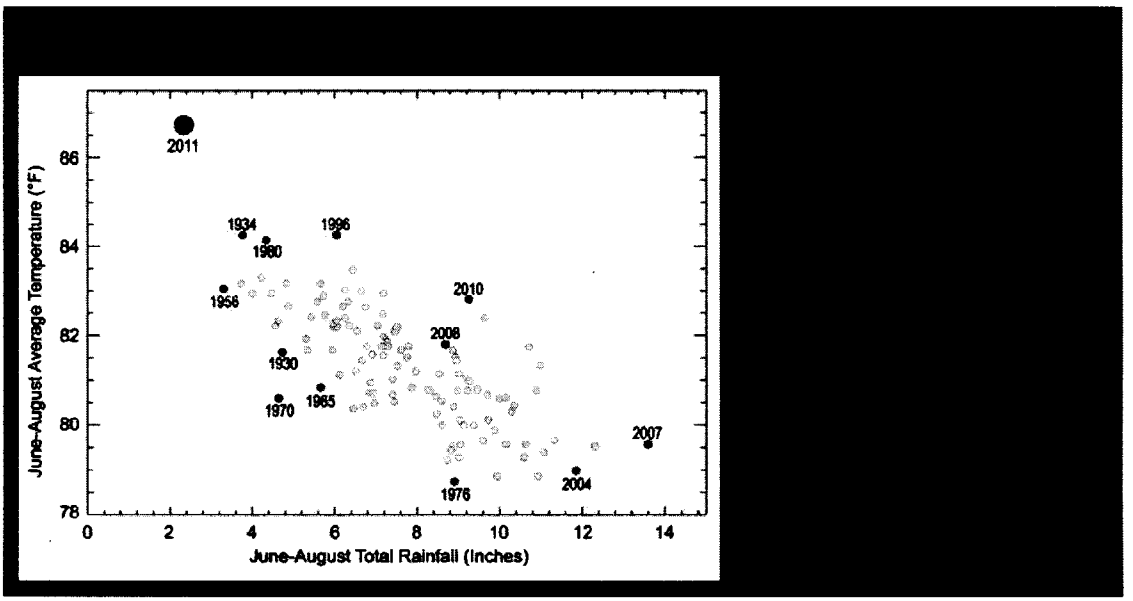

Map shows numbers of days with temperatures above 100°F during 2011. Black circles denote the location of observing stations recording at least one such day. The number of days with temperatures exceeding 100°F is expected to increase. The record temperatures and drought during the summer of 2011 represent conditions that will occur more frequently in the U.S. as climate change continues. (Figure source: NOAA NCDC).

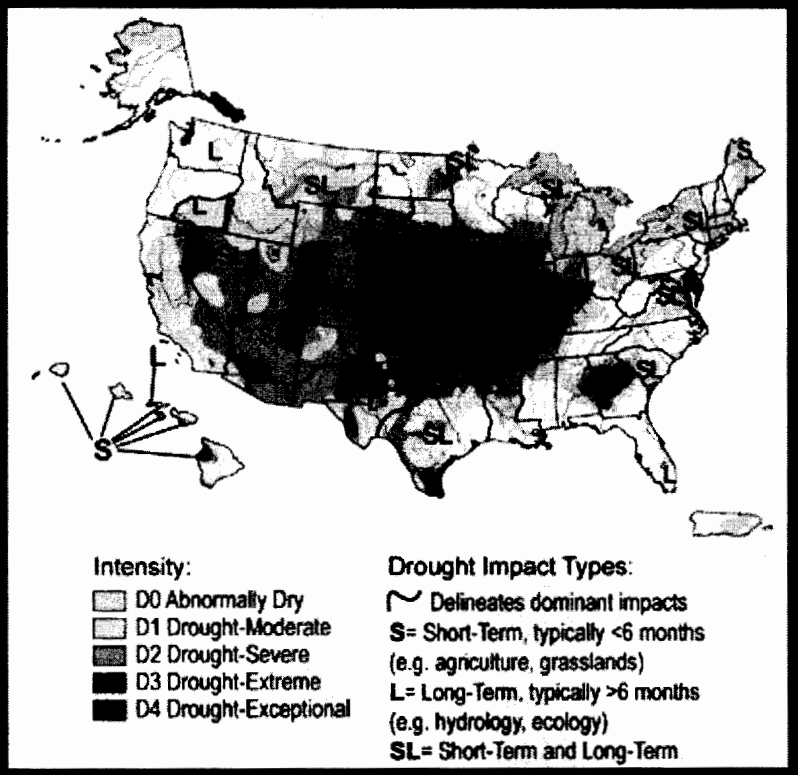
## Heat Waves

Heat waves are periods of abnormally hot weather lasting days to weeks. The number of heat waves has been increasing in recent years. This trend has continued in 2011 and 2012, with the number of intense heat waves being almost triple the long-term average. The recent heat waves and droughts in Texas (2011) and the Midwest (2012) set records for highest monthly average temperatures. Analyses show that human-induced climate change has generally increased the probability of heat waves.[1] And prolonged (multi-month) extreme heat has been unprecedented since the start of reliable instrumental records in 1895.

## Drought

Higher temperatures lead to increased rates of evaporation, including more loss of moisture through plant leaves. Even in areas where precipitation does not decrease, these increases in surface evaporation and loss of water from plants lead to more rapid drying of soils if the effects of higher temperatures are not





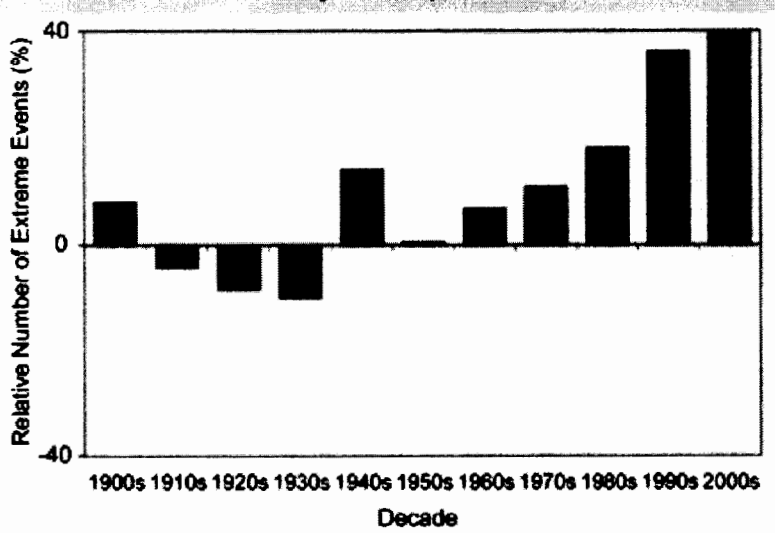

offset by other changes (such as reduced wind speed or increased humidity).[4] As soil dries out, a larger proportion of the incoming heat from the sun goes into heating the soil and adjacent air rather than evaporating its moisture, resulting in hotter summers under drier climatic conditions.[5]

An example of recent drought occurred in 2011, when many locations in Texas and Oklahoma experienced more than 100 days over 100°F. Both states set new records for the hottest summer since record keeping began in 1895. Rates of water loss, due in part to evaporation, were double the long-term average. The heat and drought depleted water resources and contributed to more than $10 billion in direct losses to agriculture alone.

## Heavy Downpours

Heavy downpours are increasing nationally, especially over the last three to five decades. The heaviest rainfall events have become heavier and more frequent, and the amount of rain falling on the heaviest rain days has also increased. Since 1991, the amount of rain falling in very heavy precipitation events has been significantly above average. This increase has been greatest in the Northeast, Midwest, and upper Great Plains – more than 30% above the 1901-1960 average. There has also been an increase in flooding events in the Midwest and Northeast, where the largest increases in heavy rain amounts have occurred.

The mechanism driving these changes is well understood. Warmer air can contain more water vapor than cooler air. Global analyses show that the amount of water vapor in the atmosphere has in fact increased due to human-caused warming.[6] This extra moisture is available to storm systems, resulting in heavier rainfalls. Climate change also alters characteristics of the atmosphere that affect weather patterns and storms.




One measure of heavy precipitation events is a two-day precipitation total that is exceeded on average only once in a 5-year period, also known as the once-in-five-year event. As this extreme precipitation index for 1901-2012 shows, the occurrence of such events has become much more common in recent decades. Changes are compared to the period 1901-1960, and do not include Alaska or Hawai'i. (Figure source: adapted from Kunkel et al. 2013[7]).

# Finding 2: EXTREME WEATHER

## Floods

Flooding may intensify in many U.S. regions, even in areas where total precipitation is projected to decline. A flood is defined as any high flow, overflow, or inundation by water that causes or threatens damage.[8] Floods are caused or amplified by both weather- and human-related factors. Major weather factors include heavy or prolonged precipitation, snowmelt, thunderstorms, storm surges from hurricanes, and ice or debris jams. Human factors include structural failures of dams and levees, altered drainage, and land-cover alterations (such as pavement).

Increasingly, humanity is also adding to weather-related factors, as human-induced warming increases heavy downpours, causes more extensive storm surges due to sea level rise, and leads to more rapid spring snowmelt.

All flood types are affected by climate-related factors, some more than others.

**Flash floods** occur in small and steep watersheds and waterways and can be caused by short-duration intense precipitation, dam or levee failure, or collapse of debris and ice jams. Most flood-related deaths in the U.S. are associated with flash floods.

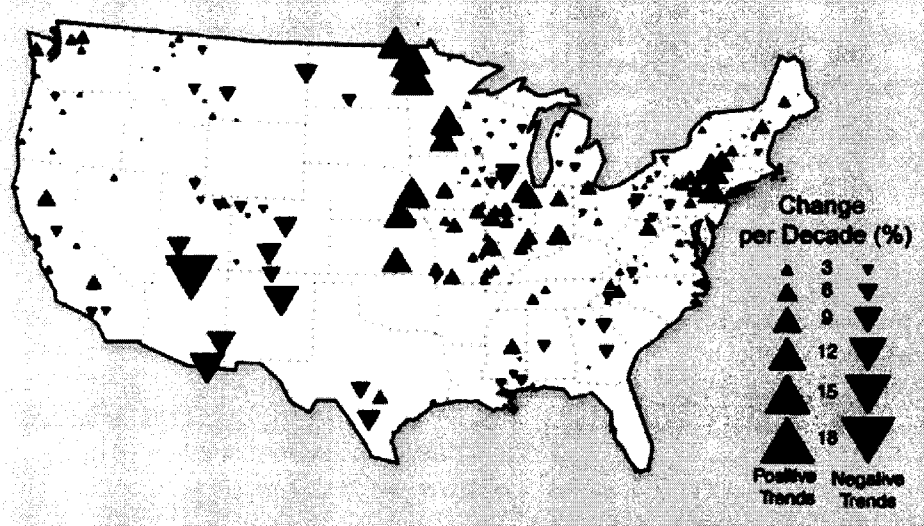
**Urban flooding** can be caused by short-duration very heavy precipitation. Urbanization creates large areas of impervious surfaces (such as roads, pavement, parking lots, and buildings) that increased immediate runoff, and heavy downpours can exceed the capacity of storm drains and cause urban flooding.

Flash floods and urban flooding are directly linked to heavy precipitation and are expected to increase as a result of increases in heavy precipitation events.

**River flooding** occurs when surface water drained from a watershed into a stream or a river exceeds channel capacity, overflows the banks, and inundates adjacent low lying areas. Riverine flooding depends on precipitation as well as many other factors, such as existing soil moisture conditions and snowmelt.

**Coastal flooding** is predominantly caused by storm surges that accompany hurricanes and other storms that push large seawater domes toward the shore. Storm surge can cause deaths, widespread infrastructure damage, and severe beach erosion. Storm-related rainfall can also cause inland flooding and is responsible for more than half of the deaths associated with tropical storms.[8] Climate change affects coastal flooding through sea level rise and storm surge, and increases in heavy rainfall during storms.

Worldwide, from 1980 to 2009, floods caused more than 500,000 deaths and affected more than 2.8 billion people.[9] In the United States, floods caused 4,586 deaths from 1959 to 2005[10] while property and crop damage averaged nearly 8 billion dollars per year (in 2011 dollars) over 1981 through 2011.[8] The risks from future floods are significant, given expanded development in coastal areas and floodplains, unabated urbanization, land-use changes, and human-induced climate change.[9]

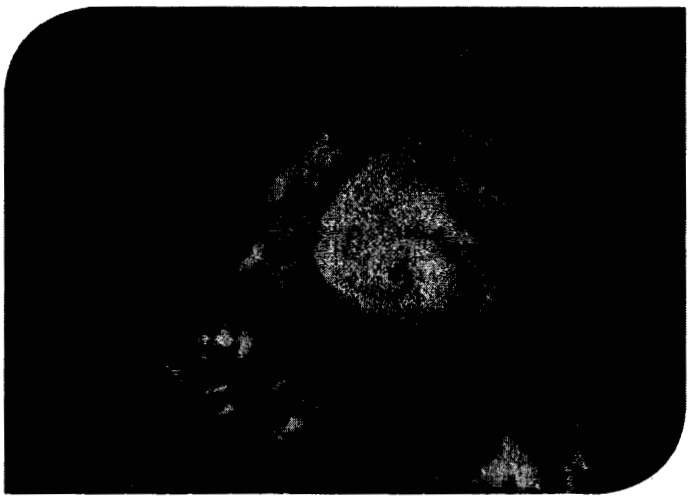



### Trends in Flood Magnitude

There are significant trends in the magnitude of river flooding in many parts of the United States.[11] River flood magnitudes (from the 1920s through 2008) have decreased in the Southwest and increased in the eastern Great Plains, parts of the Midwest, and from the northern Appalachians into New England.[12] The map shows increasing trends in floods in green and decreasing trends in brown. The magnitude of these trends is illustrated by the size of the triangles. (Figure source: Peterson et al. 2013[12]).

## Hurricanes

There has been a substantial increase in most measures of Atlantic hurricane activity since the early 1980s, the period during which high quality satellite data are available.[13] These include measures of intensity, frequency, and duration as well as the number of strongest (Category 4 and 5) storms. The recent increases in activity are linked, in part, to higher sea surface temperatures in the region that Atlantic hurricanes form in and move through. Numerous factors have been shown to influence these local sea surface temperatures, including natural variability, human-induced emissions of heat-trapping gases, and particulate pollution. Quantifying the relative contributions of natural and human-caused factors is an active focus of research.



North Atlantic hurricanes have increased in intensity, frequency, and duration since the early 1980s.

Hurricane development, however, is influenced by more than just sea surface temperature. How hurricanes develop also depends on how the local atmosphere responds to changes in local sea surface temperatures, and this atmospheric response depends critically on the cause of the change.[14] For example, the atmosphere responds differently when local sea surface temperatures increase due to a local decrease of particulate pollution that allows more sunlight through to warm the ocean, versus when sea surface temperatures increase more uniformly around the world due to increased amounts of human-caused heat-trapping gases.[15]

Storm surges reach farther inland as they ride on top of sea levels that are higher due to warming.

By late this century, models, on average, project an increase in the number of the strongest (Category 4 and 5) hurricanes. Models also project greater rainfall rates in hurricanes in a warmer climate, with increases of about 20% averaged near the center of hurricanes.

## Change in Other Storms

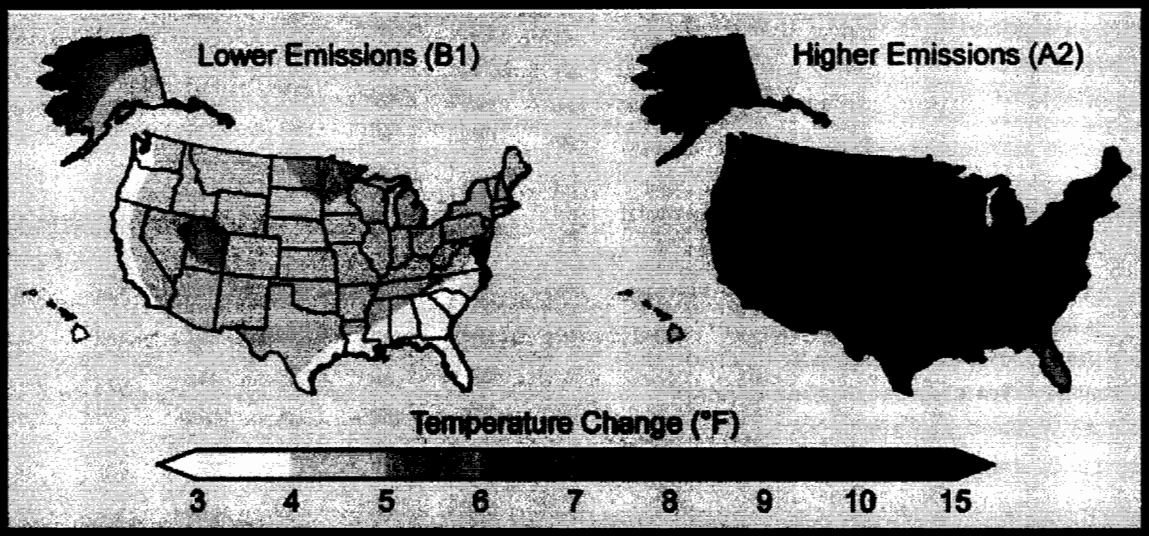
Winter storms have increased in frequency and intensity since the 1950s,[16] and their tracks have shifted northward over the United States.[17] Other trends in severe storms, including the intensity and frequency of tornadoes, hail, and damaging thunderstorm winds, are uncertain and are being studied intensively. There has been a sizable upward trend in the number of storms causing large financial and other losses.[18] However, there are societal contributions to this trend, such as increases in population and wealth.[7]

Heavy snowfalls during winter storms affect transportation systems and other infrastructure.

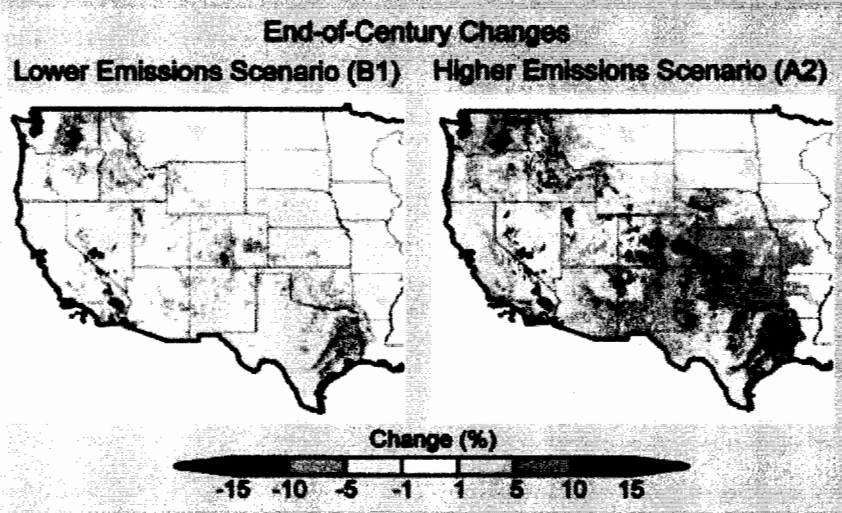
# FINDING

## Human-induced climate change is projected to continue, and it will accelerate significantly if emissions of heat-trapping gases continue to increase.

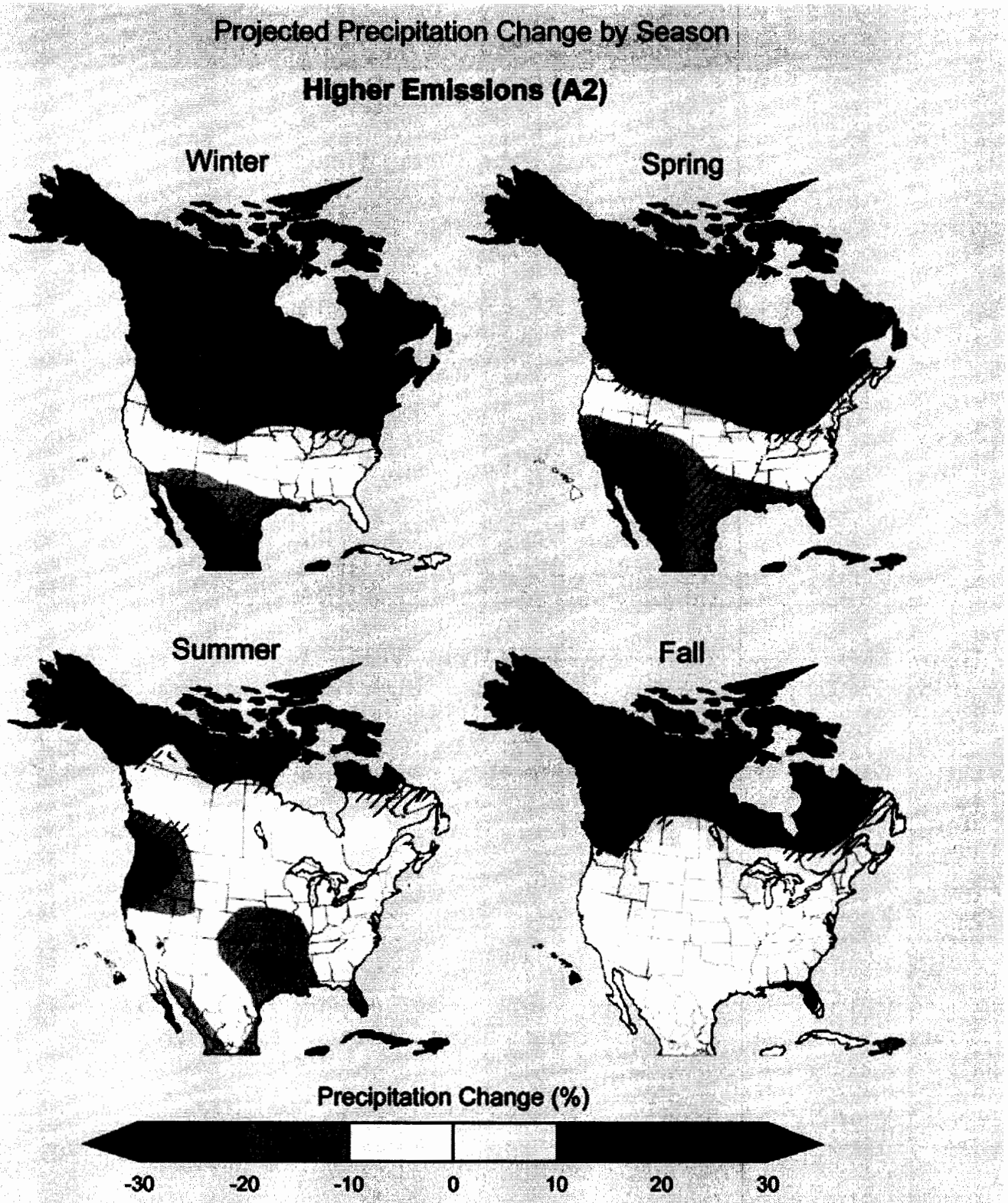
Heat-trapping gases already in the atmosphere have committed us to a hotter future with more climate-related impacts over the next few decades. The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases that human activities emit globally, now and in the future.



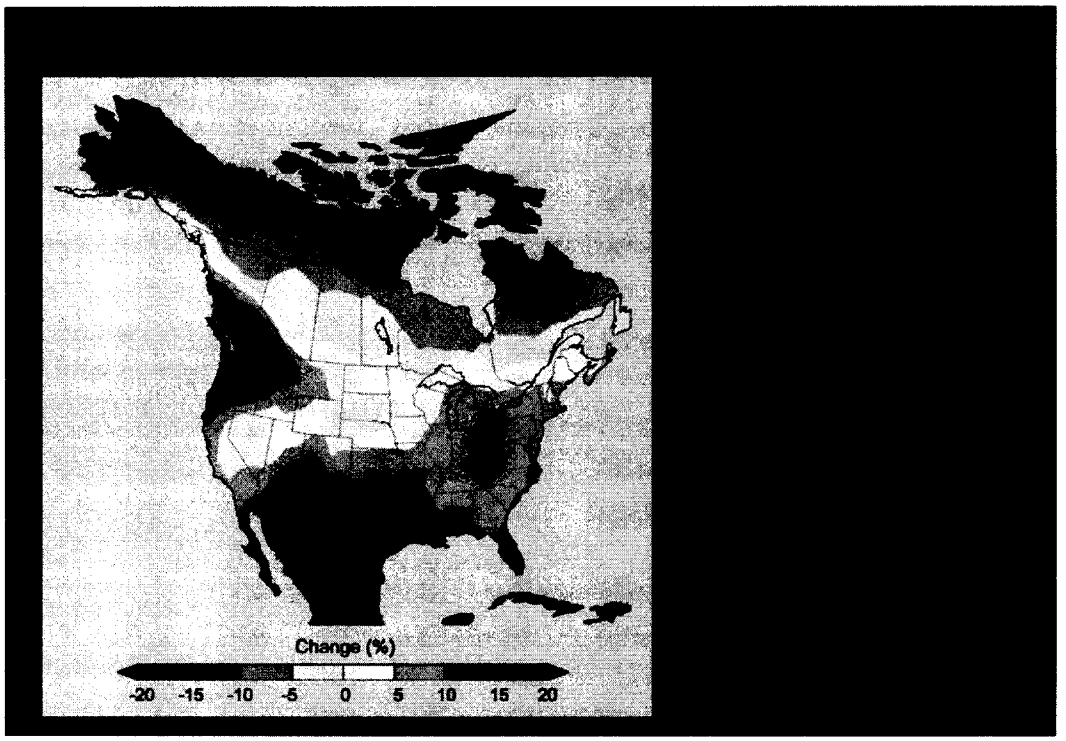

### Projected Changes in Soil Moisture




Increased temperatures and changing precipitation patterns will alter soil moisture, which is important for agriculture and ecosystems and has many societal implications. These maps show average change in soil moisture compared to 1971-2000, as projected for late this century (2071-2100) under two emissions scenarios, a lower scenario (B1) and a higher scenario (A2).[1] Eastern U.S. is not displayed because model simulations were only run for the area shown. (Figure source: NOAA NCDC / CICS-NC).




Climate change affects more than just temperature. The location, timing, and amounts of precipitation will also change as temperatures rise. Maps show projected percent change in precipitation in each season for 2071-2099 (compared to the period 1970-1999) under an emissions scenario that assumes continued increases in emissions (A2). Teal indicates precipitation increases, and brown, decreases. Hatched areas indicate that the projected changes are significant and consistent among models. White areas indicate that the changes are not projected to be larger than could be expected from natural variability. In general, the northern part of the U.S. is projected to see more winter and spring precipitation, while the southwestern U.S. is projected to experience less precipitation in the spring. Wet regions are generally projected to become wetter while dry regions become drier. Summer drying is projected for parts of the U.S., including the Northwest and southern Great Plains. (Figure source: NOAA NCDC / CICS-NC).

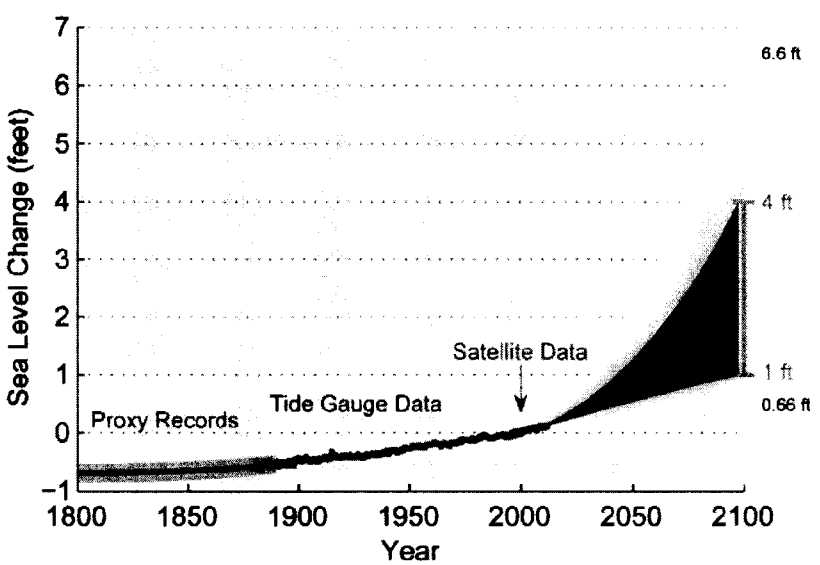


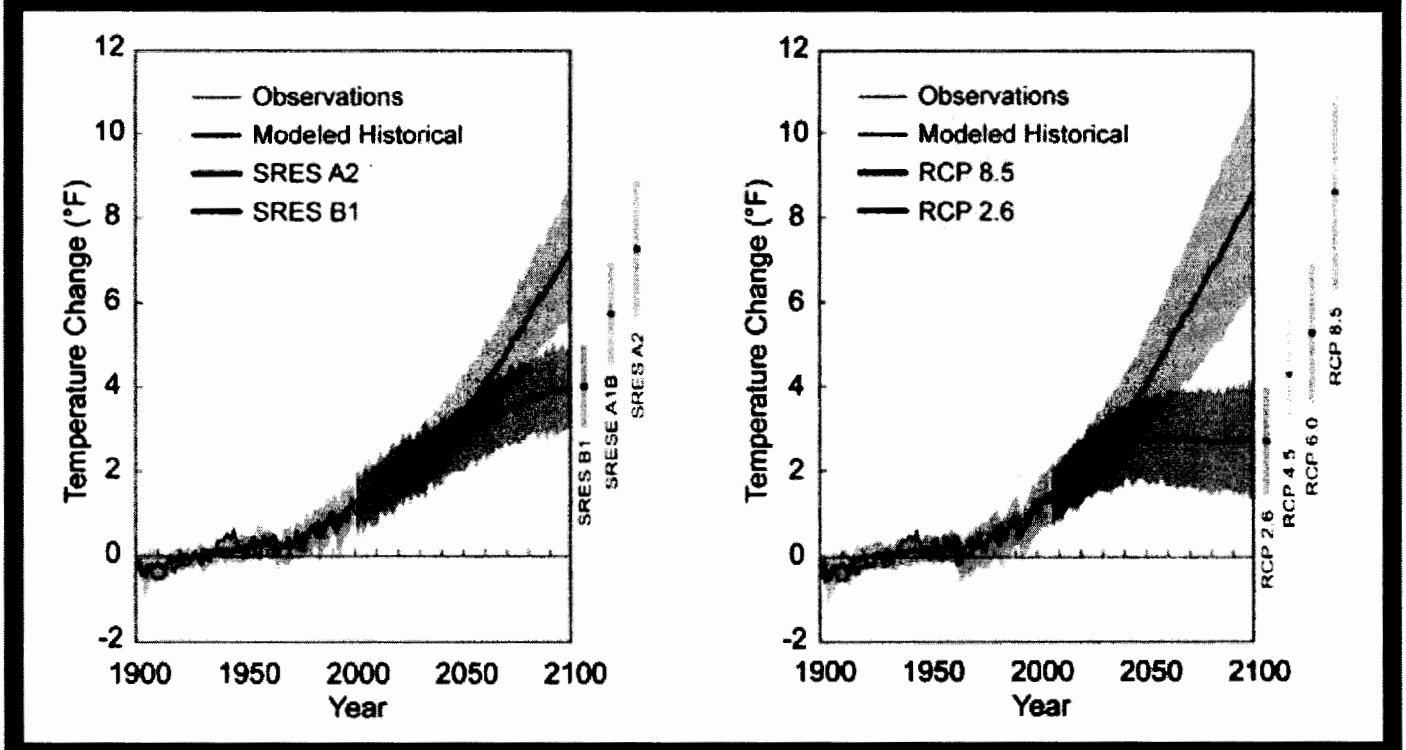
## Sea level rise

Global sea level has risen about 8 inches since reliable record keeping began in 1880. It is projected to rise another 1 to 4 feet by 2100. The oceans are absorbing over 90% of the increased atmospheric heat associated with emissions from human activity.[2] Like mercury in a thermometer, water expands as it warms up (this is referred to as "thermal expansion") causing sea levels to rise. Melting of glaciers and ice sheets is also contributing to sea level rise at increasing rates.[3]

### Past and Projected Changes in Global Sea Level

Figure shows estimated, observed, and possible amounts of global sea level rise from 1800 to 2100, relative to the year 2000. Estimates from proxy data[4] (for example, based on sediment records) are shown in red (1800-1890, pink band shows uncertainty), tide gauge data in blue for 1880-2009,[5] and satellite observations are shown in green from 1993 to 2012.[6] The future scenarios range from 0.66 feet to 6.6 feet in 2100.[7] These scenarios are not based on climate model simulations, but rather reflect the range of possible scenarios based on other kinds of scientific studies. The orange line at right shows the currently projected range of sea level rise of 1 to 4 feet by 2100, which falls within the larger risk-based scenario range. The large projected range reflects uncertainty about how glaciers and ice sheets will react to the warming ocean, the warming atmosphere, and changing winds and currents. As seen in the observations, there are year-to-year variations in the trend. (Figure source: Adapted from Parris et al. 2012,[7] with contributions from NASA Jet Propulsion Laboratory).






temperature. In the figure, each line represents a central estimate of global average temperature rise for a specific emissions pathway (relative

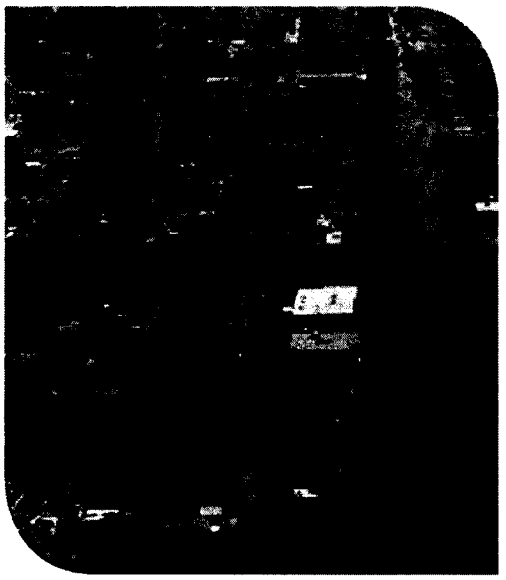
tury, and B1 assumes significant emissions reductions beginning around 2050, though not due explicitly to climate change policies. The right

## Where we are heading

Both voluntary activities and a variety of policies and measures that lower emissions are currently in place at federal, state, and local levels in the U.S., even though there is no comprehensive national climate legislation. Over the remainder of this century, aggressive and sustained greenhouse gas emission reductions by the U.S. and by other nations would be needed to reduce global emissions to a level consistent with the lower scenario (B1) analyzed in this assessment.

# FINDING

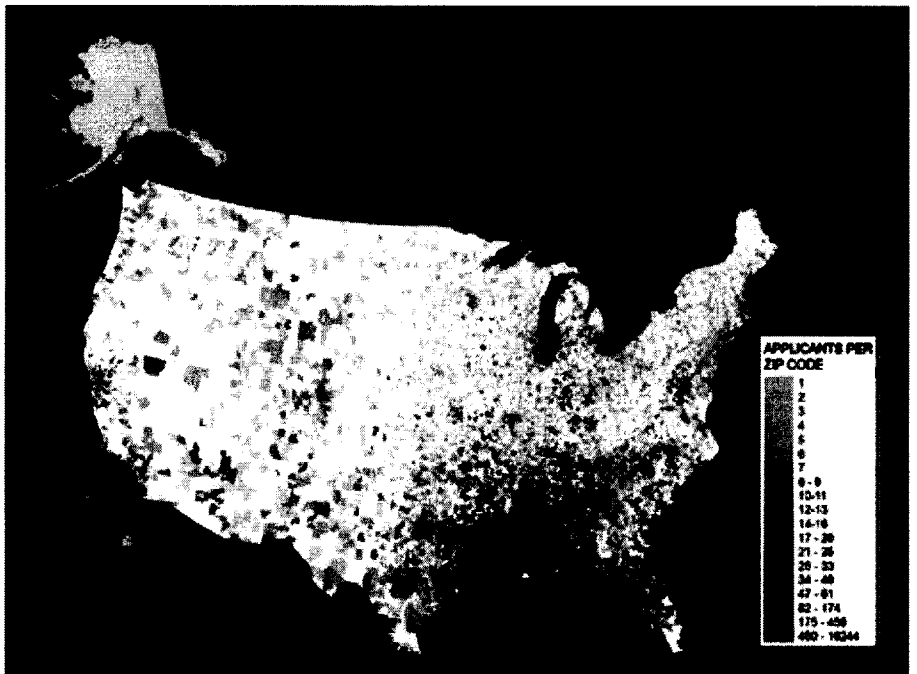
**Impacts related to climate change are already evident in many sectors and are expected to become increasingly disruptive across the nation throughout this century and beyond.**



Storm surge on top of sea level rise exacerbates coastal flooding during hurricanes.

Climate change is already affecting societies and the natural world. Climate change interacts with other environmental and societal factors in ways that can either moderate or intensify these impacts. The types and magnitudes of impacts vary across the nation and through time. Children, the elderly, the sick, and the poor are especially vulnerable. There is mounting evidence that harm to the nation will increase substantially in the future unless global emissions of heat-trapping gases are greatly reduced.

Because environmental, cultural, and socioeconomic systems are tightly coupled, climate change impacts can either be amplified or reduced by cultural and socioeconomic decisions. In many arenas, it is clear that societal decisions have substantial influence on the vulnerability of valued resources to climate change. For example, rapid population growth and development in coastal areas tends to amplify climate change related impacts. Recognition of these couplings, together with recognition of multiple sources of vulnerability, helps identify what information decision-makers need as they manage risks.



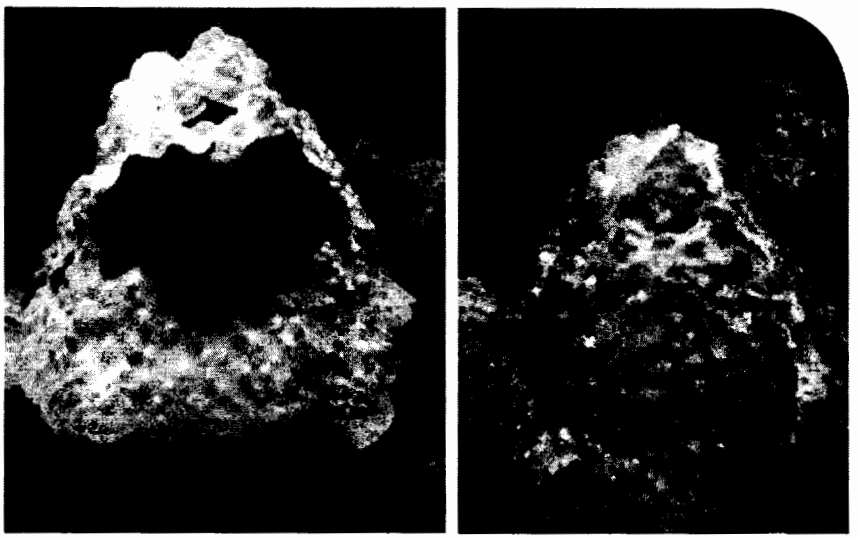

across the entire nation, illustrating the wide-ranging impacts that can flow from extreme

## Multiple System Failures During Extreme Events

Impacts are particularly severe when critical systems simultaneously fail. We have already seen multiple system failures during an extreme weather event in the United States, as when Hurricane Katrina struck New Orleans.[1] Infrastructure and evacuation failures and collapse of critical response services during a storm is one example of multiple system failures. Another example is a loss of electrical power during heat waves or wildfires, which can reduce food and water safety.[2] Air conditioning has helped reduce illness and death due to extreme heat,[3] but if power is lost, everyone is vulnerable. By their nature, such events can exceed our capacity to respond.[4] In succession, these events severely deplete resources needed to respond, from the individual to the national scale, but disproportionately affect the most vulnerable populations.[5]

## Coral Reef Ecosystem Collapse

In many social and natural systems, climate change combines with other stresses to cause or expand impacts. For example, coral reefs are threatened by a combination of ocean acidification caused by increased carbon dioxide, rising ocean temperatures, and a variety of other factors caused by human activities.



Warm water caused this coral colony to "bleach" (left) as it expelled the symbiotic algae that gave it color and nourishment. The coral then experienced more disease (right), which eventually killed the colony.

Recent research indicates that 75% of the world's coral reefs are threatened due to the interactive effects of climate change and local sources of stress, such as overfishing, nutrient pollution, and disease.[7] In Florida, all reefs are rated as threatened; with significant impacts on valuable ecosystem services they provide.[8] Caribbean coral cover has decreased 80% in less than three decades.[9] These declines have in turn led to a flattening of the three dimensional structure of coral reefs and hence a decrease in the capacity of coral reefs to provide shelter and additional resources for other reef-dependent ocean life.[10]

The relationship between coral and zooxanthellae (algae vital for reef-building corals) is disrupted by higher than usual temperatures and results in a condition where the coral is still alive, but devoid of all its color (bleaching). Bleached corals can later die or become infected with disease.[11] Thus, high temperature events alone can kill large stretches of coral reef, although cold water and poor water quality can also cause localized bleaching and death. Evidence suggests that relatively pristine reefs, with fewer human impacts and with intact fish and associated invertebrate communities, are more resilient to coral bleaching and disease.[12]

## Cascading Effects Across Sectors

Agriculture, water, energy, transportation, and more, are all affected by climate change. These sectors of our economy do not exist in isolation and are linked in increasingly complex ways. For example, water supply and energy use are completely intertwined, since water is used to generate energy, and energy is required to pump, treat, and deliver water – which means that irrigation-dependent farmers and urban dwellers are linked as well.

Heat and drought lead to cascading impacts among sectors including agriculture, water, and energy.

A recent illustration of these interconnections took place during the widespread drought of 2011-2012 when high temperatures caused increased demand for electricity for air conditioning, which resulted in increased water withdrawal and consumption for electricity generation. Heat, increased evaporation, drier soils, and lack of rain led to higher irrigation demands, which added stress on water resources required for energy production. At the same time, low-flowing and warmer rivers threatened to suspend power plant production in several locations, reducing the options for dealing with the concurrent increase in electricity demand.

With electricity demands at all-time highs, water shortages threatened more than 3,000 megawatts of generating capacity – enough power to supply more than one million homes.[13] As a result of the record demand and reduced supply, electricity prices spiked.[14]

# FINDING

## Climate change threatens human health and well-being in many ways.

Climate change is increasing the risks of respiratory stress from poor air quality, heat stress, and the spread of food-borne, insect-borne, and waterborne diseases. Extreme weather events often lead to fatalities and a variety of health impacts on vulnerable populations, including impacts on mental health, such as anxiety and post-traumatic stress disorder. Large-scale changes in the environment due to climate change and extreme weather events are increasing the risk of the emergence or reemergence of health threats that are currently uncommon in the United States, such as dengue fever.

Key weather and climate drivers of health impacts include increasingly frequent, intense, and longer-lasting extreme heat, which worsens drought, wildfire, and air pollution risks; increasingly frequent extreme precipitation, intense storms, and changes in precipitation patterns that can lead to flooding, drought, and ecosystem changes; and rising sea levels that intensify coastal flooding and storm surge, causing injuries, deaths, stress due to evacuations, and water quality impacts, among other effects on public health.

### Key Messages: Human Health

Climate change threatens human health and well-being in many ways, including impacts from increased extreme weather events, wildfire, decreased air quality, threats to mental health, and illnesses transmitted by food, water, and disease-carriers such as mosquitoes and ticks. Some of these health impacts are already underway in the United States.

Climate change will, absent other changes, amplify some of the existing health threats the nation now faces. Certain people and communities are especially vulnerable, including children, the elderly, the sick, the poor, and some communities of color.

Public health actions, especially preparedness and prevention, can do much to protect people from some of the impacts of climate change. Early action provides the largest health benefits. As threats increase, our ability to adapt to future changes may be limited.

Responding to climate change provides opportunities to improve human health and well-being across many sectors, including energy, agriculture, and transportation. Many of these strategies offer a variety of benefits, protecting people while combating climate change and providing other societal benefits.

### Air Quality

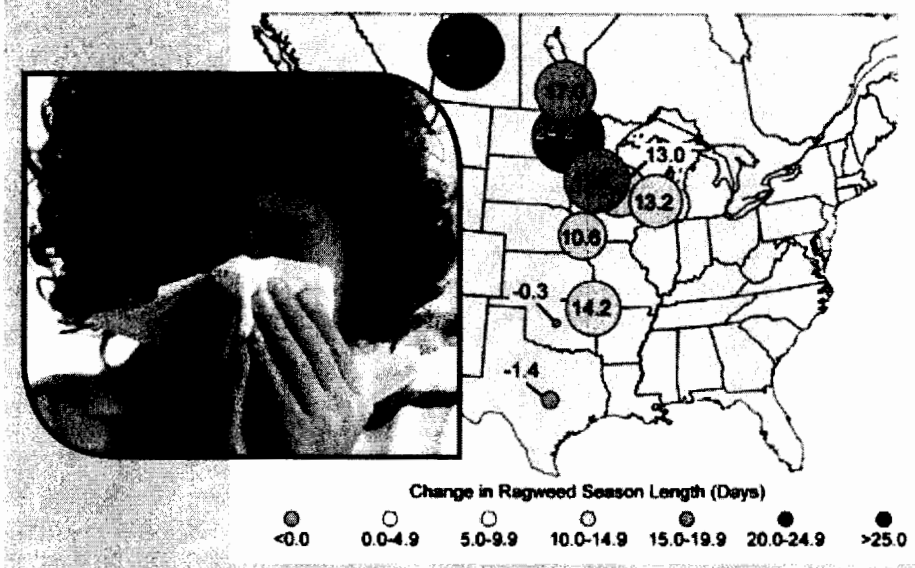
Climate change is projected to harm human health by increasing ground-level ozone and/or particulate matter in some locations. Ground-level ozone (a key component of smog) is associated with many health problems, such as diminished lung function, increased hospital admissions and emergency room visits for asthma, and increases in premature deaths.[1] Factors that affect ozone formation include heat, concentrations of precursor chemicals, and methane emissions, while particulate matter concentrations are affected by wildfire emissions and air stagnation episodes, among other factors.[2]

### Wildfire Smoke has Widespread Health Effects

Wildfires, which are projected to increase in some regions due to climate change, have health impacts that can extend hundreds of miles. Forest fires in Quebec, Canada, during July 2002 resulted in up to a 30-fold increase in airborne fine particle concentrations in Baltimore, a city nearly a thousand miles downwind. These fine particles are extremely harmful to human health, affecting both indoor and outdoor air quality. An average of 6.4 million acres burned in U.S. wildfires each year between 2000 and 2010, with 9.5 million acres burned in 2006 and 9.1 million acres in 2012. Global deaths from wildfire smoke have been estimated at 260,000 to 600,000 annually. (Figure source: MODIS instrument on the Terra Satellite, Land Rapid Response Team, NASA/GSFC).

Warmer and drier conditions have already contributed to increasing wildfire extent across the western United States, and future increases are projected in some regions.[5,6] Long periods of record high temperatures are associated with droughts that contribute to dry conditions and drive wildfires in some areas.[7] Wildfire smoke contains particulate matter, carbon monoxide, and other compounds, which can significantly reduce air quality, both locally and in areas downwind of fires.[8,9] Smoke exposure increases respiratory and cardiovascular hospitalizations, emergency room visits and medication for asthma, bronchitis, chest pain, and other ailments.[8,10,11] It has been associated with hundreds of thousands of deaths globally each year.[4,8,10,12] Future climate change is projected to increase wildfire risks and associated emissions, with harmful impacts on health.[6,13]

## Ragweed Pollen Season Lengthens




Ragweed pollen season length has increased in central North America between 1995 and 2011 by as much as 11 to 27 days in parts of the U.S. and Canada, in response to rising temperatures. Increases in the length of this allergenic pollen season are correlated with increases in the number of days before the first frost. As shown in the figure, the largest increases have been observed in northern cities. (Data updated from Ziska et al. 2011[14]).

## Allergies and Asthma

Climate change, as well as increased $CO_2$ by itself, can contribute to increased production of plant-based allergens.[6,14,15] Higher pollen concentrations and longer pollen seasons can increase allergic sensitizations and asthma episodes,[16,17] and diminish productive work and school days.[14,17,18] Simultaneous exposure to toxic air pollutants can worsen allergic responses.[19] Extreme rainfall and rising temperatures can also foster indoor air quality problems, including the growth of indoor fungi and molds, with increases in respiratory and asthma-related conditions.[20]

## Heavy Downpours are Increasing Exposure to Disease

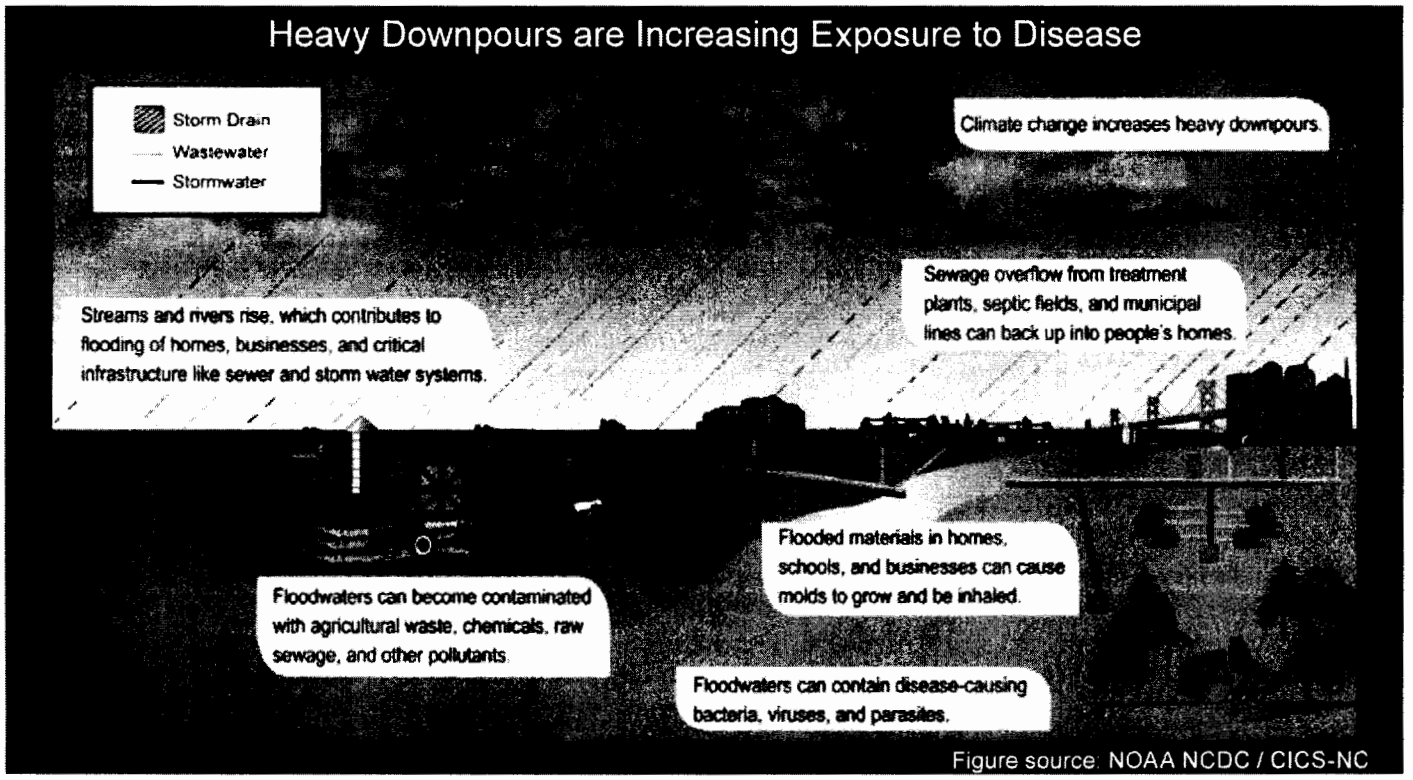



Figure source: NOAA NCDC / CICS-NC

# Finding 5: HUMAN HEALTH

## Food and Waterborne Diarrheal Disease

Diarrheal disease is a major public health issue in developing countries and while not generally increasing in the United States, remains a persistent concern nonetheless. Exposure to a variety of pathogens in water and food causes diarrheal disease. Air and water temperatures, precipitation patterns, extreme rainfall events, and seasonal variations are all known to affect disease transmission.[21] In the U.S., children and the elderly are most vulnerable to serious outcomes, and those exposed to inadequately or untreated groundwater will be among those most affected.

In general, diarrheal diseases including Salmonellosis and Campylobacteriosis are more common when temperatures are higher,[22] though patterns differ by place and pathogen. Diarrheal diseases have also been found to occur more frequently in conjunction with both unusually high and low precipitation.[23] Sporadic increases in streamflow rates, often preceded by rapid snowmelt[24] and changes in water treatment,[25] have also been shown to precede outbreaks. Risks of waterborne illness, and beach closures resulting from heavy rain and rising water temperatures are expected to increase in the Great Lakes region due to projected climate change.[26,27]

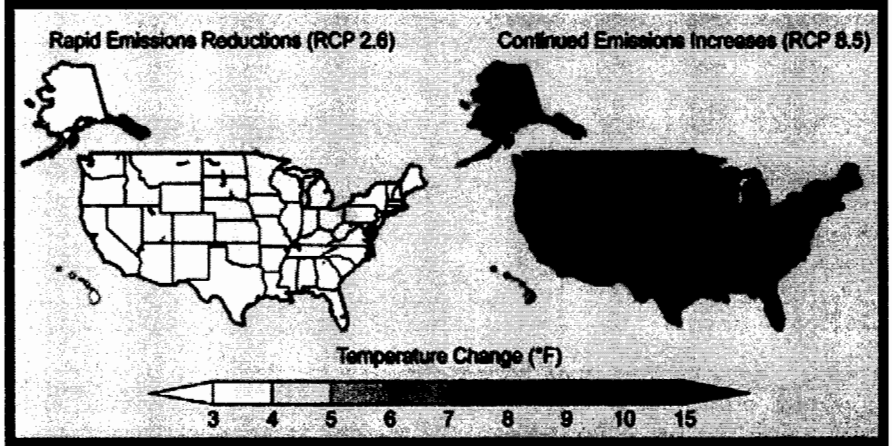
## Extreme Heat

Extreme heat events are the leading weather-related cause of death in the United States.[28] Many cities, including St. Louis, Philadelphia, Chicago, and Cincinnati have suffered dramatic spikes in death rates during heat waves. Deaths result from heat stroke and related conditions,[29] but also from cardiovascular disease, respiratory disease, and cerebrovascular disease.[30,31] Heat waves are also associated with increased hospital admissions for cardiovascular, kidney, and respiratory disorders.[31,32]

Extreme summer heat is increasing in the United States. The effects of heat stress are greatest during heat waves lasting several days or more. As human-induced climate change causes temperatures to continue to rise, heat waves are projected to increase in frequency, intensity, and duration.[33]

Some of the risks of heat-related sickness and death have diminished in recent decades, possibly due to better forecasting, heat-health early warning systems, and/or increased access to air conditioning for the U.S. population.[34] However, extreme heat events remain a cause of preventable death nationwide. Urban heat islands, combined with an aging population and increased urbanization, are projected to increase the vulnerability of urban populations, especially the poor, to heat-related health impacts in the future.[35]

### The Hottest Days Will Get Hotter




The maps show projected increases in the average temperature on the hottest days by late this century (2081-2100) relative to 1986-2005 under a scenario that assumes a rapid reduction in heat-trapping gases (RCP 2.6) and a scenario that assumes continued increases in these gases (RCP 8.5). The hottest days are those so hot they occur only once in 20 years. Across most of the continental U.S., those days will be about 10°F to 15°F hotter in the future under the higher emissions scenario. increasing health risks. (Figure source: NOAA NCDC / CICS-NC).

While deaths and injuries related to extreme cold events are projected to decline due to climate change, these reductions are not expected to compensate for the increase in heat-related deaths.[36]

Climate is one of the factors that influences the distribution of diseases borne by vectors (such as fleas, ticks, and mosquitoes, which spread pathogens that cause illness).[37,38,39,40] The geographic and seasonal distribution of vector populations, and the diseases they can carry, depend not only on climate, but also on land use, socioeconomic and cultural factors, pest control, access to health care, and human responses to disease risk, among other factors.[38,41,42]

North Americans are currently at risk from numerous vector-borne diseases, including Lyme, dengue fever, West Nile virus, Rocky Mountain spotted fever, plague, and tularemia.[40,43,44] Vector-borne pathogens not currently found in the U.S., such as chikungunya, Chagas disease, and Rift Valley fever viruses, are also threats. Climate change effects on the geographical distribution and incidence of vector-borne diseases in other countries where these diseases are already found can also affect North Americans, especially as a result of increasing trade with, and travel to, tropical and subtropical areas.[39,42]

The development and survival of blacklegged ticks, their animal hosts, and the bacterium that causes Lyme disease, are strongly influenced by climatic factors, especially temperature, precipitation, and humidity. Potential impacts of climate change on the transmission of Lyme disease include: 1) changes in the geographic distribution of the disease due to the increase in favorable habitat for ticks to survive off their hosts;[45] 2) a lengthened transmission season due to earlier onset of higher temperatures in the spring and later onset of cold and frost; 3) higher tick densities leading to greater risk in areas where the disease is currently observed due to milder winters and potentially larger rodent host populations; and 4) changes in human behaviors, including increased time outdoors, which may lead to a higher risk of exposure to infected ticks.

### Projected Changes in Tick Habitat

Tick Establishment Probability (%)

0-19 20-39 40-59 60-79 80-99

The maps show the current and projected (for 2080) probability of establishment of tick populations (*Ixodes scapularis*) that transmit Lyme disease. The projected expansion of tick habitat includes much of the eastern half of the country by 2080. For some areas around the Gulf Coast, the probability of tick population establishment is projected to decrease by 2080. (Figure source: adapted from Brownstein et al. 2005[46]).

## Multiple Benefits

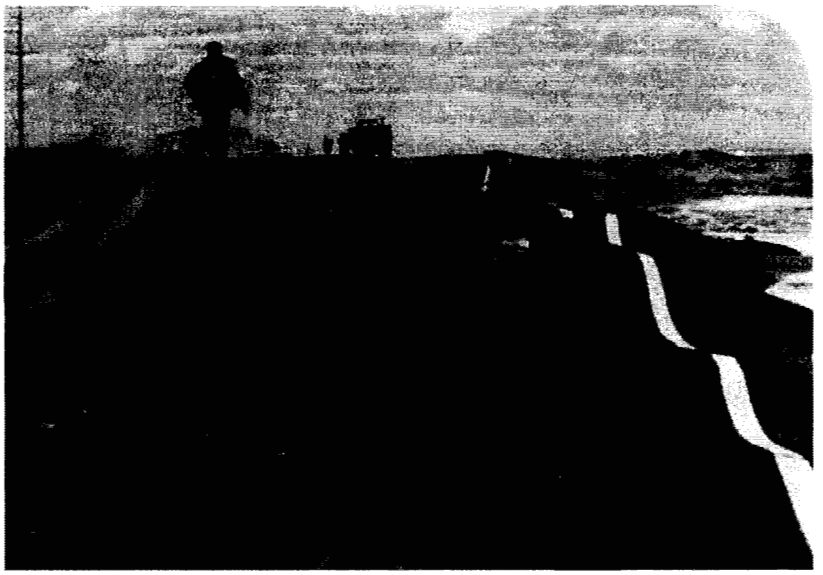
Policies and other strategies intended to reduce carbon pollution and mitigate climate change can often have independent influences on human health. For example, reducing $CO_2$ emissions through renewable electrical power generation can reduce air pollutants like particles and sulfur dioxide. Efforts to improve the resiliency of communities and human infrastructure to climate change impacts can also improve human health. There is a growing recognition that the magnitude of health "co-benefits," like reducing both pollution and cardiovascular disease, could be significant, both from a public health and an economic standpoint.[47]

Innovative urban design could create increased access to active transport (such as walking and biking).[27] The compact geographical area found in cities presents opportunities to reduce energy use and emissions of heat-trapping gases and other air pollutants through active transit, improved building construction, provision of services, and infrastructure creation, such as bike paths and sidewalks.[48,49] Urban planning strategies designed to reduce the urban heat island effect, such as green/cool roofs, increased green space, parkland, and urban canopy, could reduce indoor temperatures and improve indoor air quality, and could also produce additional societal co-benefits by promoting social interaction and prioritizing vulnerable urban populations.[48,50]

# FINDING

## Infrastructure is being damaged by sea level rise, heavy downpours, and extreme heat; damages are projected to increase with continued climate change.

Sea level rise, storm surge, and heavy downpours, in combination with the pattern of continued development in coastal areas, are increasing damage to U.S. infrastructure including roads, buildings, and industrial facilities, and are also increasing risks to ports and coastal military installations. Flooding along rivers, lakes, and in cities following heavy downpours, prolonged rains, and rapid melting of snowpack is exceeding the limits of flood protection infrastructure designed for historical conditions. Extreme heat is damaging transportation infrastructure such as roads, rail lines, and airport runways.



Infrastructure around the country has been compromised by extreme weather events and rising sea levels. Power outages and road and bridge damage are among the infrastructure failures that have occurred during these extreme events. A disruption in any one system affects others. For example, a failure of the electrical grid can affect everything from water treatment to public health.

## Key Messages: Urban Systems, Infrastructure, and Vulnerability

**Climate change and its impacts threaten the well-being of urban residents in all U.S. regions. Essential infrastructure systems such as water, energy supply, and transportation will increasingly be compromised by interrelated climate change impacts. The nation's economy, security, and culture all depend on the resilience of urban infrastructure systems.**

**In urban settings, climate-related disruptions of services in one infrastructure system will almost always result in disruptions in one or more other infrastructure systems.**

**Climate vulnerability and adaptive capacity of urban residents and communities are influenced by pronounced social inequalities that reflect age, ethnicity, gender, income, health, and (dis)ability differences.**

**City government agencies and organizations have started adaptation plans that focus on infrastructure systems and public health. To be successful, these adaptation efforts require cooperative private sector and governmental activities, but institutions face many barriers to implementing coordinated efforts.**

Climate change poses a series of interrelated challenges to the country's most densely populated places: its cities. The U.S. is highly urbanized, with about 80% of its population living in cities and metropolitan areas. Cities depend on infrastructure, like water and sewage systems, roads, bridges, and power plants, much of which is aging and in need of repair or replacement. These issues will be compounded by rising sea levels, storm surges, heat waves, and extreme weather events, stressing or even overwhelming essential services.

Urban dwellers are particularly vulnerable to disruptions in essential infrastructure services, in part because many of these infrastructure systems are reliant on each other. For example, electricity is essential to multiple systems, and a failure in the electrical grid can affect water treatment, transportation services, and public health. These infrastructure systems – lifelines to millions – will continue to be affected by various climate-related events and processes.

New York City's subway system, the nation's busiest, sustained the worst damage in its 108 years of operation on October 29, 2012. Millions of people were left without service for at least a week. The damages from Superstorm Sandy are indicative of what powerful tropical storms and higher sea levels could bring more frequently in the future, and were very much in line with vulnerability assessments conducted over the past four years.[4] The effects of the storm would have been far worse if local climate resilience strategies had not been in place. The City of New York and the Metropolitan Transportation Authority worked aggressively to protect life and property by stopping the operation of the city's subway before the storm hit and moving the train cars out of low-lying, flood-prone areas. Catastrophic loss of life would have resulted if there had been subway trains operating in the tunnels when the storm struck.

Cities have become early responders to climate change challenges and opportunities. Integrating climate change action in everyday city and infrastructure operations and governance is an important planning and implementation tool for advancing adaptation in cities.[1,2] By integrating climate-change considerations into daily operations, these efforts can forestall the need to develop a new and isolated set of climate-change-specific policies or procedures.[3] This strategy enables cities and other government agencies to take advantage of existing funding sources and programs, and achieve co-benefits in areas such as sustainability, public health, economic development, disaster preparedness, and environmental justice. Pursuing low-cost, no-regrets options is a particularly attractive short-term strategy for many cities.[1,3]

# Finding 6: INFRASTRUCTURE

## Key Messages: Transportation

The impacts from sea level rise and storm surge, extreme weather events, higher temperatures and heat waves, precipitation changes, Arctic warming, and other climatic conditions are affecting the reliability and capacity of the U.S. transportation system in many ways.

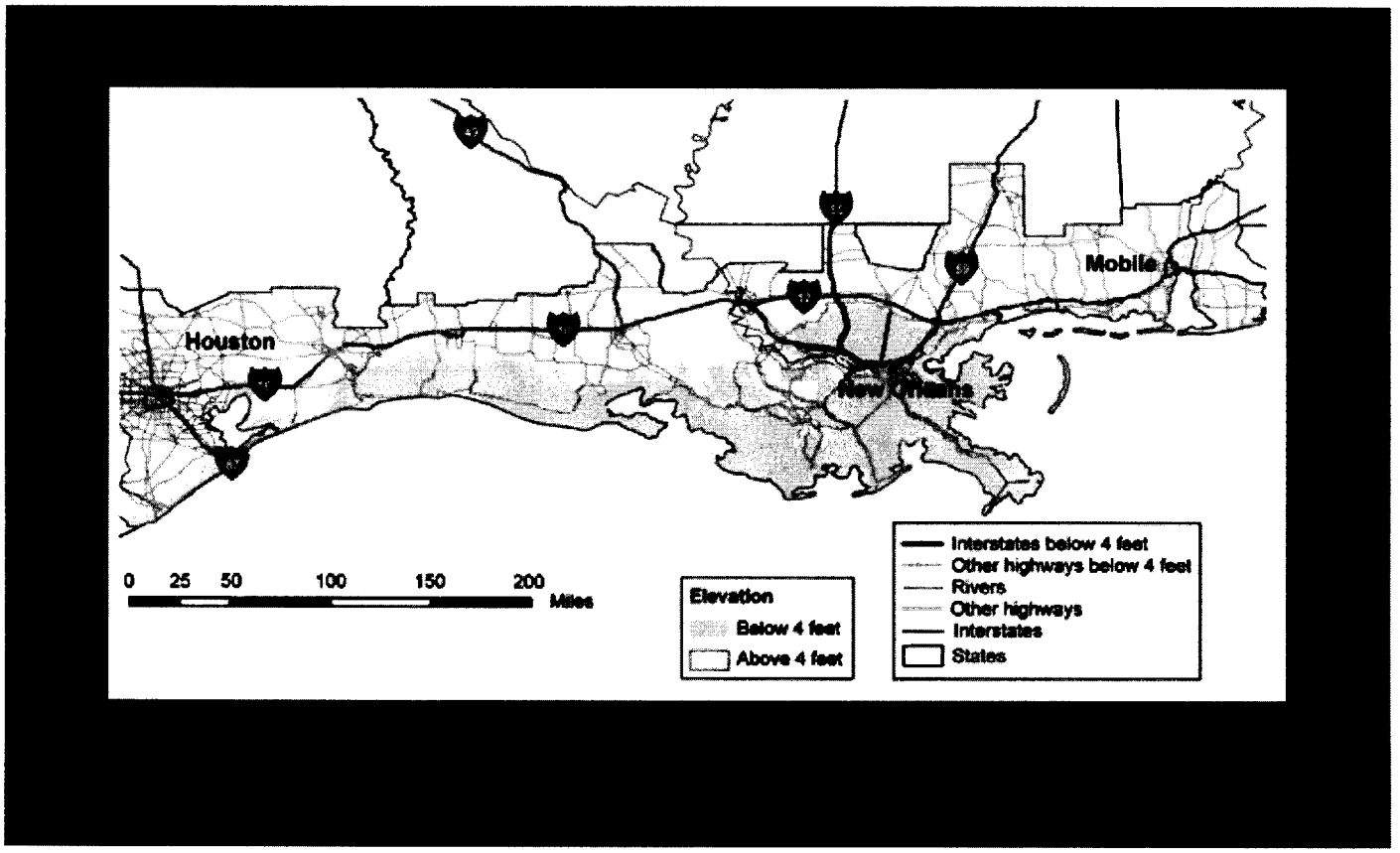
Sea level rise, coupled with storm surge, will continue to increase the risk of major coastal impacts on transportation infrastructure, including both temporary and permanent flooding of airports, ports and harbors, roads, rail lines, tunnels, and bridges.

Extreme weather events currently disrupt transportation networks in all areas of the country; projections indicate that such disruptions will increase.

Climate change impacts will increase the total costs to the nation's transportation systems and their users, but these impacts can be reduced through rerouting, mode change, and a wide range of adaptive actions.

Transportation systems are affected by climate change and also contribute to climate change. In 2010, the U.S. transportation sector accounted for 27% of all U.S. heat-trapping greenhouse gas emissions, with cars and trucks accounting for 65% of that total.[5] Petroleum accounts for 93% of the nation's transportation energy use.[5] This means that policies and behavioral changes aimed at reducing greenhouse gas emissions will have significant implications for the various components of the transportation sector.

Transportation systems are already experiencing costly climate change related impacts. Many inland states, including Vermont, Tennessee, Iowa, and Missouri, have experienced severe precipitation events, hail, and flooding during the past three years, damaging roads, bridges, and rail systems and the vehicles that use them. Over the coming decades, all modes of transportation and regions will be affected by increasing temperatures, more extreme weather events, and changes in precipitation. Concentrated transportation impacts are particularly expected to occur in Alaska and along seacoasts.



## Key Messages: Energy Supply and Use

Extreme weather events are affecting energy production and delivery facilities, causing supply disruptions of varying lengths and magnitudes and affecting other infrastructure that depends on energy supply. The frequency and intensity of certain types of extreme weather events are expected to change.

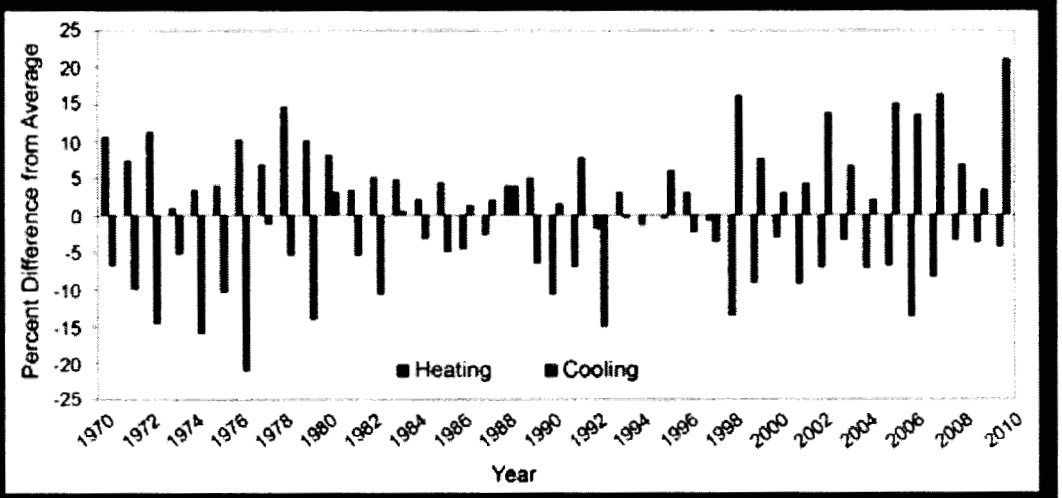
Higher summer temperatures will increase electricity use, causing higher summer peak loads, while warmer winters will decrease energy demands for heating. Net electricity use is projected to increase.

Changes in water availability, both episodic and long-lasting, will constrain different forms of energy production.

In the longer term, sea level rise, extreme storm surge events, and high tides will affect coastal facilities and infrastructure on which many energy systems, markets, and consumers depend.

As new investments in energy technologies occur, future energy systems will differ from today's in uncertain ways. Depending on the character of changes in the energy mix, climate change will introduce new risks as well as opportunities.

The U.S. energy system provides a secure supply of energy with only occasional interruptions. However, projected impacts of climate change will increase energy use in the summer and pose additional risks to reliability. Extreme weather events and water shortages are already interrupting energy supply and impacts are expected to increase in the future. Most vulnerabilities and risks to energy supply and use are unique to local situations; others are national in scope.




defined as the number of degrees that a day's average temperature is above 65°F, while heating degree days are the number of degrees a day's average temperature is below 65°F. (Data from NOAA NCDC 2012

Increases in average temperatures and high temperature extremes are expected to lead to increasing demands for electricity for cooling in every U.S. region. Virtually all cooling load is handled by the electrical grid. In order to meet increased demands for peak electricity, additional generating and distribution facilities will be needed, or demand will have to be managed through a variety of mechanisms. Electricity at peak demand typically is more expensive to supply than at average demand.[7]

In addition to being vulnerable to the effects of climate change, electricity generation is a major source of the heat-trapping gases that contribute to climate change. As a result, regulatory or policy efforts aimed at reducing emissions would also affect the energy supply system.

# FINDING

## Water quality and water supply reliability are jeopardized by climate change in a variety of ways that affect ecosystems and livelihoods.

Surface and groundwater supplies in some regions are already stressed by increasing demand as well as declining runoff and groundwater recharge. In some regions, particularly the southern U.S. and the Caribbean and Pacific islands, climate change is increasing the likelihood of water shortages and competition for water. Water quality is diminishing in many areas, particularly due to increasing sediment and contaminant concentrations after heavy downpours.

### Key Messages: Water Resources

#### Climate Change Impacts on the Water Cycle

Annual precipitation and river-flow increases are observed now in the Midwest and the Northeast regions. Very heavy precipitation events have increased nationally and are projected to increase in all regions. The length of dry spells is projected to increase in most areas, especially the southern and northwestern portions of the contiguous United States.

Short-term (seasonal or shorter) droughts are expected to intensify in most U.S. regions. Longer-term droughts are expected to intensify in large areas of the Southwest, southern Great Plains, and Southeast.

Flooding may intensify in many U.S. regions, even in areas where total precipitation is projected to decline.

Climate change is expected to affect water demand, groundwater withdrawals, and aquifer recharge, reducing groundwater availability in some areas.

Sea level rise, storms and storm surges, and changes in surface and groundwater use patterns are expected to compromise the sustainability of coastal freshwater aquifers and wetlands.

Increasing air and water temperatures, more intense precipitation and runoff, and intensifying droughts can decrease river and lake water quality in many ways, including increases in sediment, nitrogen, and other pollutant loads.

#### Climate Change Impacts on Water Resources Use and Management

Climate change affects water demand and the ways water is used within and across regions and economic sectors. The Southwest, Great Plains, and Southeast are particularly vulnerable to changes in water supply and demand.

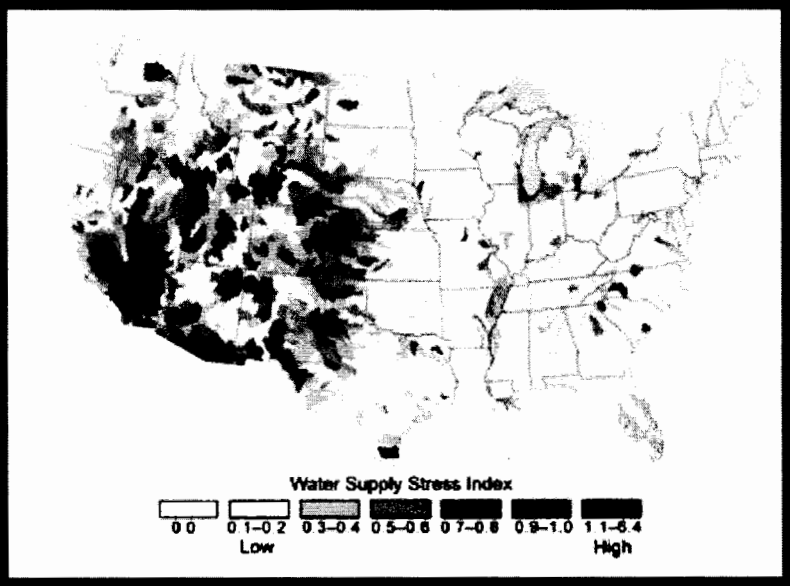
Changes in precipitation and runoff, combined with changes in consumptive and withdrawal, have reduced surface and groundwater supplies in many areas. These trends are expected to continue, increasing the likelihood of water shortages for many uses.

Increasing flooding risk affects human safety and health, property, infrastructure, economies, and ecology in many basins across the United States.

#### Adaptation and Institutional Responses

In most U.S. regions, water resources managers and planners will encounter new risks, vulnerabilities, and opportunities that may not be properly managed within existing practices.

Increasing resilience and enhancing adaptive capacity provide opportunities to strengthen water resources management and plan for climate change impacts. Many institutional, scientific, economic, and political barriers present challenges to implementing adaptive strategies.



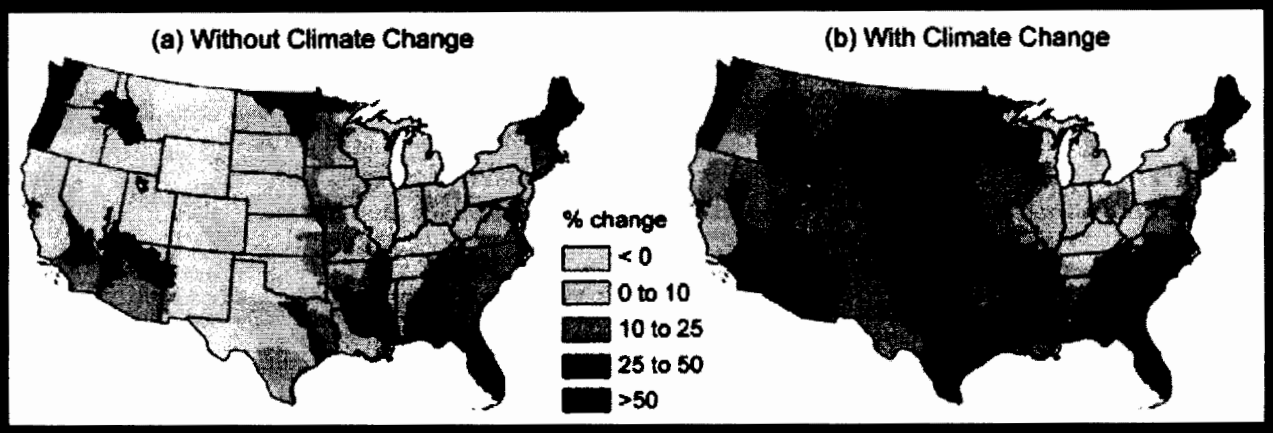

plants, and municipalities exceeds 40% of available supply. This often causes conflict

## Changes to Water Demand and Use

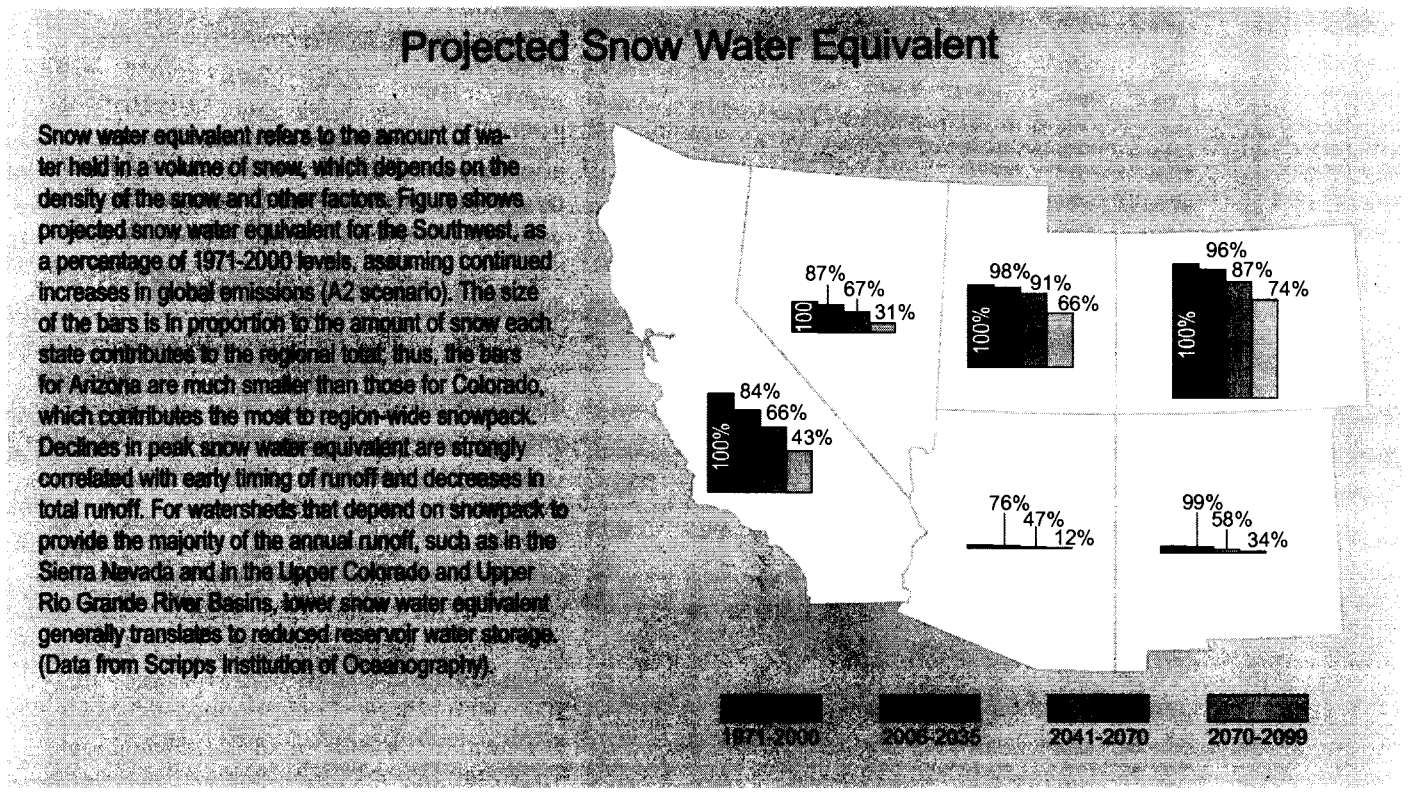
Climate change, acting concurrently with demographic, land-use, energy generation and use, and socioeconomic changes, is challenging existing water management practices by affecting water availability and demand and by exacerbating competition among uses and users. In some regions, these current and expected impacts are hastening efficiency improvements in water withdrawal and use, the deployment of more proactive water management and adaptation approaches, and the re-assessment of the water infrastructure and institutional responses.[1]

## Water Withdrawals

Total freshwater withdrawals (including water withdrawn and consumed as well as water that returns to the original source) and consumptive uses have leveled off nationally since 1980 at 350 billion gallons of withdrawn water and 100 billion gallons of consumptive water per day, despite the addition of 68 million people from 1980 to 2005.[2] Irrigation and electric power plant cooling withdrawals account for approximately 77% of total withdrawals, municipal and industrial for 20%, and livestock and aquaculture for 3%. Most thermoelectric withdrawals are returned back to rivers after their use for power plant cooling, while most irrigation withdrawals are consumed by the processes of evapotranspiration (evaporation and loss of moisture from leaves) and plant growth. Thus, consumptive water use is dominated by irrigation (81%) followed distantly by municipal and industrial (8%) and the remaining water uses (5%). The largest withdrawals occur in the drier western states for crop irrigation. In the east, water withdrawals mainly serve municipal, industrial, and thermoelectric uses. Some of the largest demand increases are projected in regions where groundwater aquifers are the main water supply source, such as the Great Plains and parts of the Southwest and Southeast. The projected water demand increases (shown below) combined with potentially declining recharge rates threaten the sustainability of many aquifers.

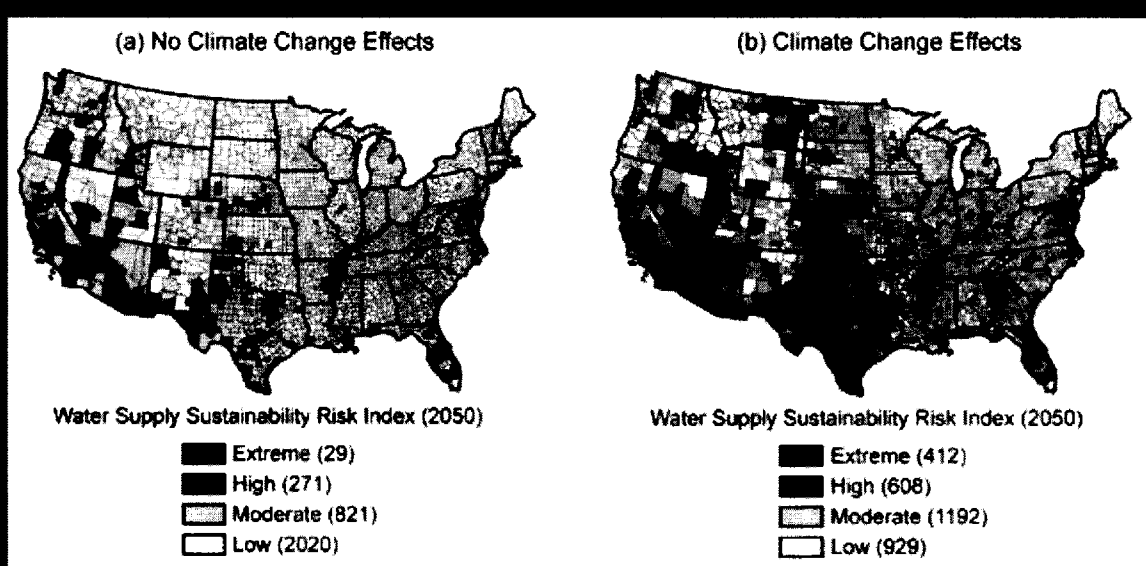



significantly increase water demand across most of the United States. Maps show percent change from 2005 to 2060 in projected demand




## Water Quality

Lower and more persistent low flows under drought conditions as well as higher flows during floods can worsen water quality. Increasing precipitation intensity, along with the effects of wildfires and fertilizer use, are increasing sediment, nutrient, and contaminant loads in surface waters used by downstream water users[5] and ecosystems in some places. Changing land cover, flood frequencies, and flood magnitudes are expected to increase mobilization of sediments in large river basins.[6]




decline, and even in some areas where precipitation is expected to increase. Compared to 10% of counties today, by 2050, 32% of counties

greenhouse gas emissions through 2050 and a slow decline thereafter (A1B scenario). (Figure source: Reprinted with permission from Roy et

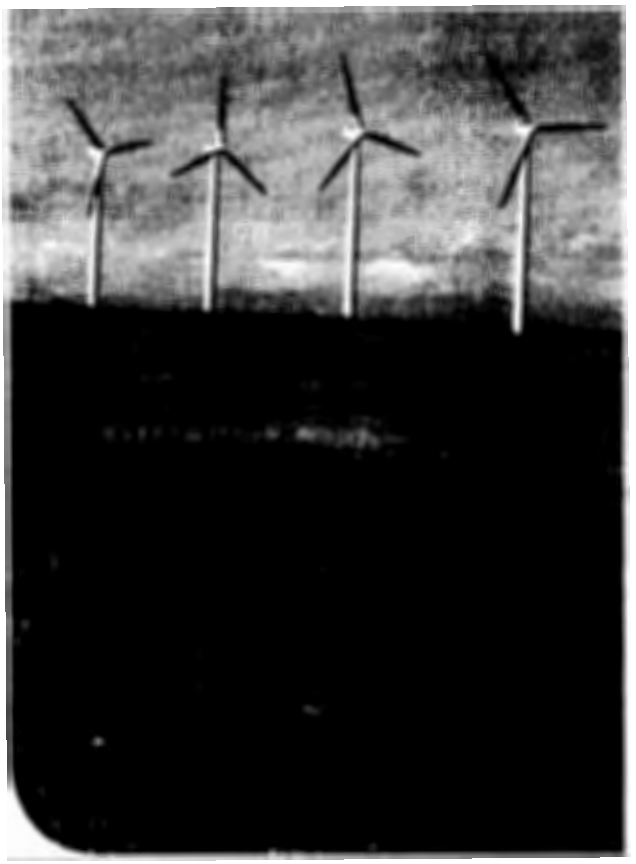
## Key Messages: Energy, Water, and Land Use

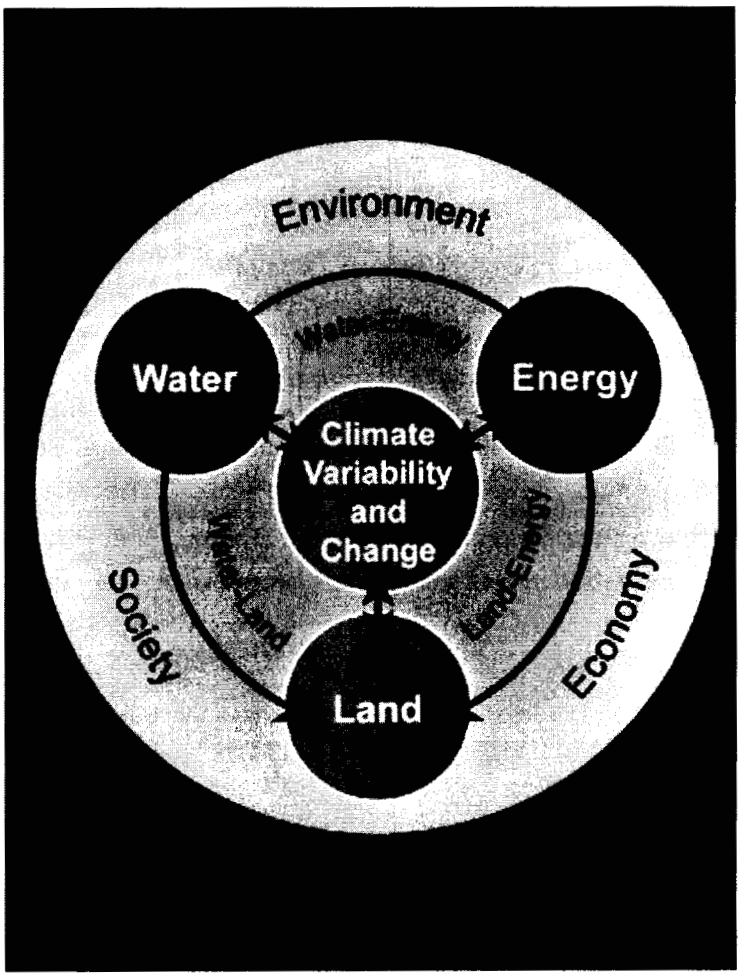
**Energy, water, and land systems interact in many ways. Climate change affects the individual sectors and their interactions; the combination of these factors affects climate change vulnerability as well as adaptation and mitigation options for different regions of the country.**

**The dependence of energy systems on land and water supplies will influence the development of these systems and options for reducing greenhouse gas emissions, as well as their climate change vulnerability.**

**Jointly considering risks, vulnerabilities, and opportunities associated with energy, water, and land use is challenging, but can improve the identification and evaluation of options for reducing climate change impacts.**

Energy production, land use, and water resources are linked in complex ways. Electric utilities and energy companies compete with farmers and ranchers for water rights in some parts of the country. Land-use planners need to consider the interactive impacts of strained water supplies on cities, agriculture, and ecological needs. Across the country, these intertwined sectors will witness increased stresses due to climate changes that are projected to reduce water quality and/or quantity in many regions and change heating and cooling electricity demand, among other impacts.





# FINDING

## Climate disruptions to agriculture have been increasing and are projected to become more severe over this century.

Some areas are already experiencing climate-related disruptions, particularly due to extreme weather events. While some U.S. regions and some types of agricultural production will be relatively resilient to climate change over the next 25 years or so, others will increasingly suffer from stresses due to extreme heat, drought, disease, and heavy downpours. From mid-century on, climate change is projected to have more negative impacts on crops and livestock across the country – a trend that could diminish the security of our food supply.

### Key Messages: Agriculture

Climate disruptions to agricultural production have increased in the past 40 years and are projected to increase over the next 25 years. By mid-century and beyond, these impacts will be increasingly negative on most crops and livestock.

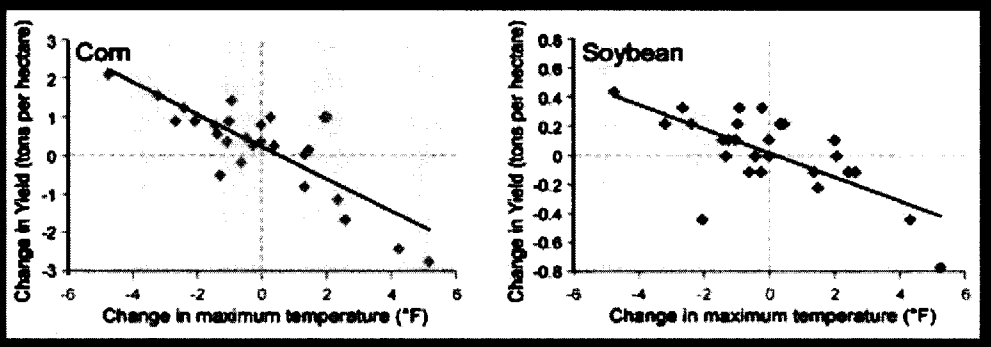
Many agricultural regions will experience declines in crop and livestock production from increased stress due to weeds, diseases, insect pests, and other climate change induced stresses.

Current loss and degradation of critical agricultural soil and water assets due to increasing extremes in precipitation will continue to challenge both rainfed and irrigated agriculture unless innovative conservation methods are implemented.

The rising incidence of weather extremes will have increasingly negative impacts on crop and livestock productivity because critical thresholds are already being exceeded.

Agriculture has been able to adapt to recent changes in climate; however, increased innovation will be needed to ensure the rate of adaptation of agriculture and the associated socioeconomic system can keep pace with climate change over the next 25 years.

Climate change effects on agriculture will have consequences for food security, both in the U.S. and globally, through changes in crop yields and food prices and effects on food processing, storage, transportation, and retailing. Adaptation measures can help delay and reduce some of these impacts.




during the pollination and grain-filling period. For example, corn (left) and soybean (right) harvests in Illinois and Indiana, two major producers, were lower in years with average maximum summer (June, July, and August) temperatures that were higher than the 1980-2007 average. Most years with below-average yields are both warmer and drier than normal.[1,2] There is a very high correlation between warm and dry conditions during Midwest summers
(Figure source: redrawn from Mishra and Cherkauer 2010[1]).

Climate change poses a major challenge to U.S. agriculture, because of the critical dependence of the agricultural system on climate and because of the complex role agriculture plays in social and economic systems. Climate change has the potential to both positively and negatively affect the location, timing, and productivity of crop, livestock, and fishery systems at local, national, and global scales.

The U.S. produces nearly $330 billion per year in agricultural commodities.[5] This productivity is vulnerable to direct impacts on crop and livestock development and yield from changing climate conditions and extreme weather events, and indirect impacts through increasing pressures from pests and pathogens. Climate change has the potential to both positively and negatively affect agricultural systems at local, national, and global scales. Climate change will also alter the stability of food supplies and create new food security challenges for the U.S. as the world seeks to feed nine billion people by 2050.

The agricultural sector continually adapts through a variety of strategies that have allowed previous agricultural production to increase, as evidenced by the continued growth in production and efficiency across the United States. However, the magnitude of climate change projected for this century and beyond, particularly under higher emissions scenarios, will challenge the ability of the agriculture sector to continue to successfully adapt.

## Key Climate Variables Affecting Agricultural Productivity

Change in Frost-free Season Length

Frost-free season is projected to lengthen across much of the nation. Taking advantage of the increasing length of the growing season and changing planting dates could allow planting of more diverse crop rotations, which can be an effective adaptation strategy.

Change in Number of Consecutive Dry Days

The annual maximum number of consecutive dry days (less than 0.01 inches of rain) is projected to increase, especially in the western and southern parts of the nation, negatively affecting crop and animal production. The trend toward more consecutive dry days and higher temperatures will increase evaporation and add stress to limited water resources, affecting irrigation and other water uses.[6]

Change in Number of Hot Nights

Hot nights are defined as nights with a minimum temperature higher than 98% of the minimum temperatures between 1971 and 2000. Such nights are projected to increase throughout the nation. High nighttime temperatures can reduce grain yields and increase stress on animals, resulting in reduced rates of meat, milk, and egg production.[7]

Projections are shown for 2070-2099 as compared to 1970-2000 under an emissions scenario that assumes continued increases in heat-trapping gases (A2). (Figure source: NOAA NCDC / GHCN-M).

# FINDING

## Climate change poses particular threats to Indigenous Peoples' health, well-being, and ways of life.

The peoples, lands, and resources of indigenous communities in the United States, including Alaska and the Pacific Rim, face an array of climate change impacts and vulnerabilities. The consequences of observed and projected climate change have and will undermine indigenous ways of life that have persisted for thousands of years. Native cultures are directly tied to Native places and homelands, and many indigenous peoples regard all people, plants, and animals that share our world as relatives rather than resources. Language, ceremonies, cultures, practices, and food sources evolved in concert with the inhabitants, human and non-human, of specific homelands.

Human-caused stresses such as dam building have greatly reduced salmon on the Klamath River.

Climate change impacts on many of the 566 federally recognized tribes and other tribal and indigenous groups are projected to be especially severe, since these impacts are compounded by a number of persistent social and economic problems.[1] Key vulnerabilities include the loss of traditional knowledge in the face of rapidly changing ecological conditions, increased food insecurity due to reduced availability of traditional foods, changing water availability, Arctic sea ice loss, permafrost thaw, and relocation from historic homelands.[2,3]

### Key Messages: Indigenous Peoples, Lands, and Resources

Observed and future impacts from climate change threaten Native Peoples' access to traditional foods such as fish, game, and wild and cultivated crops, which have provided sustenance as well as cultural, economic, medicinal, and community health for generations.

A significant decrease in water quality and quantity due to a variety of factors, including climate change, is affecting drinking water, food, and cultures. Native communities' vulnerabilities and limited capacity to adapt to water-related challenges are exacerbated by historical and contemporary government policies and poor socioeconomic conditions.

Declining sea ice in Alaska is causing significant impacts to Native communities, including increasingly risky travel and hunting conditions, damage and loss to settlements, food insecurity, and socioeconomic and health impacts from loss of cultures, traditional knowledge, and homelands.

Alaska Native communities are increasingly exposed to health and livelihood hazards from increasing temperatures and thawing permafrost, which are damaging critical infrastructure, adding to other stressors on traditional lifestyles.

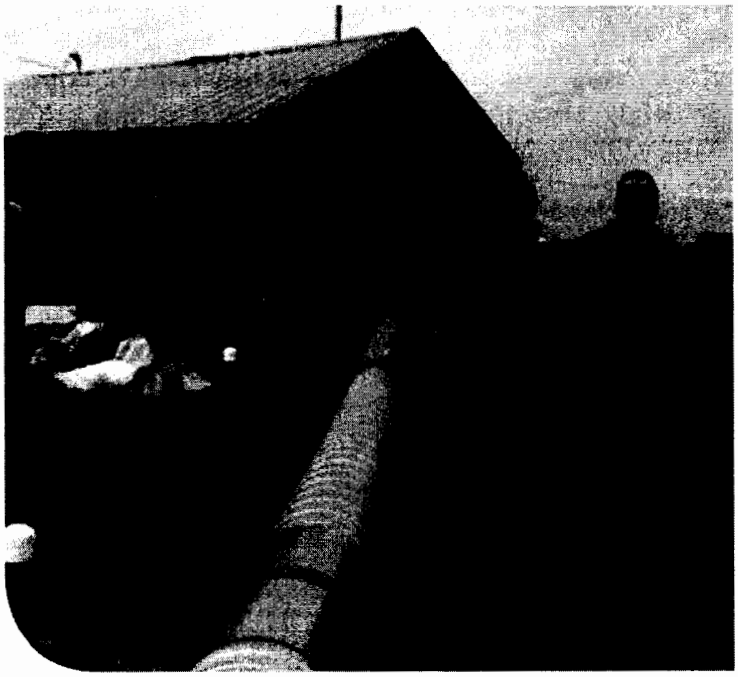
Climate change related impacts are forcing relocation of tribal and indigenous communities, especially in coastal locations. These relocations, and the lack of governance mechanisms or funding to support them, are causing loss of community and culture, health impacts, and economic decline, further exacerbating tribal impoverishment.

Indigenous communities in various parts of the U.S. have observed climatic changes that result in impacts such as the loss of traditional foods, medicines, and water supplies. The Southwest's 182 federally recognized tribes and communities in its U.S.-Mexico border region share particularly high vulnerabilities to climate changes such as high temperatures, drought, and severe storms. Changes in long-term average temperature, precipitation, and declining snowpack have altered the physical and hydrologic environment on the Colorado Plateau, making the Navajo Nation more susceptible to drought impacts.[4] Southwest tribes have observed damage to agriculture and livestock, the loss of springs and medicinal and culturally important plants and animals, and impacts on drinking water supplies.[5] In the Northwest, tribal treaty rights are being affected by the reduction of rainfall and snowmelt in the mountains, melting glaciers, rising temperatures, and shifts in ocean currents.[6] Tribal communities in coastal Louisiana are experiencing climate change induced rising sea levels, along with saltwater intrusion, subsidence, and intense erosion and land loss due to oil and gas extraction, levees, dams, and other river management techniques, forcing them to either relocate or try to find ways to save their land.[7] In Hawai'i, Native peoples have observed a shortening of the rainy season, increasing intensity of storms and flooding, and unpredictable rainfall patterns.[8]

Harvesting traditional foods is important to Native Peoples' culture, health, and economic well being. In the Great Lakes region, wild rice is unable to grow in its traditional range due to warming winters and changing water levels.

## Alaska Natives Face Multiple Climate Impacts

Alaska is home to 40% (229 of 566) of the federally recognized tribes in the United States.[9] The small number of jobs, high cost of living, and rapid social change make rural, predominantly Native, communities highly vulnerable to climate change through impacts on traditional hunting and fishing practices. In Alaska, water availability, quality, and quantity are threatened by the consequences of permafrost thaw, which has damaged community water infrastructure, as well as by the northward extension of diseases such as those caused by the *Giardia* parasite.[10]



Rising temperatures are causing damage in Native villages in Alaska as sea ice declines and permafrost thaws. Resident of Selawik, Alaska, and his granddaughter survey a water line sinking into the thawing permafrost, August 2011.

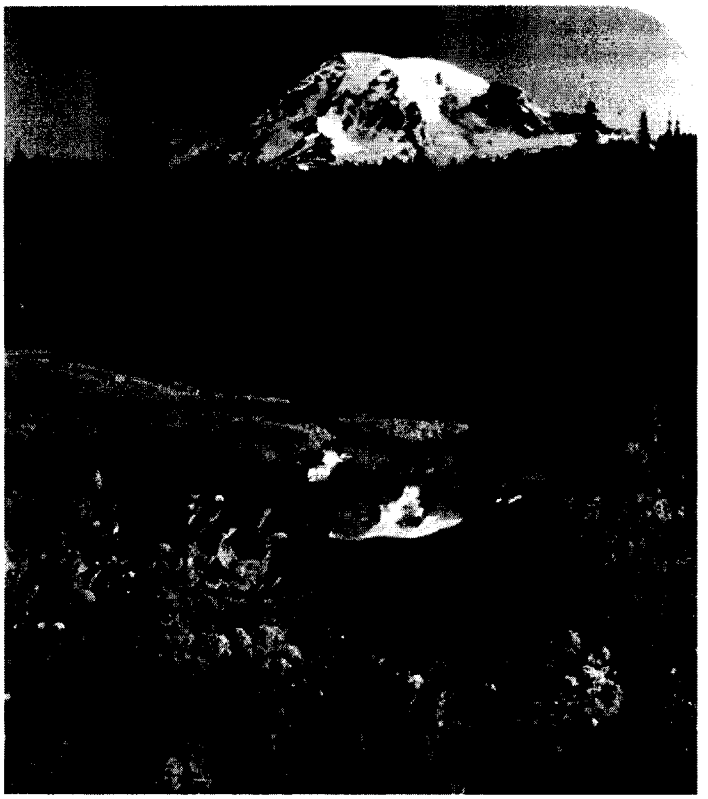
Arctic regional temperatures have risen at twice the global rate over the past few decades.[2] This temperature increase – which is expected to continue with future climate change – is accompanied by significant reductions in sea ice thickness and extent, increased permafrost thaw, more extreme weather and severe storms, and changes in seasonal ice melt/freeze of lakes and rivers, water temperature, sea level, flooding patterns, erosion, and snowfall timing and type.[11,12] These changes increase the number of serious problems for Alaska Native populations, which include: injury from extreme or unpredictable weather and thinning sea ice; changing snow and ice conditions that limit safe hunting, fishing, or herding practices; malnutrition and food insecurity from lack of access to subsistence food; contamination of food and water; increasing economic, mental, and social problems from loss of culture and traditional livelihood; increases in infectious diseases; and loss of buildings and infrastructure from permafrost erosion and thawing, resulting in the relocation of entire communities.[2,10,12,13] For more, see pages 82-83.

# FINDING

**Ecosystems and the benefits they provide to society are being affected by climate change. The capacity of ecosystems to buffer the impacts of extreme events like fires, floods, and severe storms is being overwhelmed.**

Climate change impacts on biodiversity are already being observed in alteration of the timing of critical biological events such as spring bud burst, and substantial range shifts of many species. In the longer term, there is an increased risk of species extinction. These changes have social, cultural, and economic effects. Events such as droughts, floods, wildfires, and pest outbreaks associated with climate change (for example, bark beetles in the West) are already disrupting ecosystems. These changes limit the capacity of ecosystems, such as forests, barrier beaches, and wetlands, to continue to play important roles in reducing the impacts of extreme events on infrastructure, human communities, and other valued resources.

In addition to direct impacts on ecosystems, societal choices about land use and agricultural practices affect the cycling of carbon, nitrogen, phosphorus, sulfur, and other elements, which also influence climate. These choices can affect, positively or negatively, the rate and magnitude of climate change and the vulnerabilities of human and natural systems.



Changes in snowmelt patterns are affecting water supply. Mt. Rainier, Washington.

## Key Messages: Ecosystems and Biodiversity

Climate change impacts on ecosystems reduce their ability to improve water quality and regulate water flows.

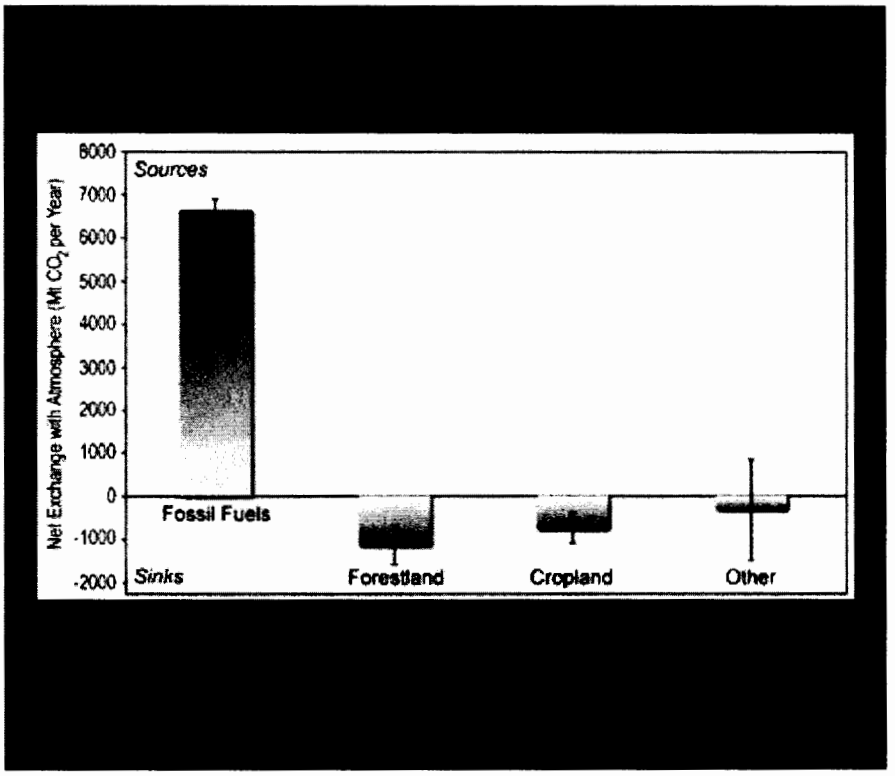
Climate change, combined with other stressors, is overwhelming the capacity of ecosystems to buffer the impacts from extreme events like fires, floods, and storms.

Landscapes and seascapes are changing rapidly, and species, including many iconic species, may disappear from regions where they have been prevalent, or become extinct, altering some regions so much that their mix of plant and animal life will become almost unrecognizable.

Timing of critical biological events, such as spring bud burst, emergence from overwintering, and the start of migrations, has shifted, leading to important impacts on species and habitats.

Whole system management is often more effective than focusing on one species at a time, and can help reduce the harm to wildlife, natural assets, and human well-being that climate disruption might cause.

Climate change affects the living world, including people, through changes in ecosystems, biodiversity, and ecosystem services. Ecosystems entail all the living things in a particular area as well as the non-living things with which they interact, such as air, soil, water, and sunlight. Biodiversity refers to the variety of life, including the number of species, life forms, genetic types, and habitats and biomes (which are characteristic groupings of plant and animal species found in a particular climate). Biodiversity and ecosystems produce a rich array of benefits that people depend on, including fisheries, drinking water, fertile soils for growing crops, climate regulation, inspiration, and aesthetic and cultural values.[1] These benefits are called "ecosystem services" – some of which, like food, are more easily quantified than others, such as climate regulation or cultural values. Changes in many such services are often not obvious to those who depend on them.




Ecosystem services contribute to jobs, economic growth, health, and human well-being. Although we interact with ecosystems and ecosystem services every day, their linkage to climate change can be elusive because they are influenced by so many additional entangled factors.[2] Ecosystem perturbations driven by climate change have direct human impacts, including reduced water supply and quality, the loss of iconic species and landscapes, distorted rhythms of nature, and the potential for extreme events to overwhelm the regulating services of ecosystems.

Forests absorb carbon dioxide and provide many other ecosystem services, such as purifying water and providing recreational opportunities.

Even with these well-documented ecosystem impacts, it is often difficult to quantify human vulnerability that results from shifts in ecosystem processes and services. For example, although it is relatively straightforward to predict how precipitation will change water flow, it is much harder to pinpoint which farms, cities, and habitats will be at risk of running out of water, and even more difficult to say how people will be affected by the loss of a favorite fishing spot or a wildflower that no longer blooms in the region. A better understanding of how a range of ecosystem responses affects people – from altered water flows to the loss of wildflowers – will help to inform the management of ecosystems in a way that promotes resilience to climate change.

Ecosystems also represent potential "sinks" for $CO_2$, which are places where carbon can be stored over the short or long term. At the continental scale, there has been a large and relatively consistent increase in forest carbon stocks over the last two decades,[3] due to recovery from past forest harvest, net increases in forest area, improved forest management regimes, and faster growth driven by climate or fertilization by $CO_2$ and nitrogen.[4,5] Emissions of $CO_2$ from human activities in the United States continue to exceed ecosystem $CO_2$ uptake by more than three times. As a result, North America remains a net source of $CO_2$ into the atmosphere[4] by a substantial margin.

# Finding 10: ECOSYSTEMS

## Key Messages: Forests

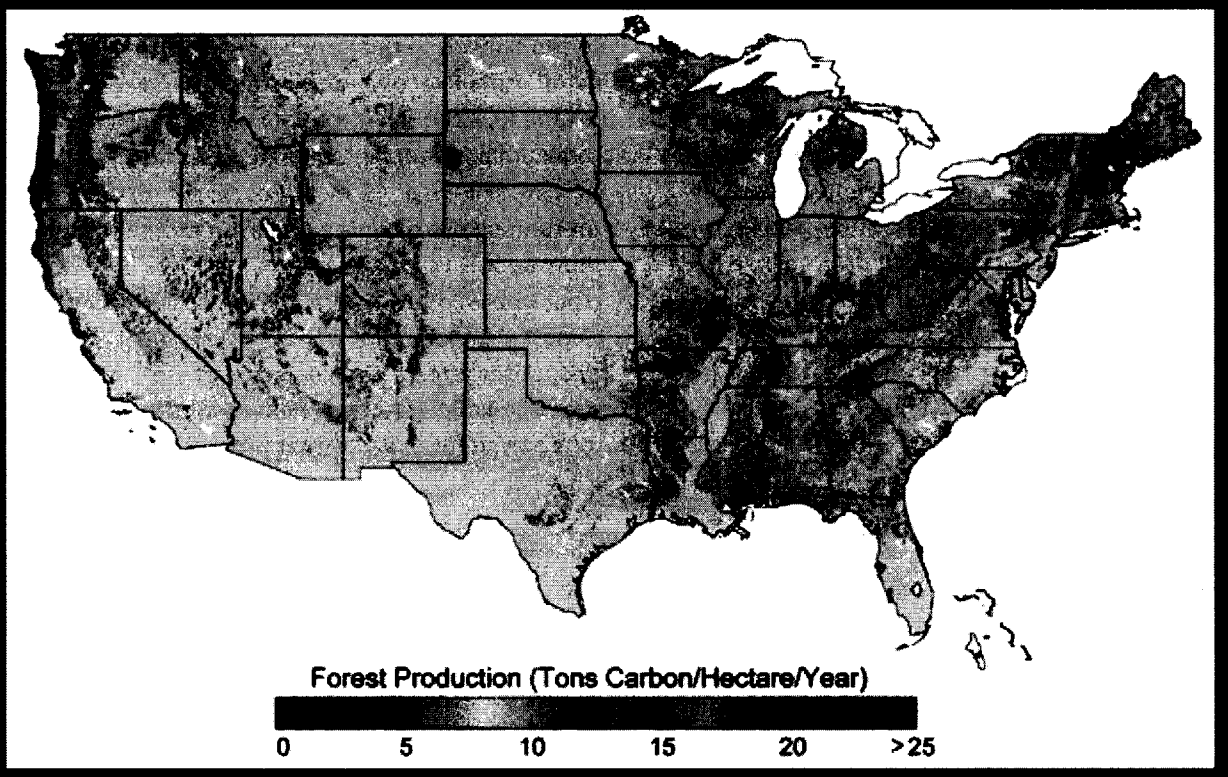
Climate change is increasing the vulnerability of many forests to ecosystem changes and tree mortality through fire, insect infestations, drought, and disease outbreaks.

U.S. forests and associated wood products currently absorb and store the equivalent of about 16% of all carbon dioxide ($CO_2$) emitted by fossil fuel burning in the U.S. each year. Climate change, combined with current societal trends in land use and forest management, is projected to reduce this rate of forest $CO_2$ uptake.

Bioenergy could emerge as a new market for wood and could aid in the restoration of forests killed by drought, insects, and fire.

Forest management responses to climate change will be influenced by the changing nature of private forestland ownership, globalization of forestry markets, emerging markets for bioenergy, and U.S. climate change policy.

Forests occur within urban areas, at the interface between urban and rural areas (wildland-urban interface), and in rural areas. Urban forests contribute to clean air, cooling buildings, aesthetics, and recreation in parks. Development in the wildland-urban interface is increasing because of the appeal of owning homes near or in the woods. In rural areas, market factors drive land uses among commercial forestry and land uses such as agriculture. Across this spectrum, forests provide recreational opportunities, cultural resources, and social values such as aesthetics.[6]




largest component of the U.S. carbon sink, but growth rates of forests vary widely across the country. Well-watered forests of the Pacific

Economic factors have historically influenced both the overall area and use of private forestland. Private entities own 56% of U.S. forestlands while 44% of forests are on public lands.[8] Market factors can influence management objectives for public lands, but societal values also influence objectives by identifying benefits such as environmental services not ordinarily provided through markets, like watershed protection and wildlife habitat. Different challenges and opportunities exist for public and for private forest management decisions, especially when climate-related issues are considered on a national scale. For example, public forests typically carry higher levels of forest biomass, are more remote, and tend not to be as intensively managed as private forestlands.[6]

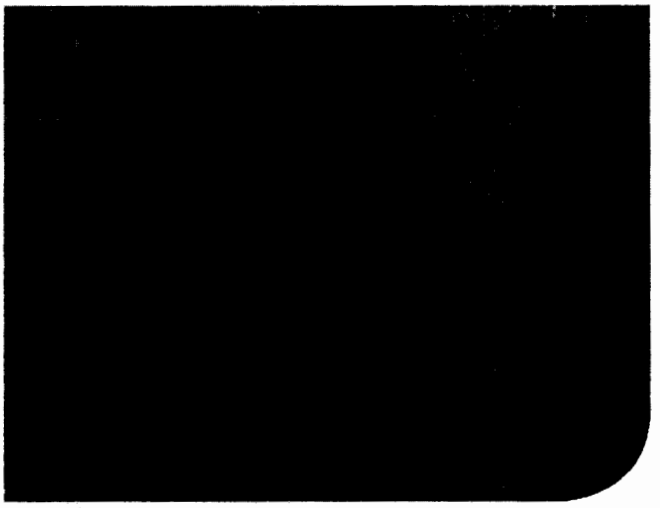
Climate change is increasing vulnerability to wildfires across the western U.S. and Alaska.

Forests provide opportunities to reduce future climate change by capturing and storing carbon, as well as by providing resources for bioenergy production (the use of forest-derived plant-based materials for energy production). The total amount of carbon stored in U.S. forest ecosystems and wood products (such as lumber and pulpwood) equals roughly 25 years of U.S. heat-trapping gas emissions at current rates of emission, providing an important national "sink" that could grow or shrink depending on the extent of climate change, forest management practices, policy decisions, and other factors.[9]

Factors affecting tree death, such as drought, physiological water stress, higher temperatures, and/or pests and pathogens, are often interrelated, which means that isolating a single cause of mortality is rare.[10] However, in western forests there have been recent large scale die-off events due to one or more of these factors,[11,12,13] and rates of tree mortality are well correlated with both rising temperatures and associated increases in evaporative water demand.[14]

A Montana saw mill owner inspects a lodgepole pine covered in pitch tubes that show the tree trying, unsuccessfully, to defend itself against the bark beetle. The bark beetle is killing lodgepole pines throughout the western United States.

Fire is another important forest disturbance. Given strong relationships between climate and fire, even when modified by land use and management, such as fuel treatments, projected climate changes suggest that western forests in the U.S. will be increasingly affected by large and intense fires that occur more frequently.[13,15]



Warmer winters allow more insects to survive the cold season, and a longer summer allows some insects to complete two life cycles in a year instead of one. Drought stress reduces trees' ability to defend against boring insects. Above, beetle-killed trees in Rocky Mountain National Park in Colorado.

# Finding 10: ECOSYSTEMS

**KEY MESSAGES:**
**LAND USE AND LAND COVER CHANGE**

Choices about land-use and land-cover patterns have affected and will continue to affect how vulnerable or resilient human communities and ecosystems are to the effects of climate change.

Land-use and land-cover changes affect local, regional, and global climate processes.

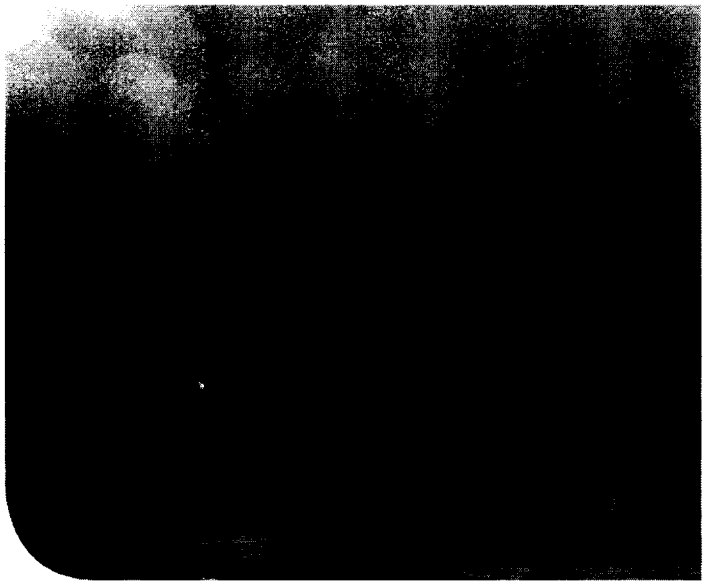
Individuals, businesses, non-profits, and governments have the capacity to make land-use decisions to adapt to the effects of climate change.

Choices about land use and land management may provide a means of reducing atmospheric greenhouse gas levels.

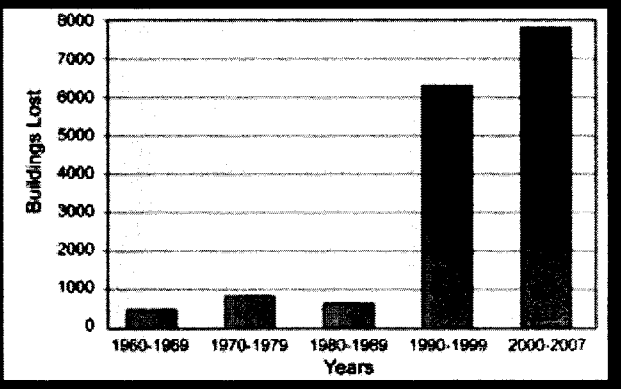
Land-use and land-cover changes affect climate processes. Above, development along Colorado's Front Range.

In addition to emissions of heat-trapping greenhouse gases from energy, industrial, agricultural, and other activities, humans affect climate through changes in land use (activities taking place on land, like growing food, cutting trees, or building cities) and land cover (the physical characteristics of the land surface, including grain crops, trees, or concrete). For example, cities are warmer than the surrounding countryside because the greater extent of paved areas in cities affects how water and energy are exchanged between the land and the atmosphere, and how exposed the population is to extreme heat events. Decisions about land use and land cover can therefore affect, positively or negatively, how much our climate will change, and what kind of vulnerabilities humans and natural systems will face as a result.

The combination of residential location choices with wildfire occurrence dramatically illustrates how the interactions between land use and climate processes can affect climate change impacts and vulnerabilities. Low-density (suburban and exurban) housing patterns in the U.S. have expanded, and are projected to continue to expand.[16] One result is a rise in the amount of construction in forests and other wildlands[17] that in turn has increased the exposure of houses, other structures, and people to damages from wildfires. The number of buildings lost in the 25 most destructive fires in California history increased significantly in the 1990s and 2000s compared to the previous three decades, as shown in the figure.[18] These losses are one example of how changing development patterns can interact with a changing climate to create dramatic new risks. In the western U.S., increasing frequencies of large wildfires and longer wildfire durations are strongly associated with increased spring and summer temperatures and an earlier spring snowmelt.[19]



Construction near forests and wildlands is growing. Here, wildfire approaches a housing development.




boom in what is known as the "wildland-urban interface." This figure

wildland-urban interface fires in California history from 1960 to 2007 (Figure source: Stephens et al. 2009

## KEY MESSAGES: BIOGEOCHEMICAL CYCLES

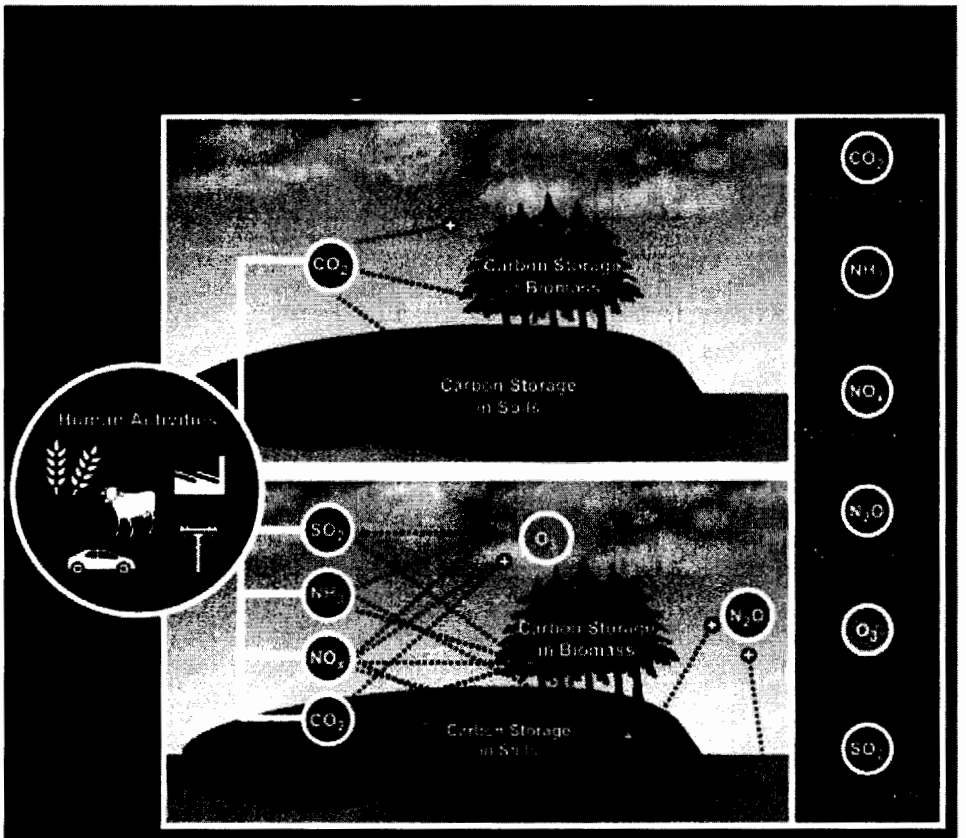
**Human activities have increased atmospheric carbon dioxide by about 40% over pre-industrial levels and more than doubled the amount of nitrogen available to ecosystems. Similar trends have been observed for phosphorus and other elements, and these changes have major consequences for biogeochemical cycles and climate change.**

**In total, land in the U.S. absorbs and stores an amount of carbon equivalent to about 17% of annual U.S. fossil fuel emissions. U.S. forests and associated wood products account for most of this land sink. The effect of this carbon storage is to partially offset warming from emissions of $CO_2$ and other greenhouse gases.**

**Altered biogeochemical cycles together with climate change increase the vulnerability of biodiversity, food security, human health, and water quality to changing climate. However, natural and managed shifts in major biogeochemical cycles can help limit rates of climate change.**

Biogeochemical cycles involve the fluxes of chemical elements among different parts of the Earth: from living to non-living, from atmosphere to land to sea, and from soils to plants. Human activities have mobilized Earth elements and accelerated their cycles – for example, more than doubling the amount of reactive nitrogen that has been added to the biosphere since pre-industrial times.[20]

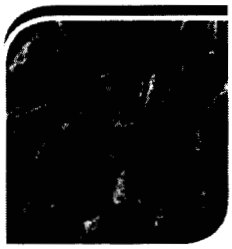
Global-scale alterations of biogeochemical cycles are occurring from human activities, both in the U.S. and elsewhere, with impacts and implications now and into the future. Global carbon dioxide emissions are the most significant driver of human-caused climate change. But human-accelerated cycles of other elements, especially nitrogen, phosphorus, and sulfur, also influence climate. These elements can affect climate directly and indirectly, amplifying or reducing the impacts of climate change. Climate change is having, and will continue to have, impacts on biogeochemical cycles, which will alter future impacts on climate and affect our capacity to cope with coupled changes in climate, biogeochemistry, and other factors.




in the atmosphere exerts a warming influence, illustrated by the plus sign,

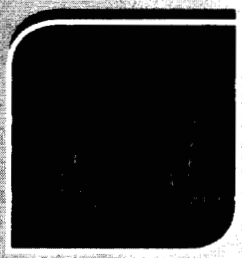
creasing the warming influence. On the other hand, it also leads to soil acidification, decreasing nutrients and therefore adding to the warming influence.

**Mussel and barnacle** beds have declined or disappeared along parts of the Northwest coast due to higher temperatures and drier conditions.[21]



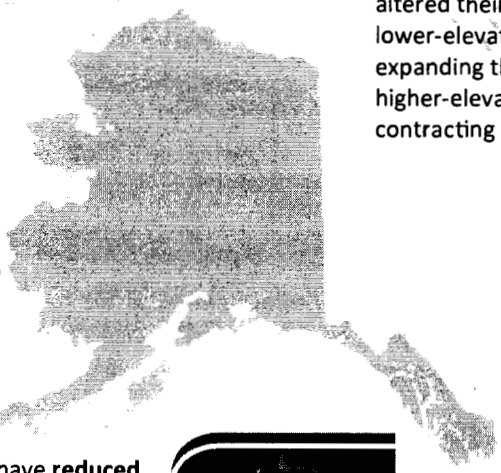
**Conifers** in many western forests have **died, experiencing mortality rates up to 87%, from warming-induced changes in the prevalence of pests and pathogens and drought stress.**[12]

In response to climate-related **habitat change, many small mammal species** have altered their ranges, with lower-elevation species expanding their ranges and higher-elevation species contracting their ranges.[23]



**Quaking aspen tree dominated systems are experiencing declines in the western U.S. due to drought stress during** the last decade.[24]

Decreases in the weight and **survival** of **polar bear offspring** along the north Alaska coast have been linked to changes in mother's body size and/or condition following years with lower availability of optimal sea ice habitat.[22]



Warmer springs in Alaska have **reduced calving success in caribou** populations as a result of earlier onset of plant emergence and decreased spatial variation in growth and availability of forage to breeding caribou.[25]

Climate change is likely to influence elevational patterns in vegetation as Hawaiian mountain vegetation types vary in their sensitivity to changes in moisture availability.[26]

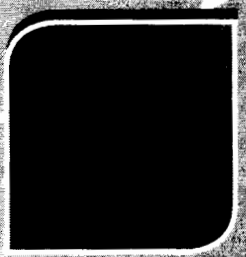
**W**arming-induced interbreeding was detected between southern and northern flying squirrels in the Great Lakes region of Ontario, Canada, and Pennsylvania after a series of warm winters created more overlap in their habitat ranges.[27]

**I**n the Northwest Atlantic, 24 out of 36 commercial fish stocks showed significant range shifts, both in latitude and depth, between 1968 and 2007 in response to increased sea surface and bottom temperatures.[29]

**F**irst flowering dates plant species in North Dakota have shifted significantly in more than 40% of the 178 species examined, with the greatest changes observed during the two warmest years of the study.[28]

**W**idespread declines in body size of resident and migrant birds in western Pennsylvania were documented over a 40-year period. The higher the average regional temperatures in the preceding year, the smaller the birds.[31]

**S**tudies of black ratsnake populations in Illinois and Texas suggest that snake populations, particularly in the northern parts of their ranges, could benefit from rising temperatures if there are no negative impacts on their habitat and prey.[30]



**S**eedling survival for nearly 20 species of trees decreased during years of lower rainfall in the Southern Appalachians and the Piedmont areas, indicating reductions in native species.[33]

**C**limatic fluctuations increase the probability of infidelity in birds that are normally monogamous. This increases gene exchange and the likelihood of offspring survival.[32]

**S**ome warm-water fishes have moved northwards, and some tropical and subtropical fishes in the northern Gulf of Mexico have increased in temperate ocean habitat.[34] Similar shifts and invasions have been documented in Long Island Sound and Narragansett Bay in the Atlantic Ocean.[35]

# FINDING

## Ocean waters are becoming warmer and more acidic, broadly affecting ocean circulation, chemistry, ecosystems, and marine life.

More acidic waters inhibit the formation of shells, skeletons, and coral reefs. Warmer waters harm coral reefs and alter the distribution, abundance, and productivity of many marine species. The rising temperature and changing chemistry of ocean water combine with other stresses, such as overfishing and coastal and marine pollution, to alter marine-based food production and harm fishing communities.

### Key Messages: Oceans

The rise in ocean temperature over the last century will persist into the future, with continued large impacts on climate, ocean circulation, chemistry, and ecosystems.

The ocean currently absorbs about a quarter of human-caused carbon dioxide emissions to the atmosphere, leading to ocean acidification that will alter marine ecosystems in dramatic yet uncertain ways.

Significant habitat loss will continue to occur due to climate change for many species and areas, including Arctic and coral reef ecosystems, while habitat in other areas and for other species will expand. These changes will consequently alter the distribution, abundance, and productivity of many marine species.

Rising sea surface temperatures have been linked with increasing levels and ranges of diseases in humans and marine life, including corals, abalones, oysters, fishes, and marine mammals.

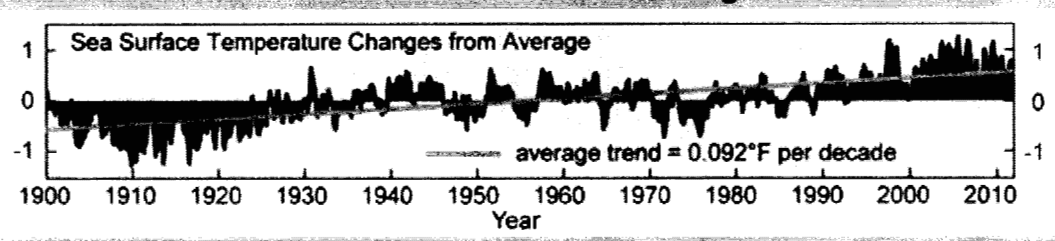
Climate changes that result in conditions substantially different from recent history may significantly increase costs to businesses as well as disrupt public access and enjoyment of ocean areas.

In response to observed and projected climate impacts, some existing ocean policies, practices, and management efforts are incorporating climate change impacts. These initiatives can serve as models for other efforts and ultimately enable people and communities to adapt to changing ocean conditions.

As a nation, we depend on the oceans for seafood, recreation and tourism, cultural heritage, transportation of goods, and, increasingly, energy and other critical resources. The U.S. Exclusive Economic Zone extends 200 nautical miles seaward from the coasts, spanning an area about 1.7 times the land area of the continental United States. This vast region is host to a rich diversity of marine plants and animals and a wide range of ecosystems, from tropical coral reefs to Arctic waters covered with sea ice.

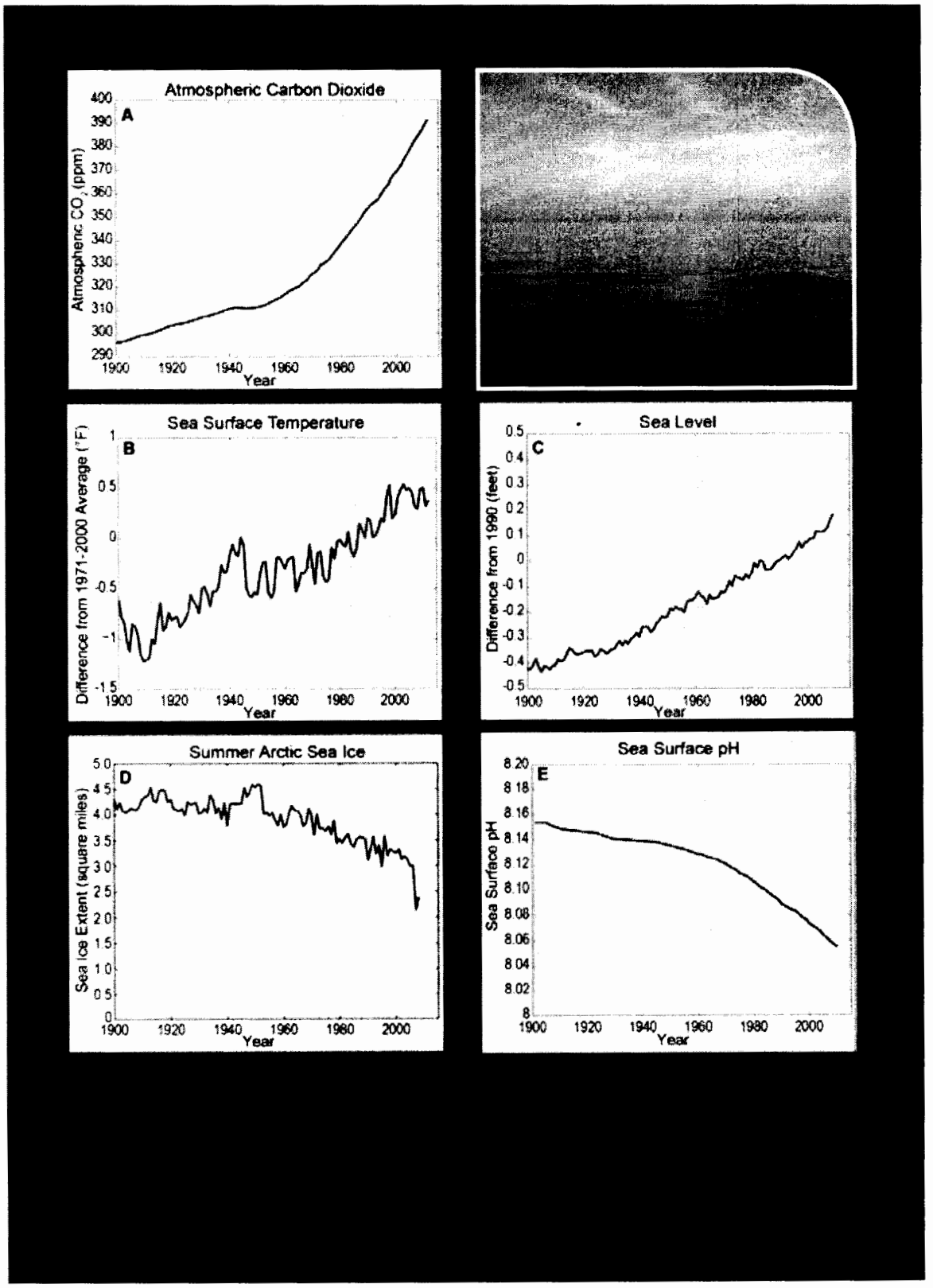
Oceans support vibrant economies and coastal communities with numerous businesses and jobs. More than 160 million people live in the coastal watershed counties of the U.S., and population in this zone is expected to grow in the future. The oceans help regulate climate, absorb carbon dioxide, and strongly influence weather patterns far into the continental interior. Ocean issues touch all of us in both direct and indirect ways.[1,2]

### Observed Ocean Warming




Sea surface temperatures for the ocean surrounding the U.S. and its territories have risen by more than 0.9°F over the past century. (Figure source: adapted from Chavez et al. 2011[3]).

Changing climate conditions are already affecting these valuable marine ecosystems and the array of resources and services we derive from the sea. Some climate trends, such as rising seawater temperatures and ocean acidification, are common across much of the coastal areas and open ocean worldwide. The biological responses to climate change often vary from region to region, depending on the different combinations of species, habitats, and other attributes of local systems.



# Finding 11: OCEANS

The oceans cover more than two-thirds of the Earth's surface and play a very important role in regulating the Earth's climate and in climate change. Today, the world's oceans absorb more than 90% of the heat trapped by increasing levels of $CO_2$ and other greenhouse gases in the atmosphere due to human activities. This extra energy warms the ocean, causing it to expand and sea levels to rise. Of the global sea level rise observed over the last 35 years, about 40% is due to this warming of the water. Most of the rest is due to the melting of glaciers and ice sheets. Ocean levels are projected to rise another 1 to 4 feet over this century, with the precise number largely depending on the amount of global temperature rise and polar ice sheet melt.

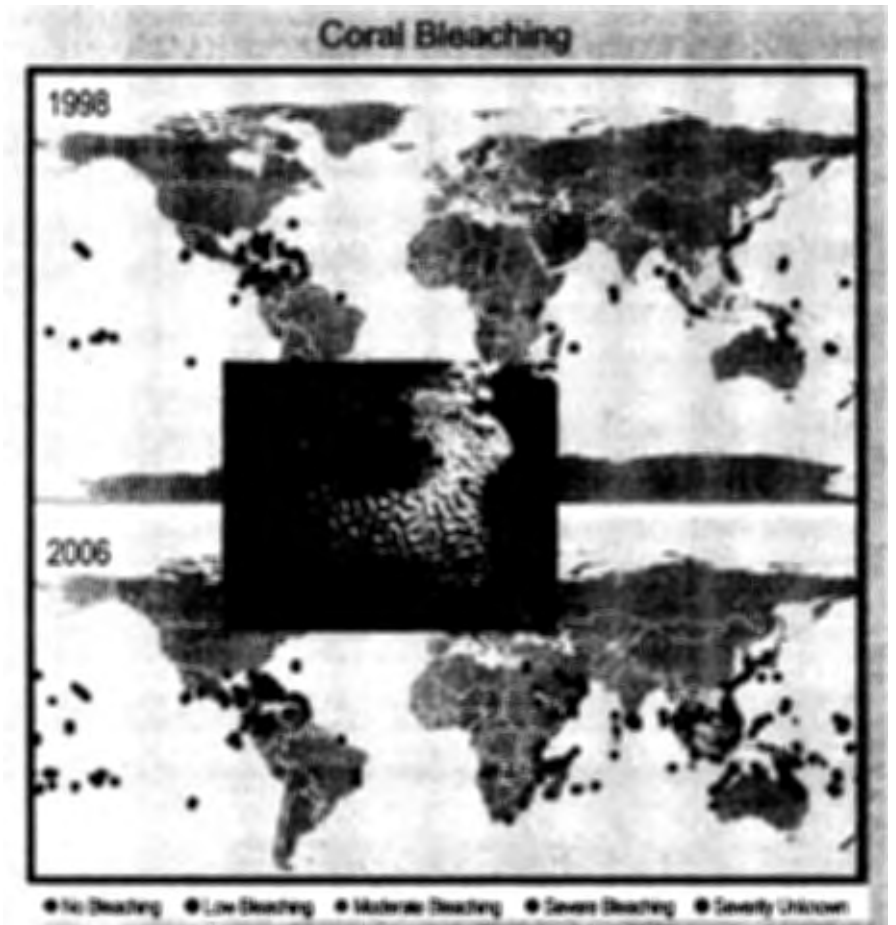
Observations from past climate combined with climate model projections of the future suggest that over the next 100 years the Atlantic Ocean's overturning circulation (known as the "Ocean Conveyor Belt") could slow down as a result of climate change. These ocean currents carry warm water northward across the equator in the Atlantic Ocean, warming the North Atlantic (and Europe) and cooling the South Atlantic. A slowdown of the Conveyor Belt would increase regional sea level rise along the east coast of the U.S. and change temperature patterns in Europe and rainfall in Africa and the Americas, but would not lead to global cooling.

Warming ocean waters also affect marine ecosystems like coral reefs, which can be very sensitive to temperature changes. When water temperatures become too high, coral expel the algae (called zooxanthellae) which help nourish them and give them their vibrant color. This is known as coral bleaching. If the high temperatures persist, the coral die.

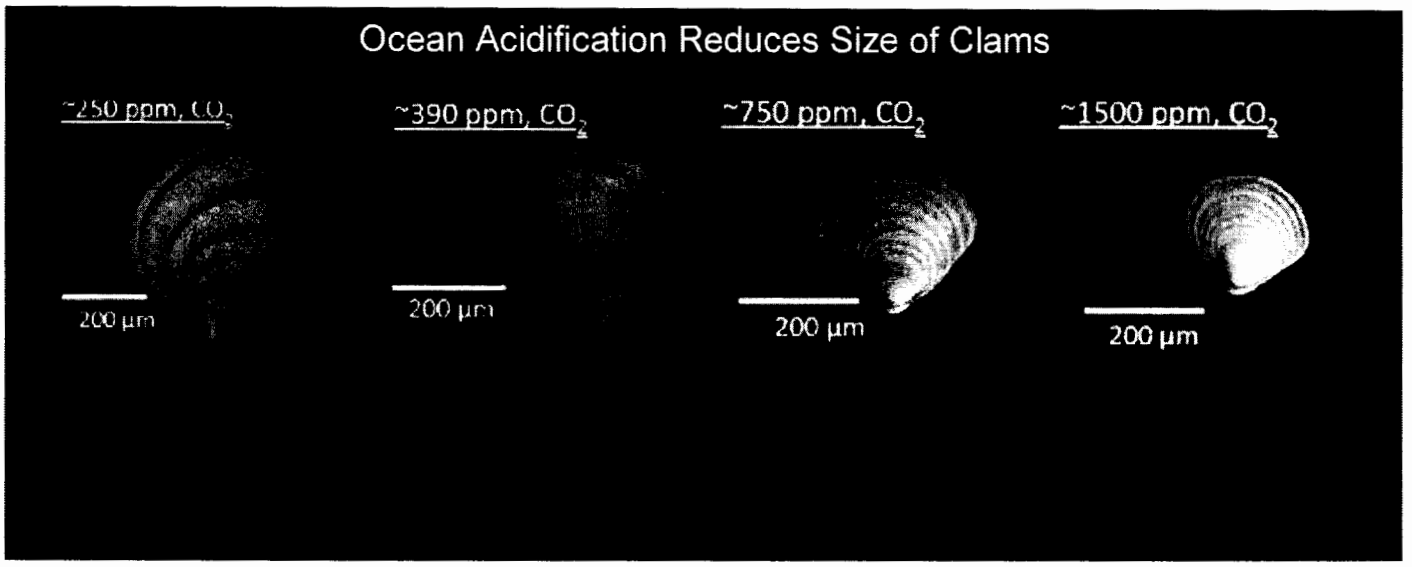
## Acidification

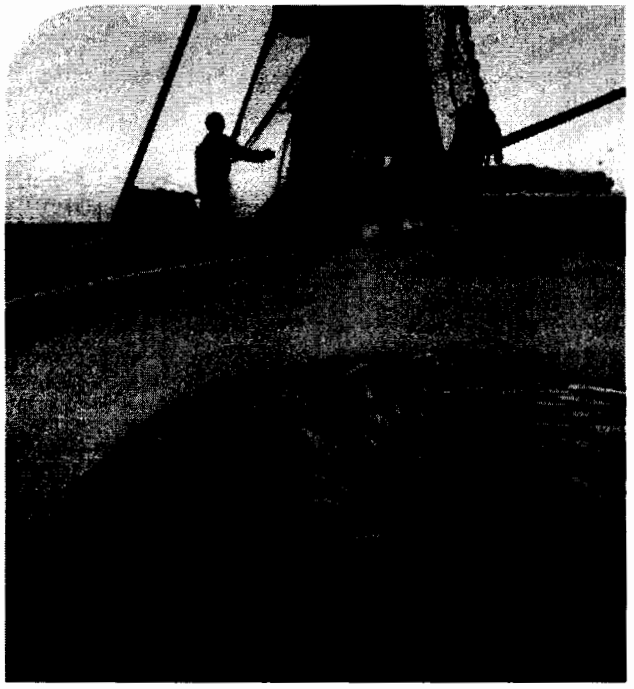
In addition to the warming, the acidity of seawater is increasing as a direct result of increasing atmospheric $CO_2$. Due to human-induced emissions, atmospheric $CO_2$ has risen by about 40% above pre-industrial levels.[5,6] About a quarter of this excess $CO_2$ has dissolved into the oceans, thereby changing seawater chemistry and decreasing pH (making seawater more acidic).[2,7] There has been about a 30% increase in surface ocean acidity since pre-industrial times.[8] Ocean acidification will continue in the future due to the interaction of atmospheric $CO_2$ and ocean water. Regional differences in ocean pH occur as a result of variability in regional or local conditions, such as upwelling that brings subsurface waters up to the surface.[9] Locally, coastal waters and estuaries can also exhibit acidification as the result of pollution and excess nutrient inputs.

More acidic waters create repercussions along the marine food chain. The chemical changes caused by the uptake of $CO_2$ make it more difficult for living things to form and maintain calcium carbonate shells and skeletons and increases erosion of coral reefs,[10] resulting in alterations in marine ecosystems that will become more severe as present-day trends in acidification continue or accelerate.[11] Tropical corals are particularly susceptible to the combination of ocean acidification and ocean warming, which would threaten the rich and biologically diverse coral reef habitats. See page 33.



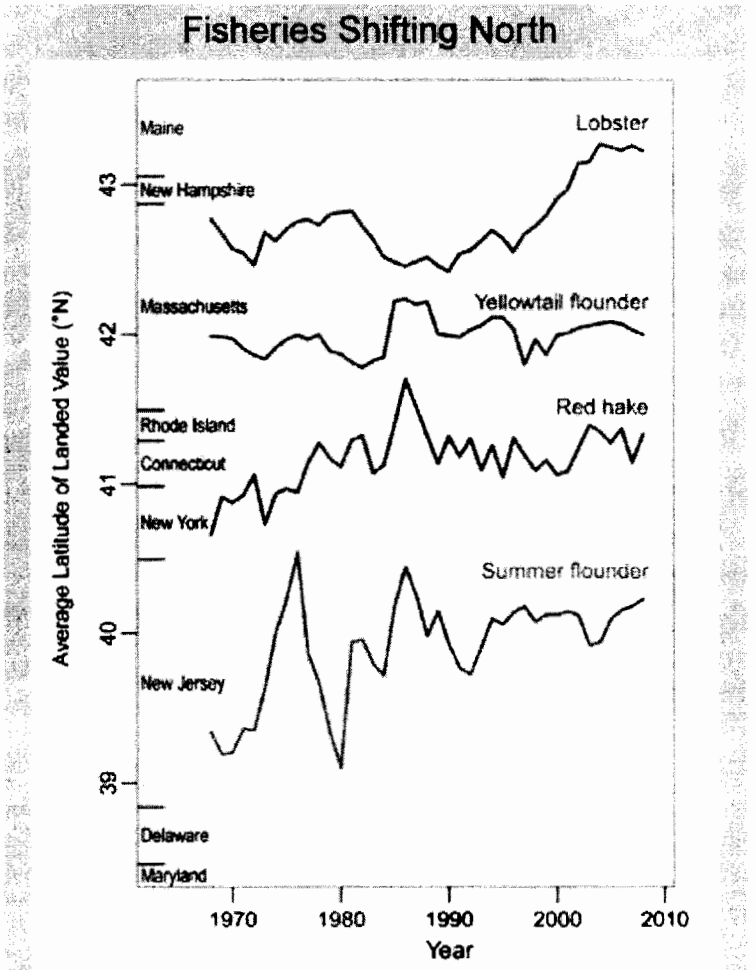

(Photo) Bleached brain coral. (Maps) The global extent and severity of mass coral bleaching have increased worldwide over the last decade. Red dots indicate severe bleaching. (Figure source: Marshall and Schuttenberg 2006.[12] Photo credit: NOAA).



## Diseases

There has been a significant increase in reported incidences of disease in corals, urchins, mollusks, marine mammals, turtles, and echinoderms (a group of some 70,000 marine species including sea stars, sea urchins, and sand dollars) over the last several decades.[14,15] Increasing disease outbreaks in the ocean affecting ecologically important species, which provide critically important habitat for other species such as corals, algae, and eelgrass, have been linked with rising temperatures.[15,16,17] Disease increases mortality and can reduce abundance for affected populations as well as fundamentally change ecosystems by altering habitat or species relationships. For example, loss of eelgrass beds due to disease can reduce critical nursery habitat for several species of commercially important fish.[17,18]




Ocean species are shifting northward along U.S. coastlines as ocean temperatures rise. As a result, over the past 40 years, more northern ports have gradually increased their landings of four marine species compared to earlier landings. While some species move northward out of an area, other species move in from the south. This kind of information can inform decisions about how to adapt to climate change. Such adaptations take time and have costs, as local knowledge and equipment are geared to the species that have long been present in an area. (Figure source: adapted from Pinsky and Fogerty 2012[19]).

# FINDING

**Planning for adaptation (to address and prepare for impacts) and mitigation (to reduce future climate change, for example by cutting emissions) is becoming more widespread, but current implementation efforts are insufficient to avoid increasingly negative social, environmental, and economic consequences.**

Actions to reduce emissions, increase carbon uptake, adapt to a changing climate, and increase resilience to impacts that are unavoidable can improve public health, economic development, ecosystem protection, and quality of life.

Over the past few years, the focus moved from *"Is climate changing?"* to *"Can society manage unavoidable changes and avoid unmanageable changes?"*[1,2] Research demonstrates that both mitigation (efforts to reduce future climate changes) and adaptation (efforts to reduce the vulnerability of society to climate change impacts) are needed in order to minimize the damages from human-caused climate change and to adapt to the pace and ultimate magnitude of changes that will occur.[3] Adaptation and mitigation are closely linked; adaptation efforts will be more difficult, more costly, and less likely to succeed if significant mitigation actions are not taken.[2,4]

## KEY MESSAGES: ADAPTATION

Substantial adaptation planning is occurring in the public and private sectors and at all levels of government; however, few measures have been implemented and those that have appear to be incremental changes.

Barriers to implementation of adaptation include limited funding, policy and legal impediments, and difficulty in anticipating climate related changes at local scales.

There is no "one-size fits all" adaptation, but there are similarities in approaches across regions and sectors. Sharing best practices, learning by doing, and iterative and collaborative processes including stakeholder involvement, can help support progress.

Climate change adaptation actions often fulfill other societal goals, such as sustainable development, disaster risk reduction, or improvements in quality of life, and can therefore be incorporated into existing decision-making processes.

Vulnerability to climate change is exacerbated by other stresses such as pollution and habitat fragmentation. Adaptation to multiple stresses requires assessment of the composite threats as well as tradeoffs amongst costs, benefits, and risks of available options.

The effectiveness of climate change adaptation has seldom been evaluated because actions have only recently been initiated, and comprehensive evaluation metrics do not yet exist.

Adaptation actions can be implemented reactively, after changes in climate occur, or proactively, to prepare for a changing climate.[5] Proactively preparing can reduce the harm from certain climate change impacts, such as increasingly intense extreme events, shifting zones for agricultural crops, and rising sea levels, while also facilitating a more rapid and efficient response to changes as they happen.

**FEDERAL:** A November 2013 Executive Order calls for, among other things, modernizing federal programs to support climate resilient investments, managing lands and waters for climate preparedness and resilience, creating a Council on Climate Preparedness and Resilience, and the creation of a State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience.[6] Federal agencies are all required to plan for adaptation. Actions include coordinated efforts at the White House, regional and cross-sector efforts, agency-specific adaptation plans, and support for local-level adaptation planning and action.

**STATE:** States have become important actors in national climate change related efforts. State governments can create policies and programs that encourage or discourage adaptation at other governance scales (such as counties or regions)[7] through regulation and by serving as laboratories for innovation.[8] Although many of these actions are not specifically designed to address climate change, they often include climate adaptation components. Many state level climate change-specific adaptation actions focus on planning. As of winter 2012, at least 15 states had completed

climate adaptation plans; four states are in the process of writing their plans; and seven states have made recommendations to create state-wide adaptation plans.[9]

**TRIBES:** Tribal governments have been particularly active in assessing and preparing for the impacts of climate change. Some are using traditional knowledge gleaned from elders, stories, and songs and combining this knowledge with downscaled climate data to inform decision-making.[10] Others have integrated climate change into decision-making in major sectors, such as education, fisheries, social services, and human health.[11]

**LOCAL:** Most adaptation efforts to date have occurred at local and regional levels. A survey of 298 U.S. local governments shows 59% engaged in some form of adaptation planning.[12] Mechanisms used by local governments to prepare for climate change include: land-use planning; provisions to protect infrastructure and ecosystems; regulations related to the design and construction of buildings, road, and bridges; and preparation for emergency response and recovery.[13] Local adaptation planning and actions are unfolding in municipalities of different sizes. Regional agencies and regional aggregations of governments too are taking actions.[14]

**BUSINESS:** Many companies are concerned about how climate change will affect feedstock, water quality, infrastructure, core operations, supply chains, and customers' ability to use products and services.[15] Some companies are taking action to avoid risk and explore potential opportunities, such as: developing or expanding into new products, services, and operational areas; extending growing seasons and hours of operation; and responding to increased demand for existing products and services.[15,16]

**NGOs:** Non-governmental organizations have played significant roles in the national effort to prepare for climate change by providing assistance to stakeholders that includes planning guidance, implementation tools, explanations of climate information, best practices, and help with bridging the science-policy divide.

See regional sections of this Highlights report for additional examples of adaptation efforts. Selected federal, state, tribal, and local actions appear in the Adaptation chapter of the full National Climate Assessment.

Adaptation to climate change is in a nascent stage. The federal government is beginning to develop institutions and practices necessary to cope with climate change. While the federal government will remain the funder of emergency responses following extreme events for which communities were not adequately prepared, an emerging federal role is to enable and facilitate early adaptation within states, regions, local communities, and the public and private sectors.[5] The approaches include working to limit current institutional constraints to effective adaptation, funding pilot projects, providing useful and usable adaptation information – including disseminating best practices, and helping develop tools and techniques to evaluate successful adaptation.

Despite emerging efforts, the pace and extent of adaptation activities are not proportional to the risks to people, property, infrastructure, and ecosystems from climate change; important opportunities available during the normal course of planning and management of resources are also being overlooked. A number of state and local governments are engaging in adaptation planning, but most have not taken action to implement the plans.[17] Some companies in the private sector and numerous non-governmental organizations have also taken early action, particularly in capitalizing on the opportunities associated with facilitating adaptive actions. Actions and collaborations have occurred across all scales. At the same time, barriers to effective implementation continue to exist.

The Southeast Florida Regional Compact is a joint commitment among Broward, Miami-Dade, Palm Beach, and Monroe Counties to partner in reducing heat-trapping gas emissions and adapting to climate impacts, including in transportation, water resources, natural resources, agriculture, and disaster risk reduction. Through the collaboration of county, state, and federal agencies, a comprehensive action plan was developed that includes hundreds of actions. Notable policies include regional collaboration to revise building codes and land development regulations to discourage new development or post-disaster redevelopment in vulnerable areas.[18]

Miami-Dade County staff leading workshop on incorporating climate change considerations in local planning.

# Finding 12: RESPONSES

## Key Messages: Mitigation

Carbon dioxide is removed from the atmosphere by natural processes at a rate that is roughly half of the current rate of emissions from human activities. Therefore, mitigation efforts that only stabilize global emissions will not reduce atmospheric concentrations of carbon dioxide, but will only limit their rate of increase. The same is true for other long-lived greenhouse gases.

To meet the lower emissions scenario (B1) used in this assessment, global mitigation actions would need to limit global carbon dioxide emissions to a peak of around 44 billion tons per year within the next 25 years and decline thereafter. In 2011, global emissions were around 34 billion tons, and have been rising by about 0.9 billion tons per year for the past decade. Therefore, the world is on a path to exceed 44 billion tons per year within a decade.

Over recent decades, the U.S. economy has emitted a decreasing amount of carbon dioxide per dollar of gross domestic product. Between 2008 and 2012, there was also a decline in the total amount of carbon dioxide emitted annually from energy use in the U.S. as a result of a variety of factors, including changes in the economy, the development of new energy production technologies, and various government policies.

Carbon storage in land ecosystems, especially forests, has offset around 17% of annual U.S. fossil fuel emissions of greenhouse gases over the past several decades, but this carbon "sink" may not be sustainable.

Both voluntary activities and a variety of policies and measures that lower emissions are currently in place at federal, state, and local levels in the U.S., even though there is no comprehensive national climate legislation. Over the remainder of this century, aggressive and sustained greenhouse gas emission reductions by the U.S. and by other nations will be needed to reduce global emissions to a level consistent with the lower scenario (B1) analyzed in this assessment.

The amount of future climate change will largely be determined by choices society makes about emissions. Lower emissions of heat trapping gases and particles mean less future warming and less severe impacts; higher emissions mean more warming and more severe impacts. Efforts to limit emissions or increase carbon uptake fall into a category of response options known as "mitigation."

Carbon dioxide accounted for 84% of total U.S. greenhouse gas emissions in 2011.[19] The vast majority (97%) of this $CO_2$ comes from energy use. Thus, the most direct way to reduce future climate change is to reduce emissions from the energy sector by using energy more efficiently and switching to lower carbon energy sources.

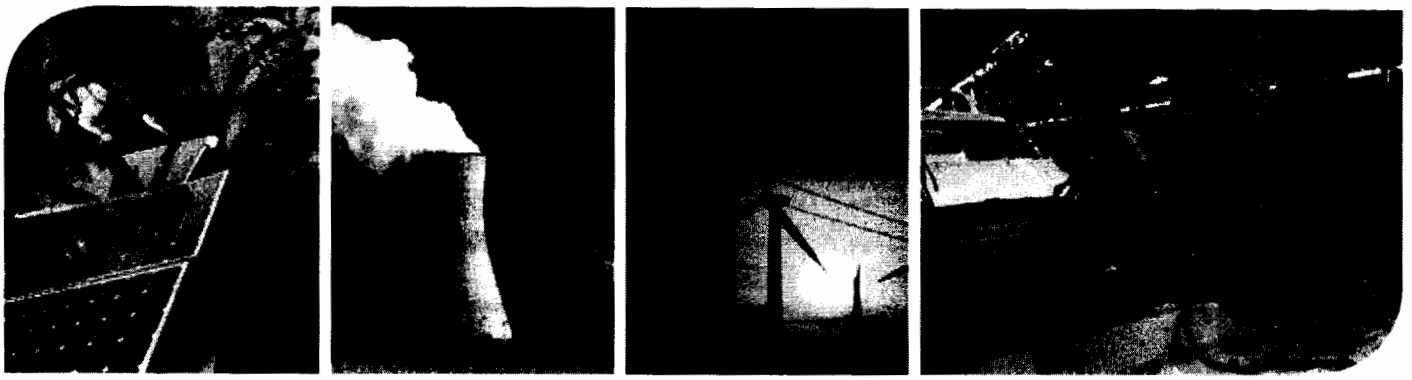
In 2011, 41% of U.S. carbon dioxide emissions were attributable to liquid fuels (petroleum), followed closely by solid fuels (principally coal in electric generation), and to a lesser extent by natural gas.[19] Electric power generation (coal and gas) and transportation (petroleum) are the sectors predominantly responsible.

Achieving the lower emissions path (B1) analyzed in this assessment would require substantial decarbonization of the global economy by the end of this century, implying a fundamental transformation of the global energy system. The principal types of national actions that could effect such changes include putting a price on emissions, setting regulations and standards for activities that cause emissions, changing subsidy programs, and direct federal expenditures. Market-based approaches include cap-and-trade programs that establish markets for trading emissions permits, analogous to the Clean Air Act provisions for sulfur dioxide reductions.

None of these price-based measures has been implemented at the national level in the U.S., though cap-and-trade systems are in place in California and in the Northeast's Regional Greenhouse Gas Initiative. A wide range of governmental actions are underway at federal, state, regional, and city levels using other measures, as are voluntary efforts, that can reduce the U.S. contribution to total global emissions. Many, if not most of these programs are motivated by other policy objectives – energy, transportation, and air pollution – but some are directed specifically at greenhouse gas emissions, including:

- **Energy Efficiency:** Reduction in $CO_2$ emissions from energy end-use and infrastructure through the adoption of energy-efficient components and systems – including buildings, vehicles, manufacturing processes, applicances, and electric grid systems;

- **Low-Carbon Energy Sources:** Reduction of $CO_2$ emissions from energy supply through the promotion of renewables (such as wind, solar, and bioenergy), nuclear energy, and coal and natural gas electric generation with carbon capture and storage; and



Programs underway that reduce carbon dioxide emissions include the promotion of solar, nuclear, and wind power, and efficient vehicles.

- **Non-$CO_2$ Emissions:** Reduction of emissions of non-$CO_2$ greenhouse gases and black carbon (soot); for example, by lowering methane emissions from energy and waste, transitioning to climate-friendly alternatives to HFCs, cutting methane and nitrous oxide emissions from agriculture, and improving combustion efficiency and means of particulate capture.

## Federal Actions

The Federal Government has implemented a number of measures that promote energy efficiency, clean technologies, and alternative fuels.[20] Sample federal measures are provided in Table 27.1 in the Mitigation chapter in the full report. These actions include greenhouse gas regulations, other rules and regulations with climate co-benefits, various standards and subsidies, research and development, and federal procurement practices.

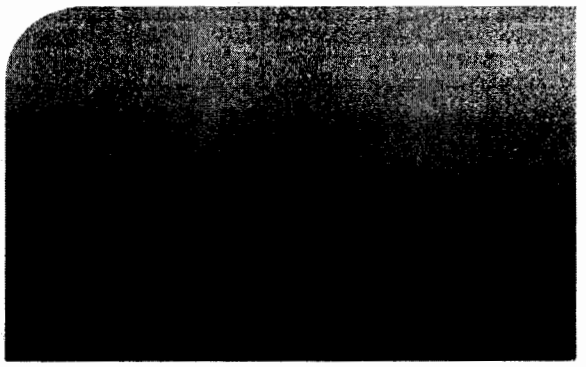
For example, the Environmental Protection Agency has the authority to regulate greenhouse gas emissions under the Clean Air Act. The Department of Energy provides most of the funding for energy research and development, and also regulates the efficiency of appliances.

The Administration's Climate Action Plan[21] builds on these activities with a broad range of mitigation, adaptation, and preparedness measures. The mitigation elements of the plan are in part a response to the commitment made during the 2010 Cancun Conference of the Parties of the United Nations Framework Convention on Climate Change to reduce U.S. emissions of greenhouse gases by about 17% below 2005 levels by 2020. Actions proposed in the Plan include:

- limiting carbon emissions from both new and existing power plants;
- continuing to increase the stringency of fuel economy standards for automobiles and trucks;
- continuing to improve energy efficiency in the buildings sector;
- reducing the emissions of non-$CO_2$ greenhouse gases through a variety of measures;
- increasing federal investments in cleaner, more efficient energy sources for both power and transportation; and
- identifying new approaches to protect and restore our forests and other critical landscapes, in the presence of a changing climate.

Actions to reduce greenhouse gas emissions can yield co-benefits for objectives apart from climate change, such as energy security, ecosystem services, and biodiversity.[22] In particular, there are health co-benefits from reductions in air pollution. Because greenhouse gases and other air pollutants share common sources, particularly from fossil fuel combustion, actions to reduce greenhouse gas emissions also reduce other air pollutants.

The human health benefits can be immediate and local, in contrast to the long-term and widespread effects of climate change.[23] These efforts have been found to be cost effective.[23,24] Methane reductions have also been shown to generate health benefits from reduced ground-level ozone.[25]



Actions to reduce greenhouse gases can also reduce other air pollutants, yielding human health benefits.

# Finding 12: RESPONSES

## City, State, and Regional Actions

Jurisdiction for greenhouse gases and energy policies is shared between the Federal government and states.[26] For example, states regulate the distribution of electricity and natural gas to consumers, while the Federal Energy Regulatory Commission regulates wholesale sales and transportation of natural gas and electricity. Many states have adopted climate initiatives as well as energy policies that reduce greenhouse gas emissions. For a survey of many of these state activities, see Table 27.2 in the full report. Many cities are taking similar actions.

The most ambitious state activity is California's Global Warming Solutions Act, with a goal of reducing greenhouse gas emissions to 1990 levels by 2020. The program caps emissions and uses a market-based system of trading in emissions credits, as well as a number of regulatory actions. The most well-known, multi-state effort has been the Regional Greenhouse Gas Initiative (RGGI), formed by 10 northeastern and Mid-Atlantic states (though New Jersey exited in 2011). RGGI is a cap-and-trade system in the power sector directing revenue from allowance auctions to investments in efficiency and renewable energy.

## Voluntary Actions

Corporations, individuals, and non-profit organizations have initiated a host of voluntary actions, including:

- The Carbon Disclosure Project enables companies to measure, disclose, manage, and share climate change and water-use information. Some 650 U.S. signatories include banks, pension funds, asset managers, insurance companies, and foundations.
- More than 1,055 municipalities from all 50 states have signed the U.S. Mayors Climate Protection Agreement,[27] and many of these communities are actively implementing strategies to reduce their emissions.
- Federal voluntary programs include Energy STAR, a labeling program that, among other things, identifies energy efficient products for use in residences and commercial and industrial buildings.

## Managing Land for Mitigation

Mitigation can involve increasing the uptake of carbon through various means of expanding carbon sinks on land through management of forests and soils.

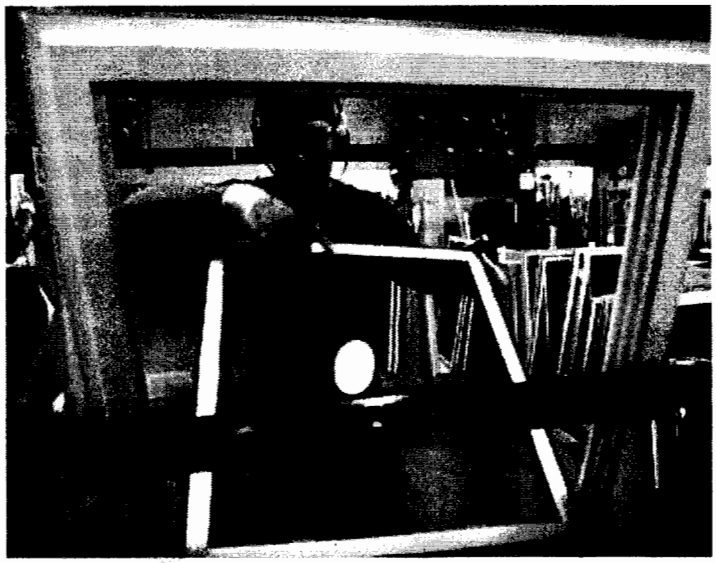
**Existing federal laws and regulations to reduce emissions include:**

**Emissions Standards for Vehicles and Engines**

- For light-duty vehicles, rules establishing standards for 2012-2016 model years and 2017-2025 model years.
- For heavy- and medium-duty trucks, a rule establishing standards for 2014-2018 model years.

**Appliance and Building Efficiency Standards**

- Energy efficiency standards and test procedures for residential, commercial, industrial, lighting, and plumbing products.
- Model residential and commercial building energy codes, and technical assistance to state and local governments, and non-governmental organizations.



Weatherization can include installing more efficient windows to save energy.

**Financial Incentives for Efficiency and Alternative Fuels and Technology**

- Weatherization assistance for low-income households, tax incentives for commercial and residential buildings and efficient appliances, and support for state and local efficiency programs.

## Key Messages: Decision Support

**Decisions about how to address climate change can be complex, and responses will require a combination of adaptation and mitigation actions. Decision-makers – whether individuals, public officials, or others – may need help integrating scientific information into adaptation and mitigation decisions.**

**To be effective, decision support processes need to take account of the values and goals of the key stakeholders, evolving scientific information, and the perceptions of risk.**

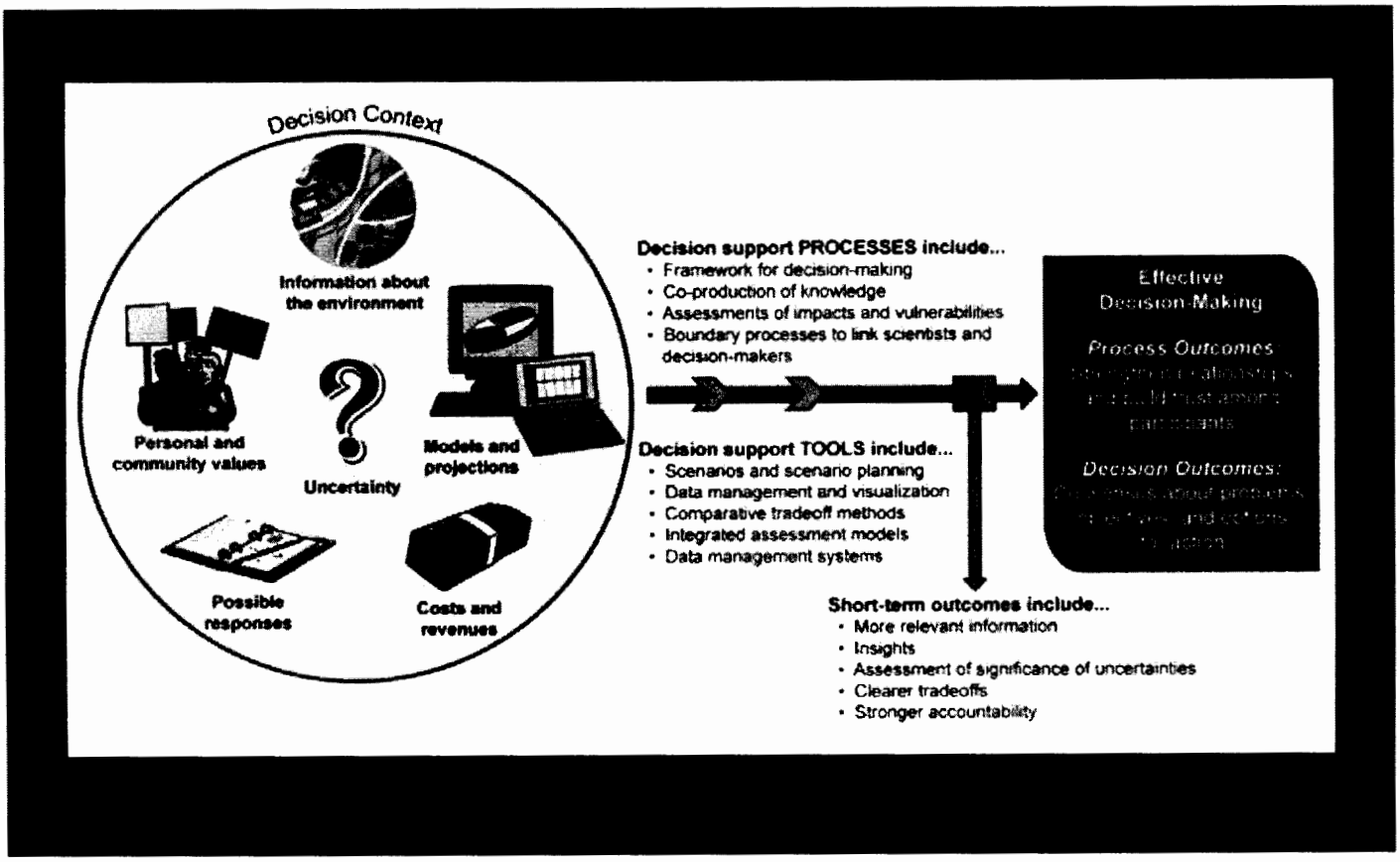
**Many decision support processes and tools are available. They can enable decision-makers to identify and assess response options, apply complex and uncertain information, clarify trade-offs, strengthen transparency, and generate information on the costs and benefits of different choices.**

**Ongoing assessment processes should incorporate evaluation of decision support tools, their accessibility to decision-makers, and their application in decision processes in different sectors and regions.**

**Steps to improve collaborative decision processes include developing new decision support tools and building human capacity to bridge science and decision-making.**

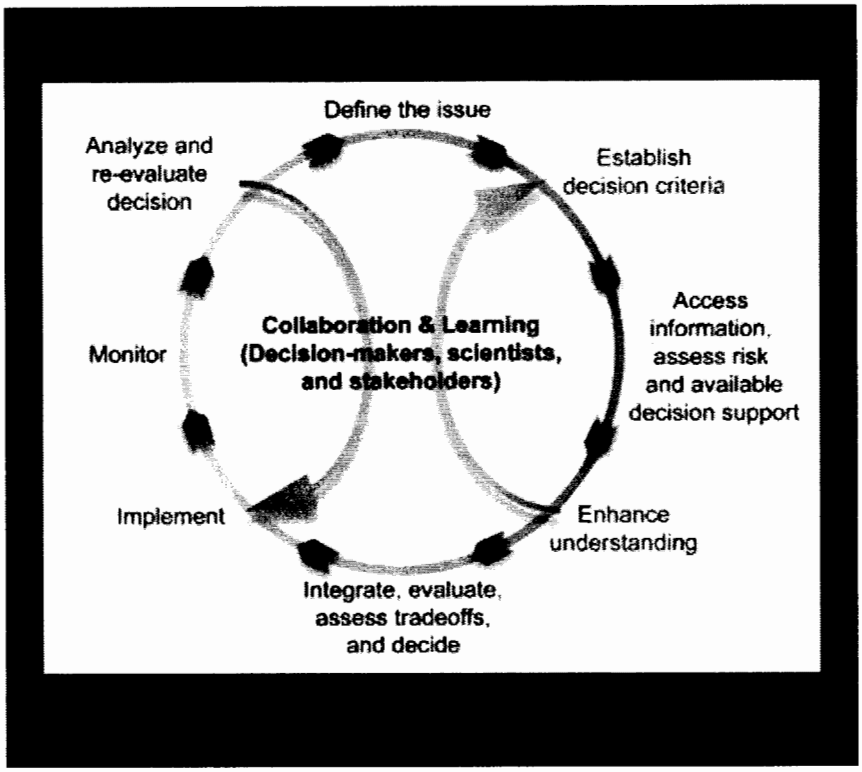
As a result of human-induced climate change, historically successful strategies for managing climate-sensitive resources and infrastructure will become less effective over time. Decision support processes and tools can help structure decision-making, organize and analyze information, and build consensus around options for action.

Although decision-makers routinely make complex decisions under uncertain conditions, decision-making in the context of climate change can be especially challenging. Reasons include the rapid pace of changes, long time lags between human activities and response of the climate system, the high economic and political stakes, the number and diversity of potentially affected stakeholders, the need to incorporate uncertain scientific information of varying confidence levels, and the values of stakeholders and decision-makers.[28,29] The social, economic, psychological, and political dimensions of these decisions underscore the need for ways to improve communication of scientific information and uncertainties and to help decision-makers assess risks and opportunities.



# Finding 12: RESPONSES

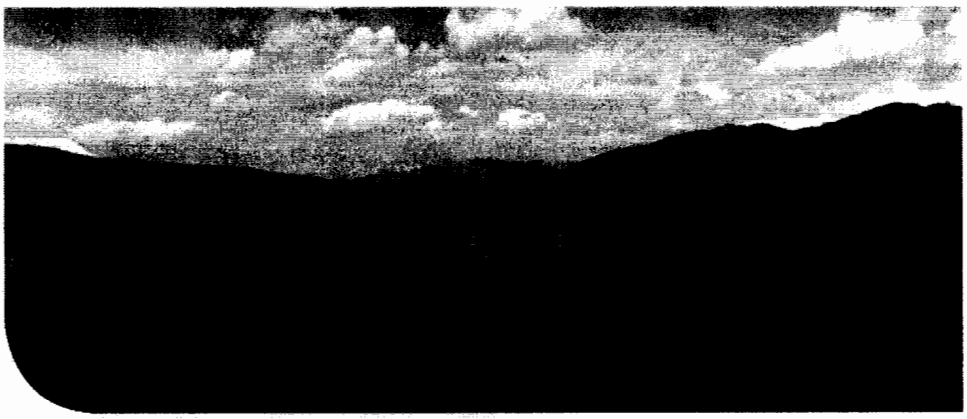
**Collaboration:** The importance of both scientific information and societal considerations suggests the need for the public, technical experts, and decision-makers to engage in mutual shared learning and shared production of relevant knowledge.[29,30]




**Uncertainty:** An "iterative adaptive risk management framework" is useful for decisions about adaptation and ways to reduce future climate change, especially given uncertainties and ongoing advances in scientific understanding.[31] An idealized iterative adaptive risk management process includes clearly defining the issue, establishing decision criteria, identifying and incorporating relevant information, evaluating options, and monitoring and revisiting effectiveness.

**Risk Management:** Making effective climate-related decisions requires balance among actions intended to manage, reduce, and transfer risk. Risks are threats to life, health and safety, the environment, economic well-being, and other things of value. Methods such as multiple criteria analysis, valuation of both risks and opportunities, and scenarios can help to combine experts' assessment of climate change risks with public perception of these risks.[32]

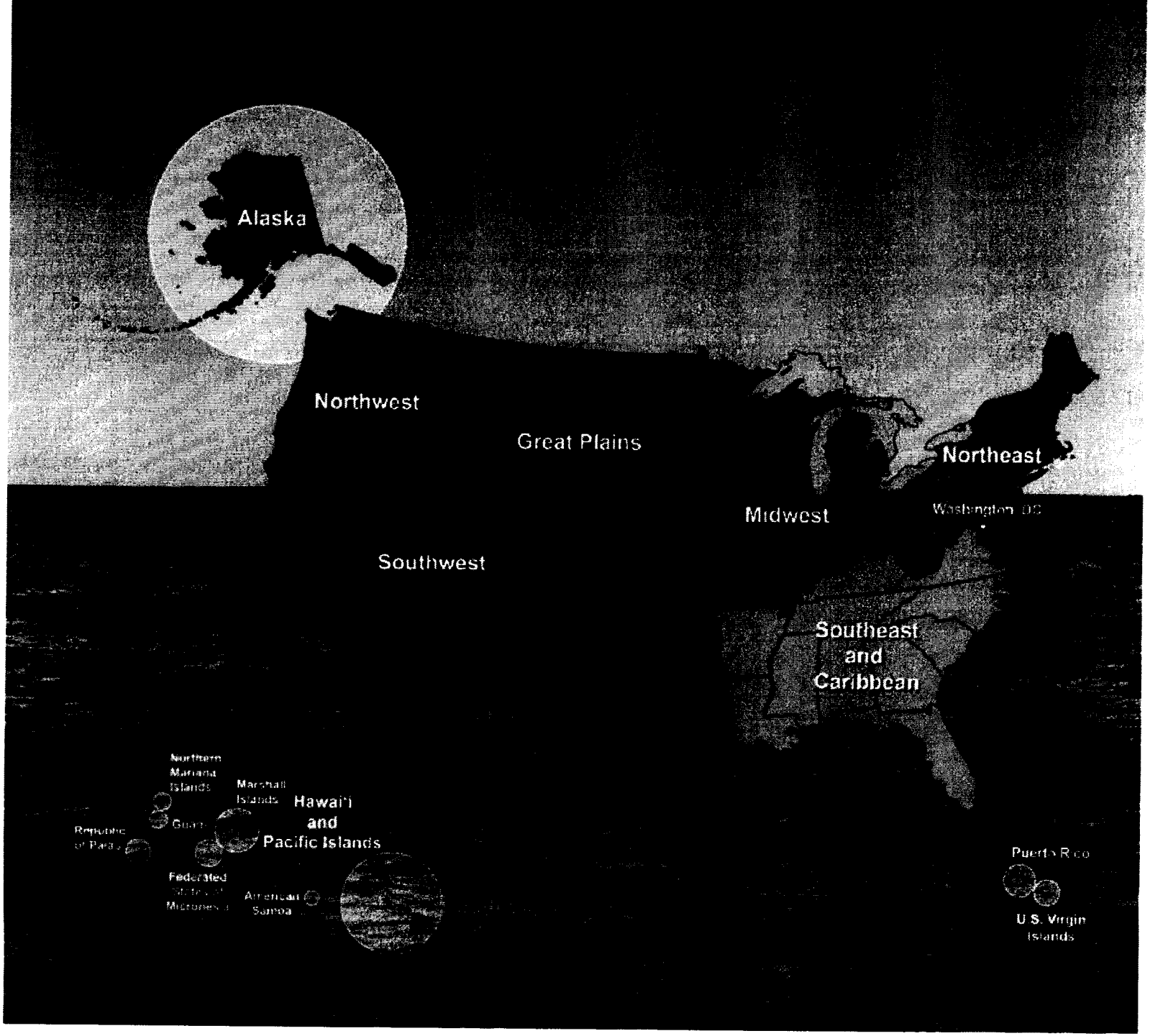
Climate change is one of the biggest challenges facing the Denver Water system. Due to recent and anticipated effects of climate variability and change on water availability, Denver Water faces the challenge of weighing alternative response strategies and is looking at developing options to help meet more challenging future conditions.



Denver Water is using scenario planning in its long-range planning process (looking out to 2050) to consider a range of plausible futures involving climate change, demographic and water use changes, and economic and regulatory changes. The strategy focuses on keeping as many future options open as possible while trying to ensure reliability of current supplies.

The next step for Denver Water is to explore a more technical approach to test their existing plan and identified options against multiple climate change scenarios. Following a modified robust decision-making approach,[33] Denver Water will test and hedge its plan and options until those options demonstrate that they can sufficiently handle a range of projected climate conditions.

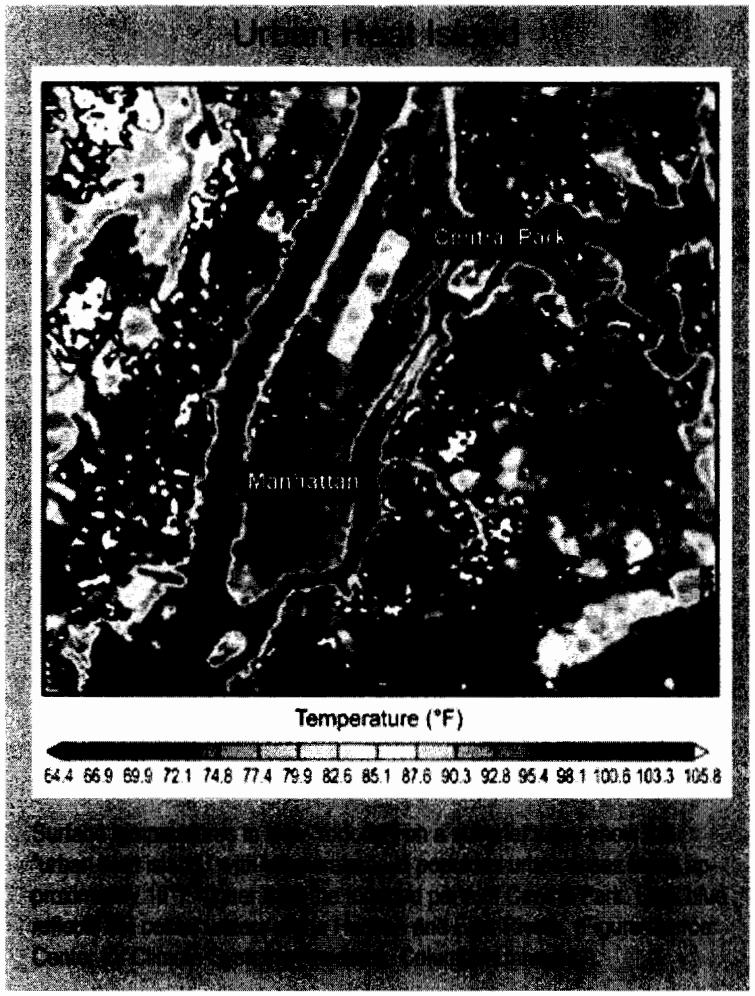
environment are closely linked to the changing climate, with increased flooding, greater incidence of heat



Heat waves, coastal flooding, and river flooding will pose a growing challenge to the region's envi

coastal flooding, and intense precipitation events.

Agriculture, fisheries, and ecosystems will be increasingly compromised over the next century by




Sixty-four million people are concentrated in the Northeast. The high-density urban coastal corridor from Washington, D.C., north to Boston is one of the most developed environments in the world. It contains a massive, complex, and long-standing network of supporting infrastructure. The Northeast also has a vital rural component, including large expanses of sparsely populated but ecologically and agriculturally important areas.

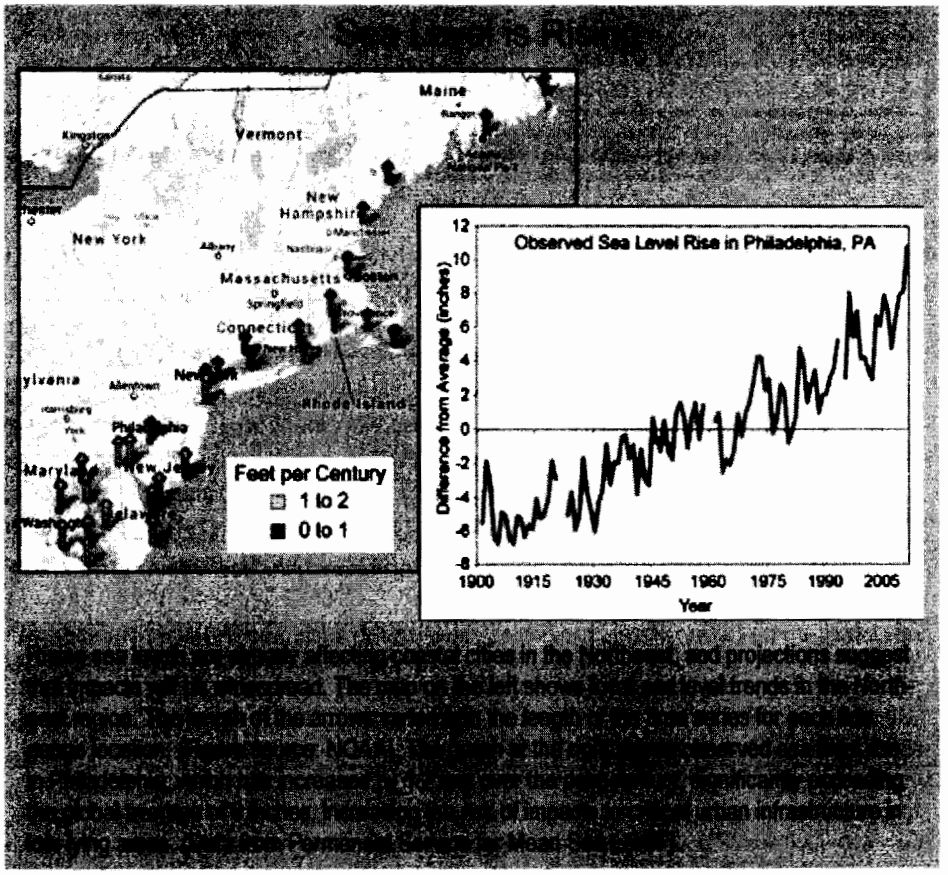
Although urban and rural regions in the Northeast are profoundly different, they both include populations that are highly vulnerable to climate hazards and other stresses. The region depends on aging infrastructure that has already been stressed by climate hazards including heat waves and heavy downpours. The Northeast has experienced a greater recent increase in extreme precipitation than any other region in the U.S.; between 1958 and 2010, the Northeast saw more than a 70% increase in the amount of precipitation falling in very heavy events (defined as the heaviest 1% of all daily events).[1] This increase, combined with coastal and riverine flooding due to sea level rise and storm surge, creates increased risks. For all of these reasons, public health, agriculture, transportation, communications, and energy systems in the Northeast all face climate-related challenges.

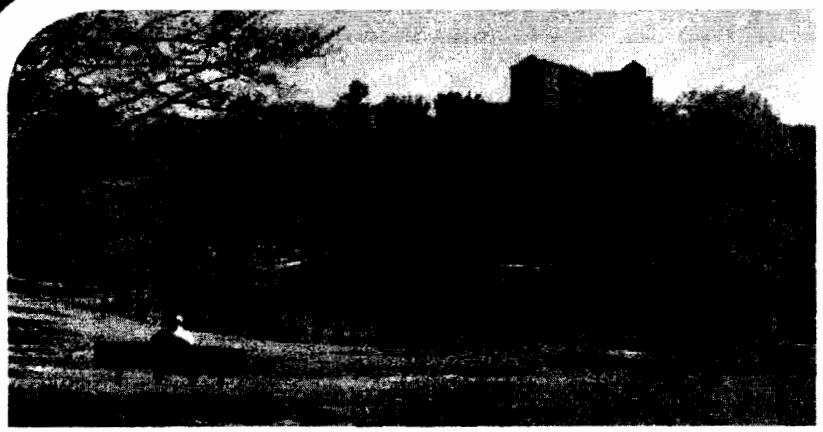
## Hurricane Vulnerability

Hurricanes Irene and Sandy demonstrated the region's vulnerability to extreme weather events and the potential for adaptation to reduce impacts. Hurricane Irene produced a broad swath of very heavy rain (greater than 5 inches in total and 2 to 3 inches per hour in some locations) from southern Maryland to northern Vermont from August 27 to 29, 2011. These heavy rains were part of a broader pattern of wet weather preceding the storm that exacerbated the flooding.

In anticipation of Irene, the New York City mass transit system was shut down, and 2.3 million coastal residents in Delaware, New Jersey, and New York faced mandatory evacuations. But inland impacts, especially in upstate New York and in central and southern Vermont, were most severe. Flash flooding washed out roads and bridges, undermined railroads, brought down trees and power lines, flooded homes and businesses, and damaged floodplain forests. Hazardous wastes were released in a number of areas, and 17 municipal wastewater treatment plants were breached by the floodwaters. Crops were flooded and many towns and villages were isolated for days.

Hurricane Sandy, which hit the East Coast in October 2012, caused massive coastal damage from storm surge and flooding. Sandy was responsible for approximately 150 deaths, about half of those in the Northeast, and monetary impacts on coastal areas, especially in New Jersey, New York, and Connecticut estimated at $60 to $80 billion.[2,3] Floodwaters inundated subway tunnels in New York City, 8.5 million people were without power, and an estimated 650,000 homes were damaged or destroyed.[2]



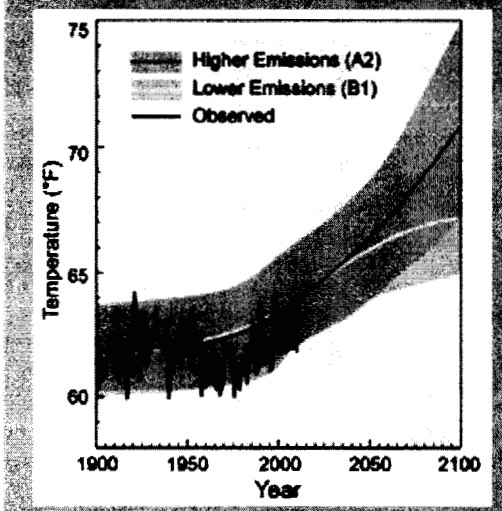
This one-acre stormwater wetland was constructed in Philadelphia to treat stormwater runoff in an effort to improve drinking water quality while minimizing the impacts of storm-related flows on natural ecosystems.

The City of Philadelphia is greening its combined sewer infrastructure to protect rivers, reduce greenhouse gas emissions, improve air quality, and enhance adaptation to a changing climate.[4]

Officials in coastal Maine are working with the statewide Sustainability Solutions Initiative to identify how culverts that carry stormwater can be maintained and improved, in order to increase resiliency to more frequent extreme precipitation events. This includes actions such as using larger culverts to carry water from major storms.[5]

The Southeast and Caribbean region is exceptionally vulnerable to sea level rise, extreme heat events, hurricanes, and decreased water availability. The geographic distribution of these impacts and vulnerabilities is uneven, since the region encompasses a wide range of environments, from the Appalachian Mountains to the coastal plains. The region is home to more than 80 million people and some of the fastest-growing metropolitan areas,[1] three of which are along the coast and vulnerable to sea level rise and storm surge. The Gulf and Atlantic coasts are major producers of seafood and home to seven major ports[2] that are also vulnerable. The Southeast is a major energy producer of coal, crude oil, and natural gas, and is the highest energy user of any of the National Climate Assessment regions.[2]

The Southeast warmed during the early part of last century, cooled for a few decades, and is now warming again. Temperatures across the region are expected to increase in the future. Major consequences include significant increases in the number of hot days (95°F or above) and decreases in freezing events. Higher temperatures contribute to the formation of harmful air pollutants and allergens.[3] Higher temperatures are also projected to reduce livestock and crop productivity.[4] Climate change is expected to increase harmful blooms of algae and several disease-causing agents in inland and coastal waters.[5] The number of Category 4 and 5 hurricanes in the North Atlantic and the amount of rain falling in very heavy precipitation events have increased over recent decades, and further increases are projected.



Global sea level rose about eight inches in the last century and is projected to rise another 1 to 4 feet in this century. Large numbers of southeastern cities, roads, railways, ports, airports, oil and gas facilities, and water supplies are vulnerable to the impacts of sea level rise. Major cities like New Orleans, with roughly half of its population below sea level,[8] Miami, Tampa, Charleston, and Virginia Beach are among those most at risk.[9]

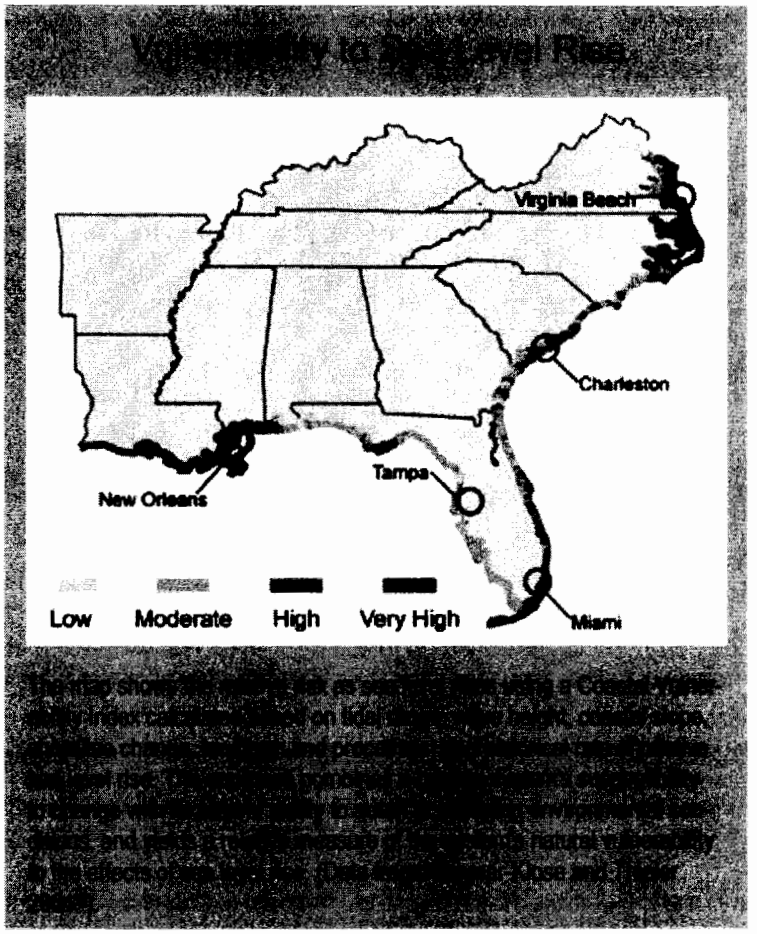
As a result of current sea level rise, the coastline of Puerto Rico around Rincòn is being eroded at a rate of 3.3 feet per year.[10] Puerto Rico has one of the highest population densities in the world, with 56% of the population living in coastal municipalities.[10]

Sea level rise and storm surge can have impacts far beyond the area directly affected. Sea level rise combines with other climate-related impacts and existing pressures such as land subsidence, causing significant economic and ecological implications. According to a recent study co-sponsored by a regional utility, coastal areas in Alabama, Mississippi, Louisiana, and Texas already face losses that annually average $14 billion from hurricane winds, land subsidence, and sea level rise. Losses for the 2030 timeframe could reach $23 billion assuming a nearly 3% increase in hurricane wind speed and just under 6 inches of sea level rise. About 50% of the increase in losses is related to climate change.[11]

Louisiana State Highway 1, heavily used for delivering critical oil and gas resources from Port Fourchon, is sinking, at the same time sea level is rising, resulting in more frequent and more severe flooding during high tides and storms.[12] A 90-day shutdown of this road would cost the nation an estimated $7.8 billion.[13]

Freshwater supplies from rivers, streams, and groundwater sources near the coast are at risk from accelerated saltwater intrusion due to higher sea levels. Porous aquifers in some areas make them particularly vulnerable to saltwater intrusion.[14] For example, officials in the city of Hallandale Beach, Florida, have already abandoned six of their eight drinking water wells.[15]

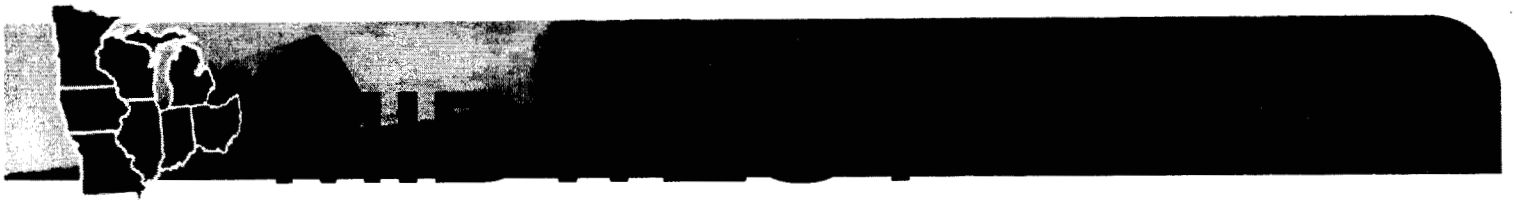
Continued urban development and increases in irrigated agriculture will increase water demand while higher temperatures will increase evaporative losses. All of these factors will combine to reduce the availability of water in the Southeast. Severe water stress is projected for many small Caribbean islands.[16]



Clayton County, Georgia's innovative water recycling project enabled it to maintain abundant water supplies, with reservoirs at or near capacity, during the 2007-2008 drought, while neighboring Lake Lanier, the water supply for Atlanta, was at record lows. The project involved a series of constructed wetlands (see photo) used as the final stage of a wastewater treatment process that recharges groundwater and supplies surface reservoirs. The county has also implemented water efficiency and leak detection programs.[18]

In other adaptation efforts, the North Carolina Department of Transportation is raising U.S. Highway 64 across the Albemarle-Pamlico Peninsula by four feet, which includes 18 inches to allow for higher future sea levels.[19]

For another example, see page 63 for a description of the Southeast Florida Regional Compact's plans to reduce heat-trapping gas emissions and adapt to climate change impacts.

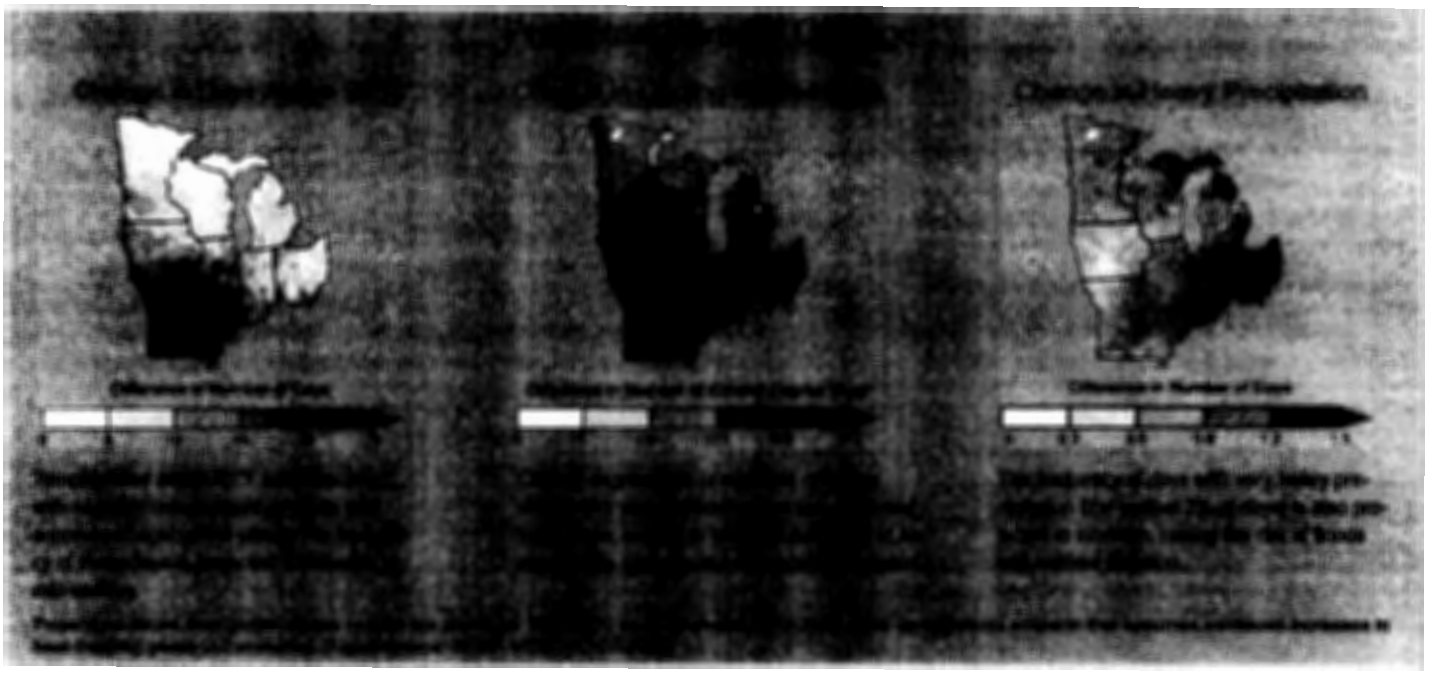


crops, though those benefits will be progressively offset by extreme weather events. Though adaptation options

Extreme rainfall events and flooding have increased during the last century, and these trends are expected to

bution of certain fish species, increased invasive species and harmful blooms of algae, and declining beach

The Midwest's agricultural lands, forests, Great Lakes, industrial activities, and cities are all vulnerable to climate variability and climate change. Climate change will tend to amplify existing risks climate poses to people, ecosystems, and infrastructure. Direct effects will include increased heat stress, flooding, drought, and late spring freezes. Climate change also alters pests and disease prevalence, competition from non-native or opportunistic native species, ecosystem disturbances, land-use change, landscape fragmentation, atmospheric and watershed pollutants, and economic shocks such as crop failures, reduced yields, or toxic blooms of algae due to extreme weather events. These added stresses, together with the



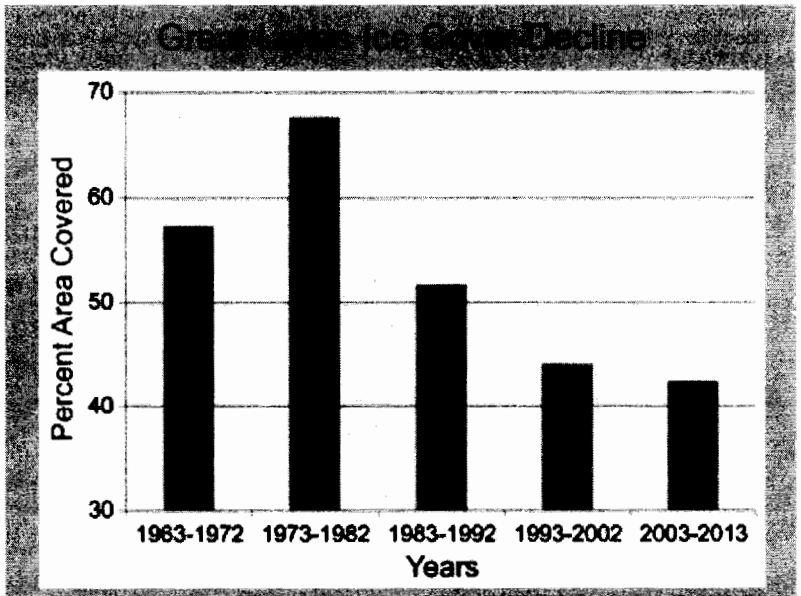
direct effects of climate change, are projected to alter ecosystem and socioeconomic patterns and processes in ways that most people in the region would consider detrimental.

Most of the Midwest's population lives in urban environments. Climate change may intensify other stresses on urban dwellers and vegetation, including increased atmospheric pollution, heat island effects, a highly variable water cycle, and frequent exposure to new pests and diseases. Further, many of the cities have aging infrastructure and are particularly vulnerable to climate change related flooding and life-threatening heat waves. The increase in heavy downpours has contributed to the discharge of untreated sewage due to excess water in combined sewage-overflow systems in a number of cities in the Midwest.[1]

Much of the region's fisheries, recreation, tourism, and commerce depend on the Great Lakes and expansive northern forests, which already face pollution and invasive species pressures – pressures exacerbated by climate change.

Extreme weather events will influence future crop yields more than changes in average temperature or annual precipitation. High temperatures during early spring, for example, can decimate fruit crop production[2] when early heat causes premature plant budding that exposes flowers to later cold injury, as happened in 2002, and again in 2012, to Michigan's $60 million tart cherry crop. Springtime cold air outbreaks are projected to continue to occur throughout this century.[3]

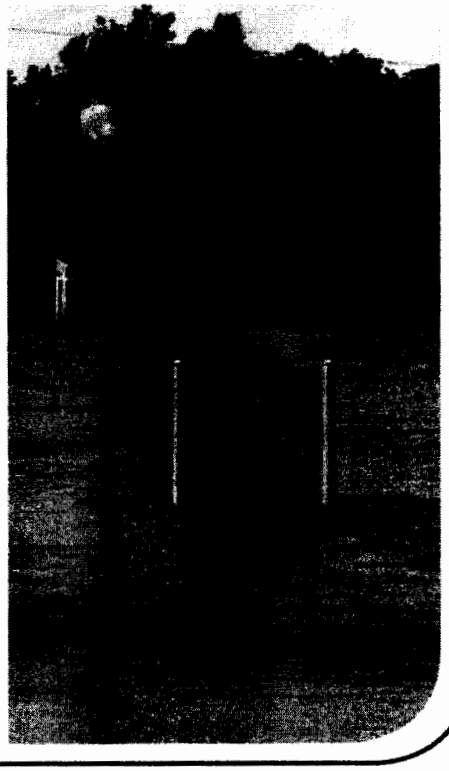
Any increased productivity of some crops due to higher temperatures, longer growing seasons, and elevated carbon dioxide concentrations could be offset by water limitations and other stressors.[4] Heat waves during pollination of field crops such as corn and soybean also reduce yields.[5] Wetter springs may reduce crop yields and profits,[6] especially if growers are forced to switch to late-planted, shorter-season varieties.




The city of Cedar Falls' new floodplain ordinance expands zoning restrictions from the 100-year floodplain to the 500-year floodplain to better reflect the flood risks experienced by this and other Midwest cities during the 2008 floods.[12]

Cedar Rapids has also taken significant steps to reduce future flood damage, with buyouts of more than 1,000 properties, and numerous buildings adapted with flood protection measures.

Some cities have begun to incorporate adaptation planning for a range of climate change impacts. Chicago was one of the first cities to officially integrate climate adaptation into a citywide plan. Since the Climate Adaptation Plan's release, a number of strategies have been implemented to help the city manage heat, protect forests, and enhance green design, using techniques such as green roofs.[13]



The Great Plains is a diverse region where climate is woven into the fabric of life. Daily, monthly, and yearly variations in the weather can be dramatic and challenging. The region experiences multiple climate and weather hazards, including floods, droughts, severe storms, tornadoes, hurricanes, and winter storms. In much of the Great Plains, too little precipitation falls to replace that needed by humans, plants, and animals. These variable conditions already stress communities and cause billions of dollars in damage. Climate change will add to both stress and costs.

The people of the Great Plains historically have adapted to this challenging climate. Although projections suggest more frequent and more intense droughts, heavy downpours, and heat waves, people can reduce vulnerabilities through the use of new technologies, community-driven policies, and the judicious use of resources. Efforts to reduce greenhouse gas emissions and adapt to climate change can be locally driven, cost effective, and beneficial for local economies and ecosystem services.

Even small shifts in timing of plant growth cycles caused by climate change can disrupt ecosystem functions like predator-prey relationships or food availability. While historic bison herds migrated to adapt to changing conditions, habitats are now fragmented by roads, agriculture, and structures, inhibiting similar large-scale migration.[1]

Increases in heavy downpours contribute to flooding.

The trend toward more dry days and higher temperatures across the Southern Plains will increase evaporation, decrease water supplies, reduce electricity transmission capacity, and increase cooling demands. These changes will add stress to limited water resources and affect management choices related to irrigation, municipal use, and energy generation.[2] Increased drought frequency and intensity can turn marginal lands into deserts.

Changing extremes in precipitation are projected across all seasons, including higher likelihoods of both increasing heavy rain and snow events[3] and more intense droughts.[4] Winter and spring precipitation and heavy downpours are both projected to increase in the

A Texas State Park police officer walks across a cracked lakebed in August 2011. This lake once spanned more than 5,400 acres.

north, leading to increased runoff and flooding that will reduce water quality and erode soils. Increased snowfall, rapid spring warming, and intense rainfall can combine to produce devastating floods, as is already common along the Red River of the North. More intense rains will also contribute to urban flooding.

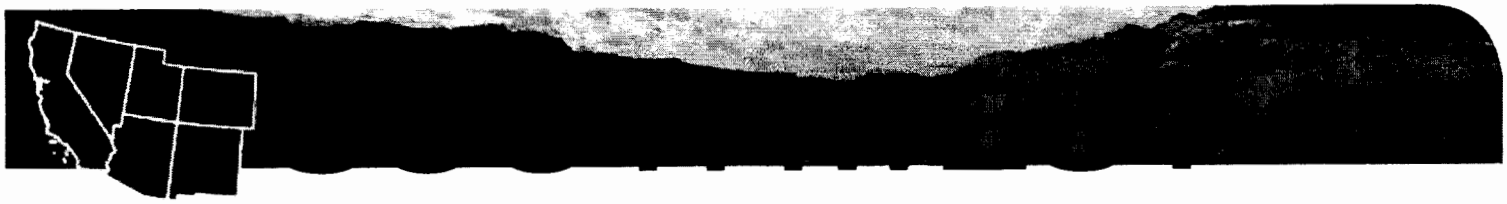
Expectations of more precipitation in the northern Great Plains and less in the southern Great Plains were strongly manifest in 2011, with exceptional drought and record-ing-setting temperatures in Texas and Oklahoma – and flooding in the northern Great Plains. Many locations in Texas and Oklahoma experienced more than 100 days over 100°F, with both states setting new high temperature records. Rates of water loss were double the long-term average, depleting water resources and contributing to more than $10 billion in direct losses to agriculture alone. In the future, average temperatures in this region are expected to increase and will continue to contribute to the intensity of heat waves.

By contrast, the Northern Plains were exceptionally wet, with Montana and Wyoming recording all-time wettest springs and the Dakotas and Nebraska not far behind. Record rainfall and snowmelt combined to push the Missouri River and its tributaries beyond their banks and leave much of the Crow Reservation in Montana underwater. The Souris River near Minot, North Dakota, crested at four feet above its previous record, causing losses estimated at $2 billion.

Projected climate change will have both positive and negative consequences for agricultural productivity in the Northern Plains, where increases in winter and spring precipitation will benefit productivity by increasing water availability through soil moisture reserves during the early growing season, but this can be offset by fields too wet to plant. Rising temperatures will lengthen the growing season, possibly allowing a second annual crop in some places and some years. However, warmer winters pose challenges.[5] Some pests and invasive weeds will be able to survive the warmer winters,[6] and winter crops that emerge from dormancy earlier are susceptible to spring freezes.[7]

In the Southern Plains, projected declines in precipitation in the south and greater evaporation everywhere due to higher temperatures will increase irrigation demand and exacerbate current stresses on agricultural productivity. Increased water withdrawals from the Ogallala and High Plains Aquifers would accelerate ongoing depletion in the southern parts of the aquifers and limit the ability to irrigate.[8] Holding other aspects of production constant, the climate impacts of shifting from irrigated to dryland agriculture would reduce crop yields by about a factor of two.[9]

The Oglala Lakota tribe in South Dakota is incorporating climate change adaptation and mitigation planning as they consider long-term sustainable development. Their Oyate Omniciye plan is a partnership built around six livability principles related to transportation, housing, economic competitiveness, existing communities, federal investments, and local values. Their vision incorporates plans to reduce and adapt to future climate change while protecting cultural resources.[10]



Snowpack and streamflow amounts are projected to decline in parts of the Southwest, decreasing

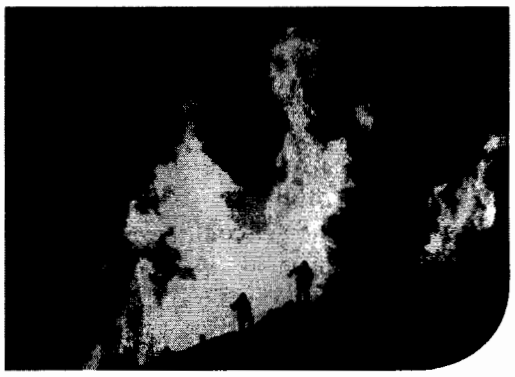
increased wildfires and impacts to people and ecosystems in the Southwest. Fire models project more wildfire and increased risks to communities across extensive areas.

Heat, drought, and competition for water supplies will increase in the Southwest with continued climate change.

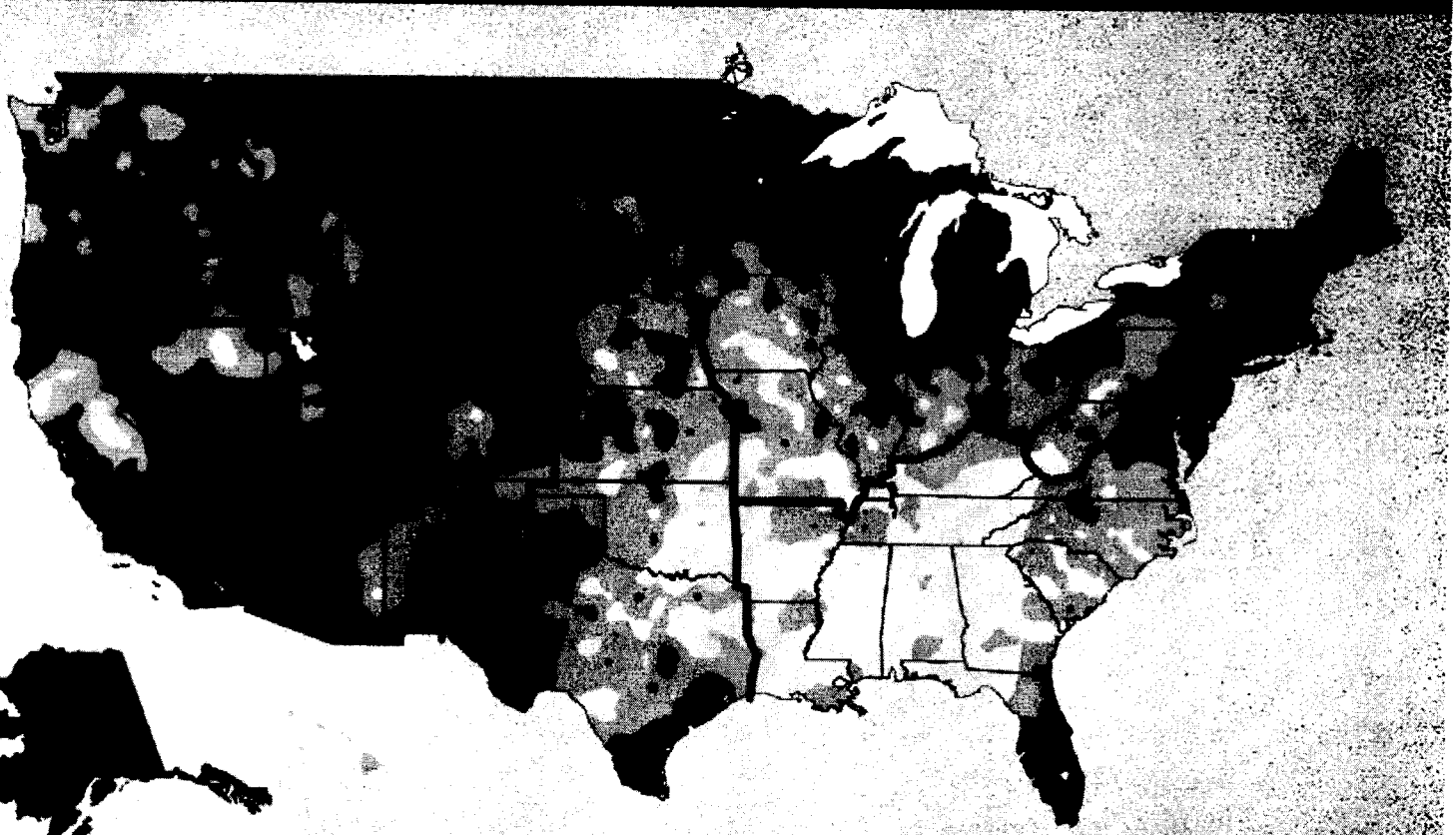
The Southwest is the hottest and driest region in the U.S., where the availability of water has defined its landscapes, history of human settlement, and modern economy. Climate changes pose challenges for an already parched region that is expected to get hotter and, in its southern half, significantly drier.

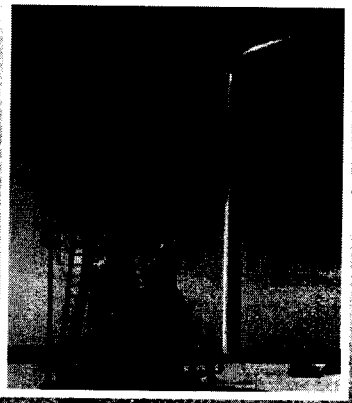
Increased heat and changes to rain and snowpack will send ripple effects throughout the region, affecting 56 million people – a population expected to increase to 94 million by 2050[1] – and its critical agriculture sector. Severe and sustained drought will stress water sources, already over-utilized in many areas, forcing increasing competition among farmers, energy producers, urban dwellers, and ecosystems for the region's most precious resource.

The region's populous coastal cities face rising sea levels, extreme high tides, and storm surges, which pose particular risks to highways, bridges, power plants, and sewage treatment plants. Climate-related challenges also increase risks to critical port cities, which handle half of the nation's incoming shipping containers. The region's rich diversity of plant and animal species will be increasingly stressed. Widespread tree death and fires, which already have caused billions of dollars in economic losses, are projected to increase. Tourism and recreation also face climate change challenges, including reduced streamflow and a shorter snow season, influencing everything from the ski industry to lake and river recreation.



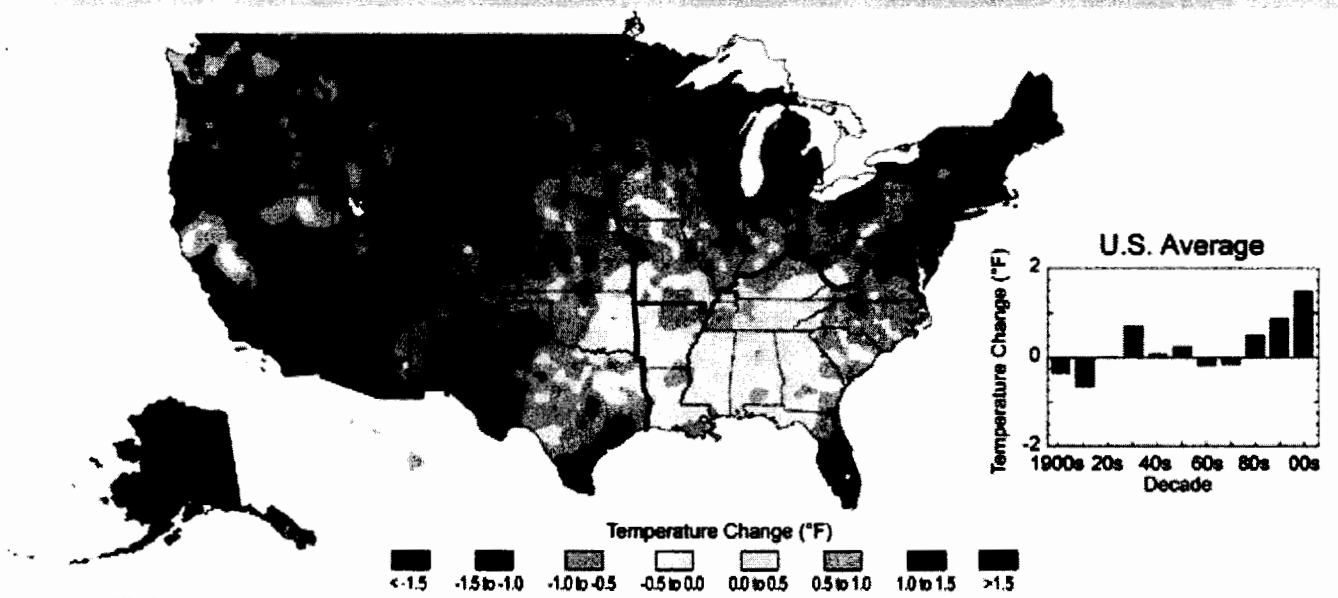
Climate change contributes to increasing fires.





# Climate Change Impacts in the United States

## Observed U.S. Temperature Change




The colors on the map show temperature changes over the past 22 years (1991-2012) compared to the 1901-1960 average for the contiguous U.S., and to the 1951-1980 average for Alaska and Hawai'i. The bars on the graph show the average temperature changes for the U.S. by decade for 1901-2012 (relative to the 1901-1960 average). The far right bar (2000s decade) includes 2011 and 2012. The period from 2001 to 2012 was warmer than any previous decade in every region. (Figure source: NOAA NCDC / CICS-NC).

Members of the National Guard lay sandbags to protect against Missouri River flooding.

Energy choices will affect the amount of future climate change.

Climate change is increasing the vulnerability of forests to wildfires across the U.S. West.

Solar power use is increasing and is part of the solution to climate change.

**Online at:**
nca2014.globalchange.gov

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May 2014

Members of Congress:

On behalf of the National Science and Technology Council and the U.S. Global Change Research Program, we are pleased to transmit the report of the Third National Climate Assessment: *Climate Change Impacts in the United States.* As required by the Global Change Research Act of 1990, this report has collected, evaluated, and integrated observations and research on climate change in the United States. It focuses both on changes that are happening now and further changes that we can expect to see throughout this century.

This report is the result of a three-year analytical effort by a team of over 300 experts, overseen by a broadly constituted Federal Advisory Committee of 60 members. It was developed from information and analyses gathered in over 70 workshops and listening sessions held across the country. It was subjected to extensive review by the public and by scientific experts in and out of government, including a special panel of the National Research Council of the National Academy of Sciences. This process of unprecedented rigor and transparency was undertaken so that the findings of the National Climate Assessment would rest on the firmest possible base of expert judgment.

We gratefully acknowledge the authors, reviewers, and staff who have helped prepare this Third National Climate Assessment. Their work in assessing the rapid advances in our knowledge of climate science over the past several years has been outstanding. Their findings and key messages not only describe the current state of that science but also the current and future impacts of climate change on major U.S. regions and key sectors of the U.S. economy. This information establishes a strong base that government at all levels of U.S. society can use in responding to the twin challenges of changing our policies to mitigate further climate change and preparing for the consequences of the climate changes that can no longer be avoided. It is also an important scientific resource to empower communities, businesses, citizens, and decision makers with information they need to prepare for and build resilience to the impacts of climate change.

When President Obama launched his Climate Action Plan last year, he made clear that the essential information contained in this report would be used by the Executive Branch to underpin future policies and decisions to better understand and manage the risks of climate change. We strongly and respectfully urge others to do the same.

Sincerely,

Dr. John P. Holdren
Assistant to the President for Science and Technology
Director, Office of Science and Technology Policy
Executive Office of the President

Dr. Kathryn D. Sullivan
Under Secretary for Oceans and Atmosphere
NOAA Administrator
U.S. Department of Commerce

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Sharon Hays, Computer Sciences Corporation
Mark Howden, CSIRO
Anthony Janetos, Boston University
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Rattan Lal, Ohio State University
Arthur Lee, Chevron Corporation
Jo-Ann Leong, Hawai'i Institute of Marine Biology
Diana Liverman, University of Arizona and Oxford University
Rezaul Mahmood, Western Kentucky University
Edward Maibach, George Mason University
Michael McGeehin, RTI International
Susanne C. Moser, Susanne Moser Research & Consulting and Stanford University
Richard Moss, University of Maryland and PNNL
Philip Mote, Oregon State University
Jayantha Obeysekera, South Florida Water Management District
Marie O'Neill, University of Michigan
Lindene Patton, Zurich Financial Services
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### Designated Federal Officers

Cynthia J. Decker, NOAA
Kandis Y. Wyatt, NOAA

## Federal Executive Team

John Holdren, Assistant to the President for Science and Technology and Director, White House Office of Science and Technology Policy
Katharine Jacobs, Director, National Climate Assessment, White House Office of Science and Technology Policy (through December 2013)
Thomas Armstrong, Director, U.S. Global Change Research Program National Coordination Office, White House Office of Science and Technology Policy
Thomas R. Karl, Chair, Subcommittee on Global Change Research, U.S. Department of Commerce
Tamara Dickinson, Principal Assistant Director for Environment and Energy, White House Office of Science and Technology Policy
Fabien Laurier, Director, Third National Climate Assessment, White House Office of Science and Technology Policy
Glynis C. Lough, NCA Chief of Staff, U.S. Global Change Research Program
David Easterling, NCA Technical Support Unit Director, NOAA NCDC

### Highlights and Report Production Team

Susan Joy Hassol, Senior Science Writer
Brooke Stewart, Science Editor/Production Coordinator
Tom Maycock, Technical Editor
Daniel Glick, Editor
Sara W. Veasey, Creative Director
Jessicca Griffin, Lead Graphic Designer

### Assessment Support Staff

Fredric Lipschultz, Senior Scientist, Regional Coordinator
Susan Aragon-Long, Senior Scientist, Sector Coordinator
Emily Therese Cloyd, Public Participation/Engagement Coordinator
Ilya Fischhoff, Program Coordinator
Bryce Golden-Chen, Program Coordinator
Julie Maldonado, Engagement Assistant, Tribal Coordinator
Alison Delgado, Scientist, Sector Coordinator

**Report Authors and Additional Staff, see page 98**

The National Climate Assessment assesses the science of climate change and its impacts across the United States, now and throughout this century. It documents climate change related impacts and responses for various sectors and regions, with the goal of better informing public and private decision-making at all levels.

A team of more than 300 experts (see page 98), guided by a 60-member National Climate Assessment and Development Advisory Committee (listed on page ii) produced the full report – the largest and most diverse team to produce a U.S. climate assessment. Stakeholders involved in the development of the assessment included decision-makers from the public and private sectors, resource and environmental managers, researchers, representatives from businesses and non-governmental organizations, and the general public. More than 70 workshops and listening sessions were held, and thousands of public and expert comments on the draft report provided additional input to the process.

The assessment draws from a large body of scientific peer-reviewed research, technical input reports, and other publicly available sources; all sources meet the standards of the Information Quality Act. The report was extensively reviewed by the public and experts, including a panel of the National Academy of Sciences, the 13 Federal agencies of the U.S. Global Change Research Program, and the Federal Committee on Environment, Natural Resources, and Sustainability.

**Online at:**
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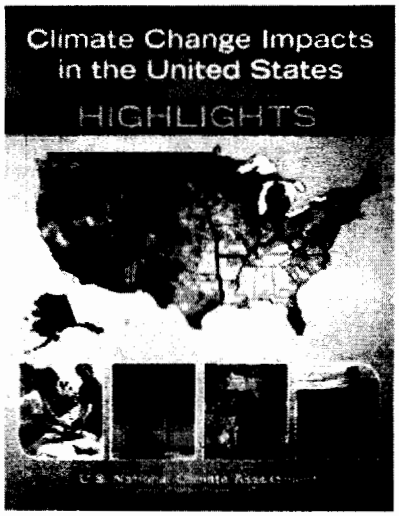
This book presents the major findings and selected highlights from *Climate Change Impacts in the United States*, the third National Climate Assessment.

This *Highlights* report is organized around the National Climate Assessment's 12 Report Findings, which take an overarching view of the entire report and its 30 chapters. All material in the *Highlights* report is drawn from the full report. The Key Messages from each of the 30 report chapters appear in boxes throughout this document.

In the lower left corner of each section, icons identify which chapters of the full report were drawn upon for that section. A key to these icons appears on page 1.

A 20-page *Overview* booklet is available online.

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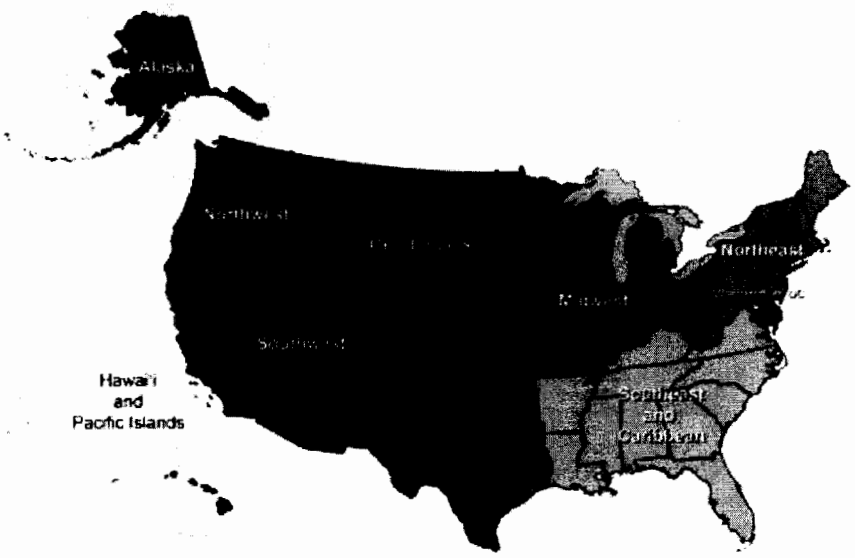

# CHAPTER ICONS

In the lower left corner of each section, these icons identify which chapters of the full report were drawn upon for that section.

- Our Changing Climate
- Water Resources
- Energy Supply and Use
- Transportation
- Agriculture
- Forests
- Ecosystems and Biodiversity
- Human Health
- Energy, Water, and Land Use
- Urban Systems and Infrastructure
- Indigenous Peoples, Lands, and Resources
- Land Use and Land Cover Change
- Rural Communities
- Biogeochemical Cycles
- Northeast
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- Hawai'i and U.S. Affiliated Pacific Islands
- Oceans and Marine Resources
- Coastal Zones
- Decision Support
- Mitigation
- Adaptation
- APP — Appendix 3: Climate Science Supplement
- FAQ — Appendix 4: Frequently Asked Questions

Climate change, once considered an issue for a distant future, has moved firmly into the present. Corn producers in Iowa, oyster growers in Washington State, and maple syrup producers in Vermont are all observing climate-related changes that are outside of recent experience. So, too, are coastal planners in Florida, water managers in the arid Southwest, city dwellers from Phoenix to New York, and Native Peoples on tribal lands from Louisiana to Alaska. This National Climate Assessment concludes that the evidence of human-induced climate change continues to strengthen and that impacts are increasing across the country.

Americans are noticing changes all around them. Summers are longer and hotter, and extended periods of unusual heat last longer than any living American has ever experienced. Winters are generally shorter and warmer. Rain comes in heavier downpours. People are seeing changes in the length and severity of seasonal allergies, the plant varieties that thrive in their gardens, and the kinds of birds they see in any particular month in their neighborhoods.

Other changes are even more dramatic. Residents of some coastal cities see their streets flood more regularly during storms and high tides. Inland cities near large rivers also experience more flooding, especially in the Midwest and Northeast. Insurance rates are rising in some vulnerable locations, and insurance is no longer available in others. Hotter and drier weather and earlier snow melt mean that wildfires in the West start earlier in the spring, last later into the fall, and burn more acreage. In Arctic Alaska, the summer sea ice that once protected the coasts has receded, and autumn storms now cause more erosion, threatening many communities with relocation.

Scientists who study climate change confirm that these observations are consistent with significant changes in Earth's climatic trends. Long-term, independent records from weather stations, satellites, ocean buoys, tide gauges, and many other data sources all confirm that our nation, like the rest of the world, is warming. Precipitation patterns are changing, sea level is rising, the oceans are becoming more acidic, and the frequency and intensity of some extreme weather events are increasing. Many lines of independent evidence demonstrate that the rapid warming of the past half-century is due primarily to human activities.

The observed warming and other climatic changes are triggering wide-ranging impacts in every region of our country and throughout our economy. Some of these changes can be beneficial over the short run, such as a longer growing season in some regions and a longer shipping season on the Great Lakes. But many more are detrimental, largely because our society and its infrastructure were designed for the climate that we have had, not the rapidly changing climate we now have and can expect in the future. In addition, climate change does not occur in isolation. Rather, it is superimposed on other stresses, which combine to create new challenges.

This National Climate Assessment collects, integrates, and assesses observations and research from around the country, helping us to see what is actually happening and understand what it means for our lives,

our livelihoods, and our future. The report includes analyses of impacts on seven sectors – human health, water, energy, transportation, agriculture, forests, and ecosystems – and the interactions among sectors at the national level. The report also assesses key impacts on all U.S. regions: Northeast, Southeast and Caribbean, Midwest, Great Plains, Southwest, Northwest, Alaska, Hawai`i and Pacific Islands, as well as the country's coastal areas, oceans, and marine resources.

Over recent decades, climate science has advanced significantly. Increased scrutiny has led to increased certainty that we are now seeing impacts associated with human-induced climate change. With each passing year, the accumulating evidence further expands our understanding and extends the record of observed trends in temperature, precipitation, sea level, ice mass, and many other variables recorded by a variety of measuring systems and analyzed by independent research groups from around the world. It is notable that as these data records have grown longer and climate models have become more comprehensive, earlier predictions have largely been confirmed. The only real surprises have been that some changes, such as sea level rise and Arctic sea ice decline, have outpaced earlier projections.

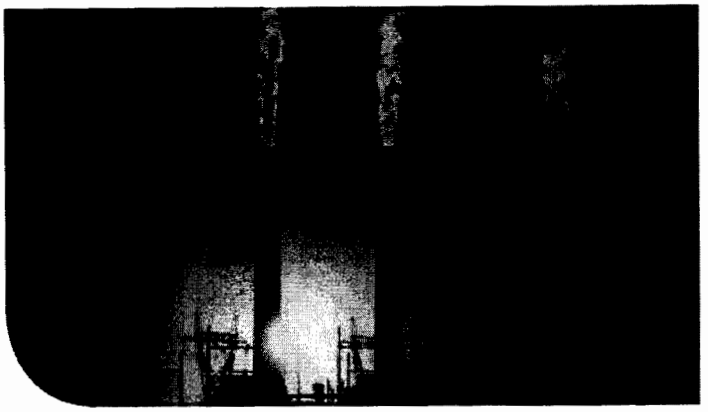
What is new over the last decade is that we know with increasing certainty that climate change is happening now. While scientists continue to refine projections of the future, observations unequivocally show that climate is changing and that the warming of the past 50 years is primarily due to human-induced emissions of heat-trapping gases. These emissions come mainly from burning coal, oil, and gas, with additional contributions from forest clearing and some agricultural practices.

Global climate is projected to continue to change over this century and beyond, but there is still time to act to limit the amount of change and the extent of damaging impacts.

This report documents the changes already observed and those projected for the future.

It is important that these findings and response options be shared broadly to inform citizens and communities across our nation. Climate change presents a major challenge for society. This report advances our understanding of that challenge and the need for the American people to prepare for and respond to its far-reaching implications.

Climate change is already affecting the American people in far-reaching ways. Certain types of extreme weather events with links to climate change have become more frequent and/or intense, including prolonged periods of heat, heavy downpours, and, in some regions, floods and droughts. In addition, warming is causing sea level to rise and glaciers and Arctic sea ice to melt, and oceans are becoming more acidic as they absorb carbon dioxide. These and other aspects of climate change are disrupting people's lives and damaging some sectors of our economy.

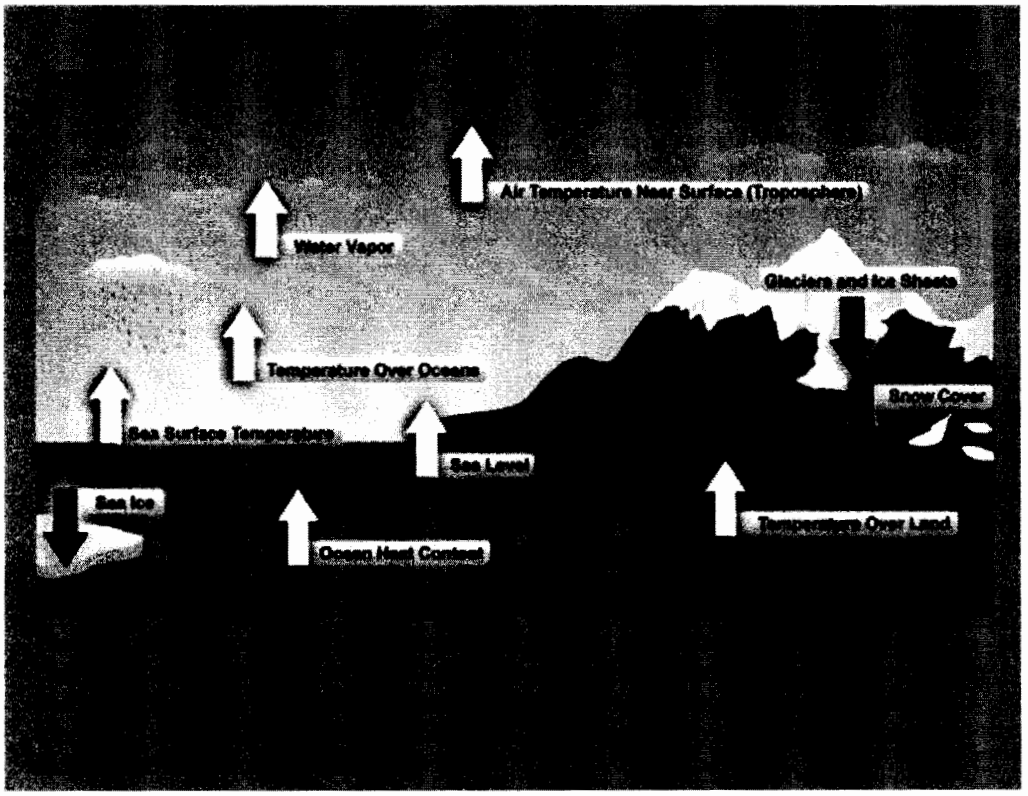


Coal-fired power plants emit heat-trapping carbon dioxide to the atmosphere.

## Climate Change: Present and Future

Evidence for climate change abounds, from the top of the atmosphere to the depths of the oceans. Scientists and engineers from around the world have meticulously collected this evidence, using satellites and networks of weather balloons, thermometers, buoys, and other observing systems. Evidence of climate change is also visible in the observed and measured changes in location and behavior of species and functioning of ecosystems. Taken together, this evidence tells an unambiguous story: the planet is warming, and over the last half century, this warming has been driven primarily by human activity.

Multiple lines of independent evidence confirm that human activities are the primary cause of the global warming of the past 50 years. The burning of coal, oil, and gas, and clearing of forests have increased the concentration of carbon dioxide in the atmosphere by more than 40% since the Industrial Revolution, and it has been known for almost two centuries that this carbon dioxide traps heat. Methane and nitrous oxide emissions from agriculture and other human activities add to the atmospheric burden of heat-trapping gases. Data show that natural factors like the sun and volcanoes cannot have caused the warming observed over the past 50 years. Sensors on satellites have measured the sun's output with great accuracy and found no overall increase during the past half century. Large volcanic eruptions during this period, such as Mount Pinatubo in 1991, have exerted a short-term *cooling* influence. In fact, if not for human activities, global climate would actually have cooled slightly over the past 50 years. The pattern of temperature change through the layers of the atmosphere, with warming near the surface and cooling higher up in the stratosphere, further confirms that it is the buildup of heat-trapping gases (also known as "greenhouse gases") that has caused most of the Earth's warming over the past half century.

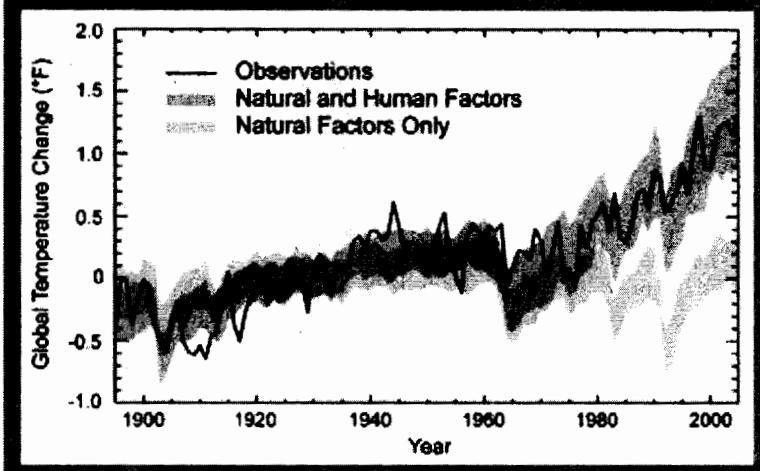



Because human-induced warming is superimposed on a

background of natural variations in climate, warming is not uniform over time. Short-term fluctuations in the long-term upward trend are thus natural and expected. For example, a recent slowing in the rate of surface air temperature rise appears to be related to cyclic changes in the oceans and in the sun's energy output, as well as a series of small volcanic eruptions and other factors. Nonetheless, global temperatures are still on the rise and are expected to rise further.

U.S. average temperature has increased by 1.3°F to 1.9°F since 1895, and most of this increase has occurred since 1970. The most recent decade was the nation's and the world's hottest on record, and 2012 was the hottest year on record in the continental United States. All U.S. regions have experienced warming in recent decades, but the extent of warming has not been uniform. In general, temperatures are rising more quickly in the north. Alaskans have experienced some of the largest increases in temperature between 1970 and the present. People living in the Southeast have experienced some of the smallest temperature increases over this period.

## Separating Human and Natural Influences on Climate

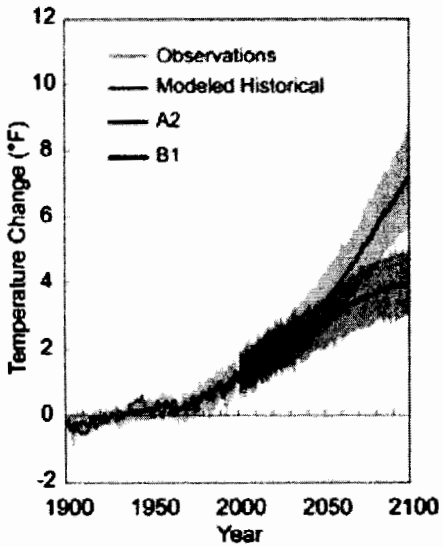



sion of human influences can models reproduce the observed temperature

Temperatures are projected to rise another 2°F to 4°F in most areas of the United States over the next few decades. Reductions in some short-lived human-induced emissions that contribute to warming, such as black carbon (soot) and methane, could reduce some of the projected warming over the next couple of decades, because, unlike carbon dioxide, these gases and particles have relatively short atmospheric lifetimes.

The amount of warming projected beyond the next few decades is directly linked to the cumulative global emissions of heat-trapping gases and particles. By the end of this century, a roughly 3°F to 5°F rise is projected under a lower emissions scenario, which would require substantial reductions in emissions (referred to as the "B1 scenario"), and a 5°F to 10°F rise for a higher emissions scenario assuming continued increases in emissions, predominantly from fossil fuel combustion (referred to as the "A2 scenario"). These projections are based on results from 16 climate models that used the two emissions scenarios in a formal inter-model comparison study. The range of model projections for each emissions scenario is the result of the differences in the ways the models represent key factors such as water vapor, ice and snow reflectivity, and clouds, which can either dampen or amplify the initial effect of human influences on temperature. The net effect of these feedbacks is expected to amplify warming. More information about the models and scenarios used in this report can be found in Appendix 5 of the full report.[1]

## Projected Global Temperature Change




Different amounts of heat-trapping gases released into the atmosphere by human activities produce different projected increases in Earth's temperature. The lines on the graph represent a central estimate of global average temperature rise (relative to the 1901-1960 average) for the two main scenarios used in this report. A2 assumes continued increases in emissions throughout this century, and B1 assumes significant emissions reductions, though not due explicitly to climate change policies. Shading indicates the range (5th to 95th percentile) of results from a suite of climate models. In both cases, temperatures are expected to rise, although the difference between lower and higher emissions pathways is substantial. (Figure source: NOAA NCDC / CICS-NC).

# OVERVIEW

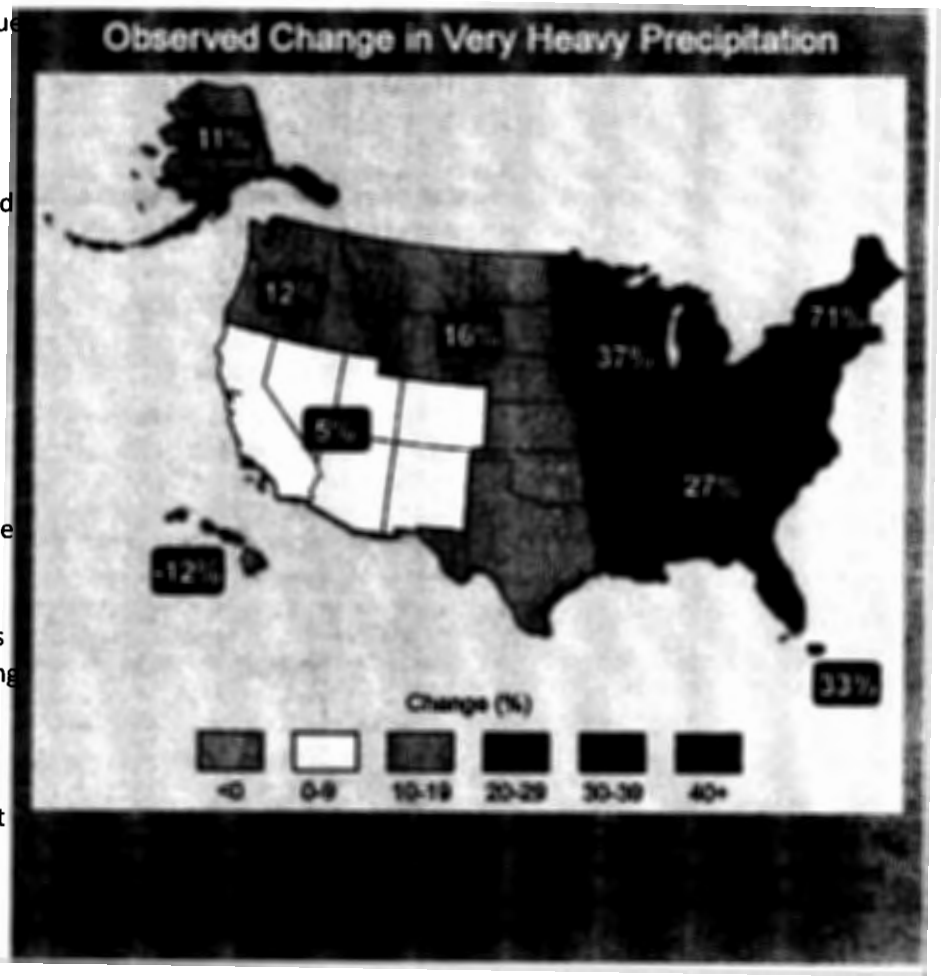
Prolonged periods of high temperatures and the persistence of high nighttime temperatures have increased in many locations (especially in urban areas) over the past half century. High nighttime temperatures have widespread impacts because people, livestock, and wildlife get no respite from the heat. In some regions, prolonged periods of high temperatures associated with droughts contribute to conditions that lead to larger wildfires and longer fire seasons. As expected in a warming climate, recent trends show that extreme heat is becoming more common, while extreme cold is becoming less common. Evidence indicates that the human influence on climate has already roughly doubled the probability of extreme heat events such as the record-breaking summer heat experienced in 2011 in Texas and Oklahoma. The incidence of record-breaking high temperatures is projected to rise.[2]

Human-induced climate change means much more than just hotter weather. Increases in ocean and freshwater temperatures, frost-free days, and heavy downpours have all been documented. Global sea level has risen, and there have been large reductions in snow-cover extent, glaciers, and sea ice. These changes and other climatic changes have affected and will continue to affect human health, water supply, agriculture, transportation, energy, coastal areas, and many other sectors of society, with increasingly adverse impacts on the American economy and quality of life.[3]

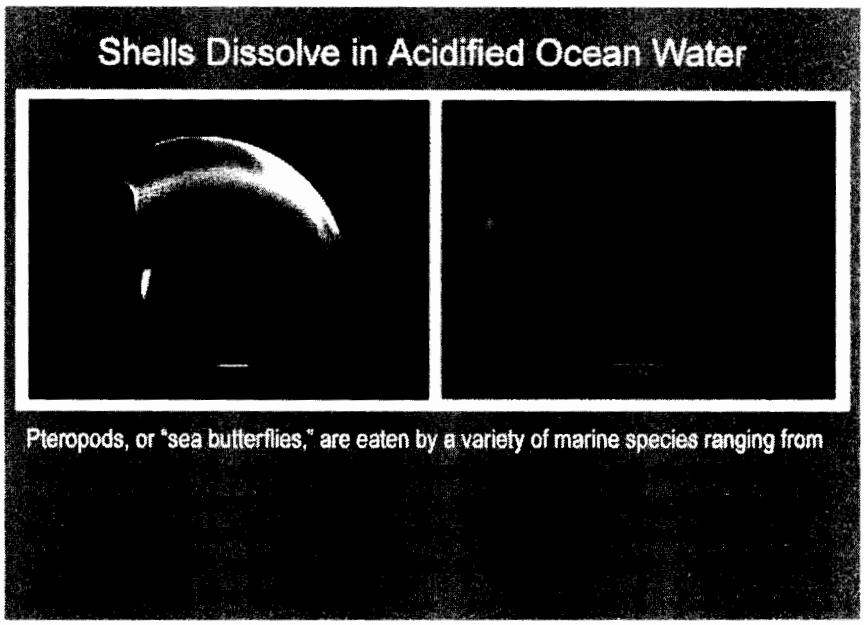
Some of the changes discussed in this report are common to many regions. For example, large increases in heavy precipitation have occurred in the Northeast, Midwest, and Great Plains, where heavy downpours have frequently led to runoff that exceeded the capacity of storm drains and levees, and caused flooding events and accelerated erosion. Other impacts, such as those associated with the rapid thawing of permafrost in Alaska, are unique to a particular U.S. region. Permafrost thawing is causing extensive damage to infrastructure in our nation's largest state.[4]

Some impacts that occur in one region ripple beyond that region. For example, the dramatic decline of summer sea ice in the Arctic – a loss of ice cover roughly equal to half the area of the continental United States – exacerbates global warming by reducing the reflectivity of Earth's surface and increasing the amount of heat absorbed. Similarly, smoke from wildfires in one location can contribute to poor air quality in faraway regions, and evidence suggests that particulate matter can affect atmospheric properties and therefore weather patterns. Major storms and the higher storm surges exacerbated by sea level rise that hit the Gulf Coast affect the entire country through their cascading effects on oil and gas production and distribution.[5]

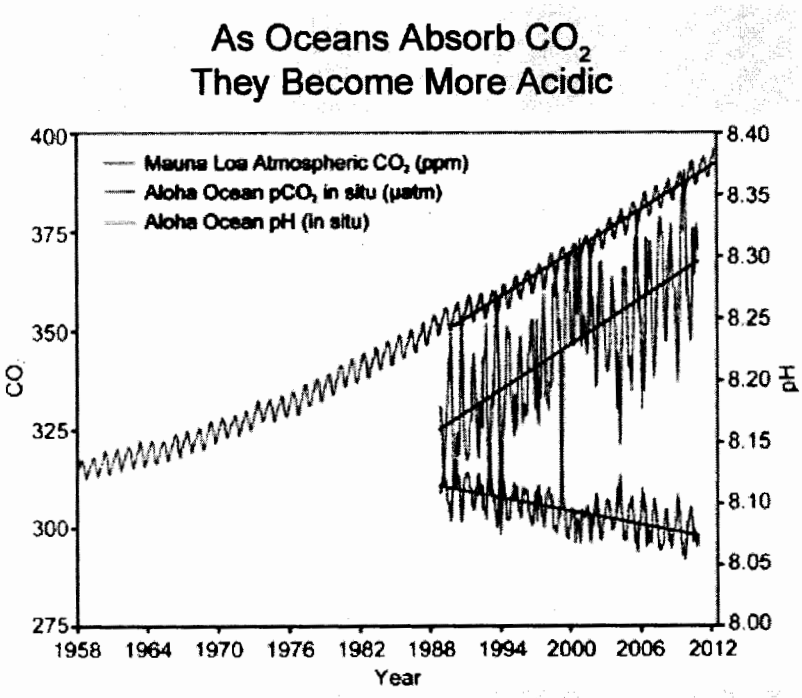
Water expands as it warms, causing global sea levels to rise; melting of land-based ice also raises sea level by adding water to the oceans. Over the past century, global average sea level has risen by about 8 inches. Since 1992, the rate of global sea level rise measured by satellites has been roughly twice the rate observed over the last century, providing evidence of acceleration. Sea level rise,



combined with coastal storms, has increased the risk of erosion, storm surge damage, and flooding for coastal communities, especially along the Gulf Coast, the Atlantic seaboard, and in Alaska. Coastal infrastructure, including roads, rail lines, energy infrastructure, airports, port facilities, and military bases, are increasingly at risk from sea level rise and damaging storm surges. Sea level is projected to rise by another 1 to 4 feet in this century, although the rise in sea level in specific regions is expected to vary from this global average for a number of reasons. A wider range of scenarios, from 8 inches to more than 6 feet by 2100, has been used in risk-based analyses in this report. In general, higher emissions scenarios that lead to more warming would be expected to lead to higher amounts of sea level rise. The stakes are high, as nearly five million Americans and hundreds of billions of dollars of property are located in areas that are less than four feet above the local high-tide level.[6]




In addition to causing changes in climate, increasing levels of carbon dioxide from the burning of fossil fuels and other human activities have a direct effect on the world's oceans. Carbon dioxide interacts with ocean water to form carbonic acid, increasing the ocean's acidity. Ocean surface waters have become 30% more acidic over the last 250 years as they have absorbed large amounts of carbon dioxide from the atmosphere. This ocean acidification makes water more corrosive, reducing the capacity of marine organisms with shells or skeletons made of calcium carbonate (such as corals, krill, oysters, clams, and crabs) to survive, grow, and reproduce, which in turn will affect the marine food chain.[7]




The correlation between rising levels of carbon dioxide in the atmosphere (red) with rising carbon dioxide levels (blue) and falling pH in the ocean (green). As carbon dioxide accumulates in the ocean, the water becomes more acidic (the pH declines). (Figure source: modified from Feely et al. 2009[4]).

## Widespread Impacts

Impacts related to climate change are already evident in many regions and sectors and are expected to become increasingly disruptive across the nation throughout this century and beyond. Climate changes interact with other environmental and societal factors in ways that can either moderate or intensify these impacts.

Some climate changes currently have beneficial effects for specific sectors or regions. For example, current benefits of warming include longer growing seasons for agriculture and longer ice-free periods for shipping on the Great Lakes. At the same time, however, longer growing seasons, along with higher temperatures and carbon dioxide levels, can increase pollen production, intensifying and lengthening the allergy season. Longer ice-free periods on the Great Lakes can result in more lake-effect snowfalls.

# OVERVIEW

Observed and projected climate change impacts vary across the regions of the United States. Selected impacts emphasized in the regional chapters are shown below, and many more are explored in detail in this report.

| | | |
|---|---|---|
| | | |
| | Southeast and Caribbean | |
| | | |
| | Great Plains | |
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| | Northwest | |
| | | |
| | Hawai'i and Pacific Islands | |
| | | |
| | Oceans | |

Sectors affected by climate changes include agriculture, water, human health, energy, transportation, forests, and ecosystems. Climate change poses a major challenge to U.S. agriculture because of the critical dependence of agricultural systems on climate. Climate change has the potential to both positively and negatively affect the location, timing, and productivity of crop, livestock, and fishery systems at local, national, and global scales. The United States produces nearly $330 billion per year in agricultural commodities. This productivity is vulnerable to direct impacts on crops and livestock from changing climate conditions and extreme weather events and indirect impacts through increasing pressures from pests and pathogens. Climate change will also alter the stability of food supplies and create new food security challenges for the United States as the world seeks to feed nine billion people by 2050. While the agriculture sector has proven to be adaptable to a range of stresses, as evidenced by continued growth in production and efficiency across the United States, climate change poses a new set of challenges.[8]

Water quality and quantity are being affected by climate change. Changes in precipitation and runoff, combined with changes in consumption and withdrawal, have reduced surface and groundwater supplies in many areas. These trends are expected to continue, increasing the likelihood of water shortages for many uses. Water quality is also diminishing in many areas, particularly due to sediment and contaminant concentrations after heavy downpours.

Increasing air and water temperatures, more intense precipitation and runoff, and intensifying droughts can decrease water quality in many ways. Here, middle school students in Colorado test water quality.

Climate change can exacerbate respiratory and asthma-related conditions through increases in pollen, ground-level ozone, and wildfire smoke.

Sea level rise, storms and storm surges, and changes in surface and groundwater use patterns are expected to compromise the sustainability of coastal freshwater aquifers and wetlands. In most U.S. regions, water resources managers and planners will encounter new risks, vulnerabilities, and opportunities that may not be properly managed with existing practices.[9]

Certain groups of people are more vulnerable to the range of climate change related health impacts, including the elderly, children, the poor, and the sick.

Climate change affects human health in many ways. For example, increasingly frequent and intense heat events lead to more heat-related illnesses and deaths and, over time, worsen drought and wildfire risks, and intensify air pollution. Increasingly frequent extreme precipitation and associated flooding can lead to injuries and increases in waterborne disease. Rising sea surface temperatures have been linked with increasing levels and ranges of diseases. Rising sea levels intensify coastal flooding and storm surge, and thus exacerbate threats to public safety during storms. Certain groups of people are more vulnerable to the range of climate change related health impacts, including the elderly, children, the poor, and the sick. Others are vulnerable because of where they live, including those in floodplains, coastal zones, and some urban areas. Improving and properly supporting the public health infrastructure will be critical to managing the potential health impacts of climate change.[10]

Climate change also affects the living world, including people, through changes in ecosystems and biodiversity. Ecosystems provide a rich array of benefits and services to humanity, including habitat for fish and wildlife, drinking water storage and filtration, fertile soils for growing crops, buffering against a range of stressors including climate change impacts, and aesthetic and cultural values. These

benefits are not always easy to quantify, but they support jobs, economic growth, health, and human well-being. Climate change driven disruptions to ecosystems have direct and indirect human impacts, including reduced water supply and quality, the loss of iconic species and landscapes, effects on food chains and the timing and success of species migrations, and the potential for extreme weather and climate events to destroy or degrade the ability of ecosystems to provide societal benefits.[11]

Human modifications of ecosystems and landscapes often increase their vulnerability to damage from extreme weather events, while simultaneously reducing their natural capacity to moderate the impacts of such events. For example, salt marshes, reefs, mangrove forests, and barrier islands defend coastal ecosystems and infrastructure, such as roads and buildings, against storm surges. The loss of these natural buffers due to coastal development, erosion, and sea level rise increases the risk of catastrophic damage during or after extreme weather events. Although floodplain wetlands are greatly reduced from their historical extent, those that remain still absorb floodwaters and reduce the effects of high flows on river-margin lands. Extreme weather events that produce sudden increases in water flow, often carrying debris and pollutants, can decrease the natural capacity of ecosystems to cleanse contaminants.[12]

The amount of future climate change will still largely be determined by choices society makes about emissions.

The climate change impacts being felt in the regions and sectors of the United States are affected by global trends and economic decisions. In an increasingly interconnected world, U.S. vulnerability is linked to impacts in other nations. It is thus difficult to fully evaluate the impacts of climate change on the United States without considering consequences of climate change elsewhere.

## Response Options

As the impacts of climate change are becoming more prevalent, Americans face choices. Especially because of past emissions of long-lived heat-trapping gases, some additional climate change and related impacts are now unavoidable. This is due to the long-lived nature of many of these gases, as well as the amount of heat absorbed and retained by the oceans and other responses within the climate system. The amount of future climate change, however, will still largely be determined by choices society makes about emissions. Lower emissions of heat-trapping gases and particles mean less future warming and less-severe impacts; higher emissions mean more warming and more severe impacts. Efforts to limit emissions or increase carbon uptake fall into a category of response options known as "mitigation," which refers to reducing the amount and speed of future climate change by reducing emissions of heat-trapping gases or removing carbon dioxide from the atmosphere.[13]

The other major category of response options is known as "adaptation," and refers to actions to prepare for and adjust to new conditions, thereby reducing harm or taking advantage of new opportunities. Mitigation and adaptation actions are linked in multiple ways, including that effective mitigation reduces the need for adaptation in the future. Both are essential parts of a comprehensive climate change response strategy. The threat of irreversible impacts makes the timing of mitigation efforts particularly critical. This report includes chapters on Mitigation, Adaptation, and Decision Support that offer an overview of the options and activities being planned or implemented around the country as local, state, federal, and tribal governments, as well as businesses, organizations, and individuals begin to respond to climate change. These chapters conclude that while response actions are under development, current implementation efforts are insufficient to avoid increasingly negative social, environmental, and economic consequences.[14]

Large reductions in global emissions of heat-trapping gases, similar to the lower emissions scenario (B1) analyzed in this assessment, would reduce the risks of some of the damaging impacts of climate change. Some targets called for in international climate negotiations to date would require even larger reductions than those outlined in the B1 scenario. Meanwhile, global emissions are still rising and are on a path to be even higher than the high emissions scenario (A2) analyzed in this report. The recent U.S. contribution to annual global emissions is about 18%, but the U.S. contribution to cumulative global emissions over the last century is much higher. Carbon dioxide lasts for a long time in the atmosphere, and it is the cumulative carbon emissions that determine the amount of global climate change. After decades of increases, U.S. $CO_2$ emissions from energy use (which account for 97% of total U.S. emissions) declined by around 9% between 2008 and 2012, largely due to a shift from coal to less $CO_2$-intensive nat-

ural gas for electricity production. Governmental actions in city, state, regional, and federal programs to promote energy efficiency have also contributed to reducing U.S. carbon emissions. Many, if not most of these programs are motivated by other policy objectives, but some are directed specifically at greenhouse gas emissions. These U.S. actions and others that might be undertaken in the future are described in the Mitigation chapter of this report. Over the remainder of this century, aggressive and sustained greenhouse gas emission reductions by the United States and by other nations would be needed to reduce global emissions to a level consistent with the lower scenario (B1) analyzed in this assessment.[15]

With regard to adaptation, the pace and magnitude of observed and projected changes emphasize the need to be prepared for a wide variety and intensity of impacts. Because of the growing influence of human activities, the climate of the past is not a good basis for future planning. For example, building codes and landscaping ordinances could be updated to improve energy efficiency, conserve water supplies, protect against insects that spread disease (such as dengue fever), reduce susceptibility to heat stress, and improve protection against extreme events. The fact that climate change impacts are increasing points to the urgent need to develop and refine approaches that enable decision-making and increase flexibility and resilience in the face of ongoing and future impacts. Reducing non-climate-related stresses that contribute to existing vulnerabilities can also be an effective approach to climate change adaptation.[16]

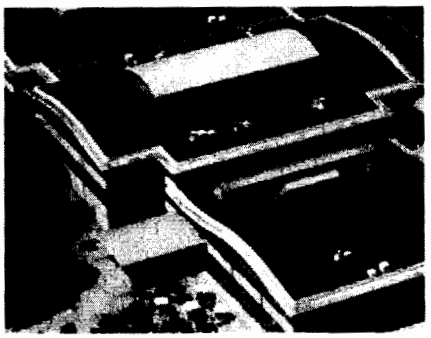
Adaptation can involve considering local, state, regional, national, and international jurisdictional objectives. For example, in managing water supplies to adapt to a changing climate, the implications of international treaties should be considered in the context of managing the Great Lakes, the Columbia River, and the Colorado River to deal with increased drought risk. Both "bottom up" community planning and "top down" national strategies may help regions deal with impacts such as increases in electrical brownouts, heat stress, floods, and wildfires.[17]

Proactively preparing for climate change can reduce impacts while also facilitating a more rapid and efficient response to changes as they happen. Such efforts are beginning at the federal, regional, state, tribal, and local levels, and in the corporate and non-governmental sectors, to build adaptive capacity and resilience to climate change impacts. Using scientific information to prepare for climate changes in advance can provide economic opportunities, and proactively managing the risks can reduce impacts and costs over time.[18]

There are a number of areas where improved scientific information or understanding would enhance the capacity to estimate future climate change impacts. For example, knowledge of the mechanisms controlling the rate of ice loss in Greenland and Antarctica is limited, making it difficult for scientists to narrow the range of expected future sea level rise. Improved understanding of ecological and social responses to climate change is needed, as is understanding of how ecological and social responses will interact.[19]

A sustained climate assessment process could more efficiently collect and synthesize the rapidly evolving science and help supply timely and relevant information to decision-makers. Results from all of these efforts could continue to deepen our understanding of the interactions of human and natural systems in the context of a changing climate, enabling society to effectively respond and prepare for our future.[20]

The cumulative weight of the scientific evidence contained in this report confirms that climate change is affecting the American people now, and that choices we make will affect our future and that of future generations.



Cities providing transportation options including bike lanes, buildings designed with energy saving features such as green roofs, and houses elevated to allow storm surges to pass underneath are among the many response options being pursued around the country.

These findings distill important results that arise from this National Climate Assessment. They do not represent a full summary of all of the chapters' findings, but rather a synthesis of particularly noteworthy conclusions.

**1. Global climate is changing and this is apparent across the United States in a wide range of observations. The global warming of the past 50 years is primarily due to human activities, predominantly the burning of fossil fuels.**

Many independent lines of evidence confirm that human activities are affecting climate in unprecedented ways. U.S. average temperature has increased by 1.3°F to 1.9°F since record keeping began in 1895; most of this increase has occurred since about 1970. The most recent decade was the warmest on record. Because human-induced warming is superimposed on a naturally varying climate, rising temperatures are not evenly distributed across the country or over time.[21] See page 18.

**2. Some extreme weather and climate events have increased in recent decades, and new and stronger evidence confirms that some of these increases are related to human activities.**

Changes in extreme weather events are the primary way that most people experience climate change. Human-induced climate change has already increased the number and strength of some of these extreme events. Over the last 50 years, much of the United States has seen an increase in prolonged periods of excessively high temperatures, more heavy downpours, and in some regions, more severe droughts.[22] See page 24.

**3. Human-induced climate change is projected to continue, and it will accelerate significantly if global emissions of heat-trapping gases continue to increase.**

Heat-trapping gases already in the atmosphere have committed us to a hotter future with more climate-related impacts over the next few decades. The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases that human activities emit globally, now and in the future.[23] See page 28.

**4. Impacts related to climate change are already evident in many sectors and are expected to become increasingly disruptive across the nation throughout this century and beyond.**

Climate change is already affecting societies and the natural world. Climate change interacts with other environmental and societal factors in ways that can either moderate or intensify these impacts. The types and magnitudes of impacts vary across the nation and through time. Children, the elderly, the sick, and the poor are especially vulnerable. There is mounting evidence that harm to the nation will increase substantially in the future unless global emissions of heat-trapping gases are greatly reduced.[24] See page 32.

## 5. Climate change threatens human health and well-being in many ways, including through more extreme weather events and wildfire, decreased air quality, and diseases transmitted by insects, food, and water.

Climate change is increasing the risks of heat stress, respiratory stress from poor air quality, and the spread of waterborne diseases. Extreme weather events often lead to fatalities and a variety of health impacts on vulnerable populations, including impacts on mental health, such as anxiety and post-traumatic stress disorder. Large-scale changes in the environment due to climate change and extreme weather events are increasing the risk of the emergence or reemergence of health threats that are currently uncommon in the United States, such as dengue fever.[25] See page 34.

## 6. Infrastructure is being damaged by sea level rise, heavy downpours, and extreme heat; damages are projected to increase with continued climate change.

Sea level rise, storm surge, and heavy downpours, in combination with the pattern of continued development in coastal areas, are increasing damage to U.S. infrastructure including roads, buildings, and industrial facilities, and are also increasing risks to ports and coastal military installations. Flooding along rivers, lakes, and in cities following heavy downpours, prolonged rains, and rapid melting of snowpack is exceeding the limits of flood protection infrastructure designed for historical conditions. Extreme heat is damaging transportation infrastructure such as roads, rail lines, and airport runways.[26] See page 38.

## 7. Water quality and water supply reliability are jeopardized by climate change in a variety of ways that affect ecosystems and livelihoods.

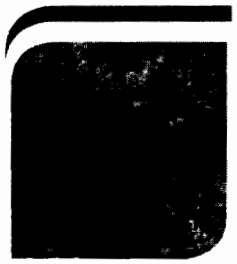
Surface and groundwater supplies in some regions are already stressed by increasing demand for water as well as declining runoff and groundwater recharge. In some regions, particularly the southern part of the country and the Caribbean and Pacific Islands, climate change is increasing the likelihood of water shortages and competition for water among its many uses. Water quality is diminishing in many areas, particularly due to increasing sediment and contaminant concentrations after heavy downpours.[27] See page 42.

## 8. Climate disruptions to agriculture have been increasing and are projected to become more severe over this century.

Some areas are already experiencing climate-related disruptions, particularly due to extreme weather events. While some U.S. regions and some types of agricultural production will be relatively resilient to climate change over the next 25 years or so, others will increasingly suffer from stresses due to extreme heat, drought, disease, and heavy downpours. From mid-century on, climate change is projected to have more negative impacts on crops and livestock across the country – a trend that could diminish the security of our food supply.[28] See page 46.

### 9. Climate change poses particular threats to Indigenous Peoples' health, well-being, and ways of life.

Chronic stresses such as extreme poverty are being exacerbated by climate change impacts such as reduced access to traditional foods, decreased water quality, and increasing exposure to health and safety hazards. In parts of Alaska, Louisiana, the Pacific Islands, and other coastal locations, climate change impacts (through erosion and inundation) are so severe that some communities are already relocating from historical homelands to which their traditions and cultural identities are tied. Particularly in Alaska, the rapid pace of temperature rise, ice and snow melt, and permafrost thaw are significantly affecting critical infrastructure and traditional livelihoods.[29] See page 48.

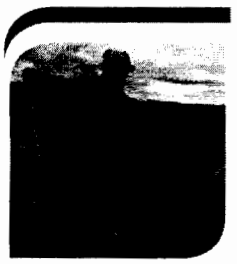


### 10. Ecosystems and the benefits they provide to society are being affected by climate change. The capacity of ecosystems to buffer the impacts of extreme events like fires, floods, and severe storms is being overwhelmed.

Climate change impacts on biodiversity are already being observed in alteration of the timing of critical biological events such as spring bud burst and substantial range shifts of many species. In the longer term, there is an increased risk of species extinction. These changes have social, cultural, and economic effects. Events such as droughts, floods, wildfires, and pest outbreaks associated with climate change (for example, bark beetles in the West) are already disrupting ecosystems. These changes limit the capacity of ecosystems, such as forests, barrier beaches, and wetlands, to continue to play important roles in reducing the impacts of these extreme events on infrastructure, human communities, and other valued resources.[30] See page 50.

### 11. Ocean waters are becoming warmer and more acidic, broadly affecting ocean circulation, chemistry, ecosystems, and marine life.

More acidic waters inhibit the formation of shells, skeletons, and coral reefs. Warmer waters harm coral reefs and alter the distribution, abundance, and productivity of many marine species. The rising temperature and changing chemistry of ocean water combine with other stresses, such as overfishing and coastal and marine pollution, to alter marine-based food production and harm fishing communities.[31] See page 58.

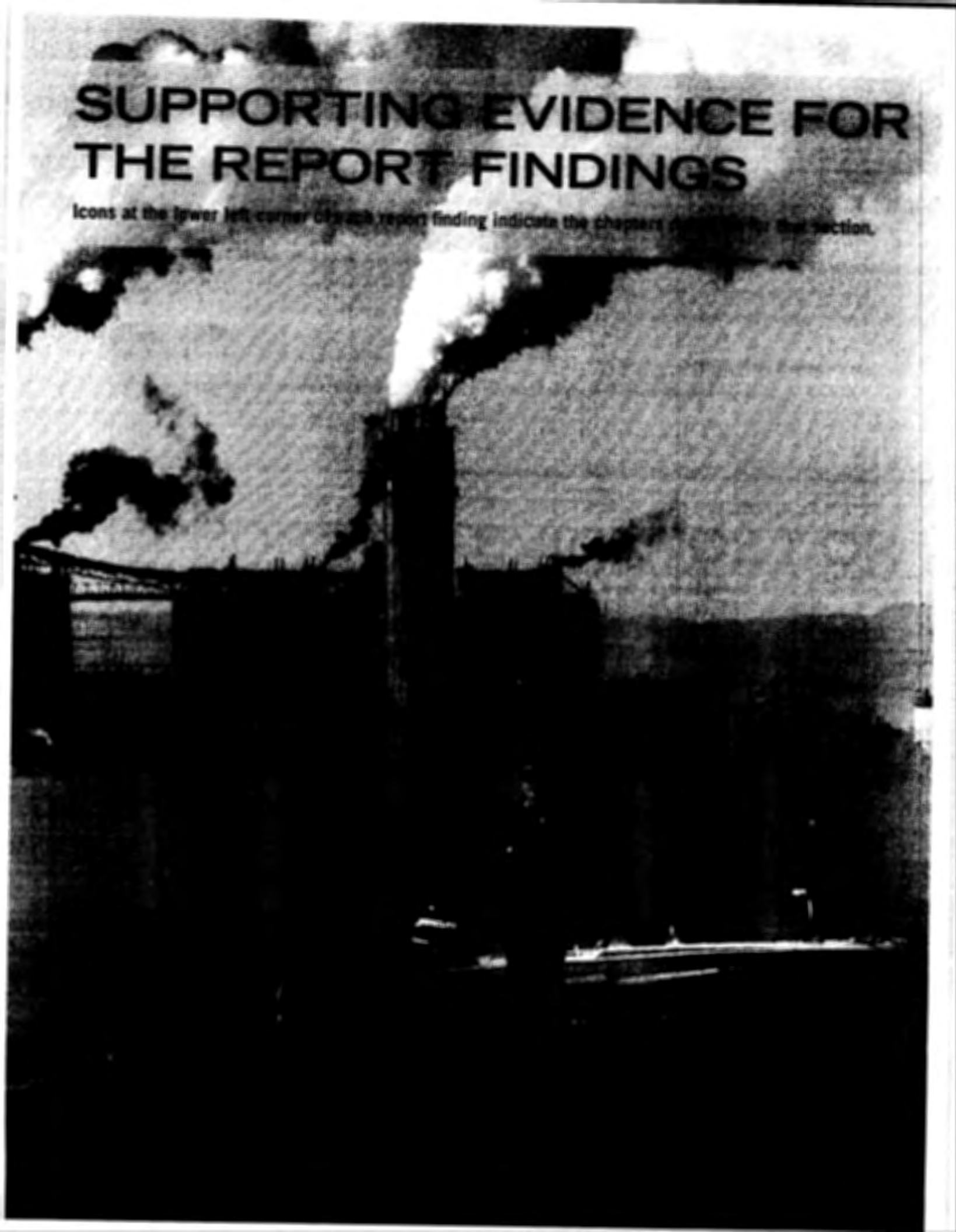


### 12. Planning for adaptation (to address and prepare for impacts) and mitigation (to reduce future climate change, for example by cutting emissions) is becoming more widespread, but current implementation efforts are insufficient to avoid increasingly negative social, environmental, and economic consequences.

Actions to reduce emissions, increase carbon uptake, adapt to a changing climate, and increase resilience to impacts that are unavoidable can improve public health, economic development, ecosystem protection, and quality of life.[32] See page 62.

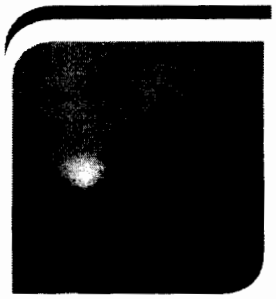
# SUPPORTING EVIDENCE FOR THE REPORT FINDINGS

Icons at the lower left corner of each report finding indicate the chapters [illegible] for that section.



These two pages present the Key Messages from the "Our Changing Climate" chapter of the full report. They pertain to Report Findings 1, 2, and 3, evidence for which appears on the following pages.

**Global climate is changing and this change is apparent across a wide range of observations. The global warming of the past 50 years is primarily due to human activities. Global climate is projected to continue to change over this century and beyond. The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases emitted globally, and how sensitive the Earth's climate is to those emissions.**



## Temperature

U.S. average temperature has increased by 1.3°F to 1.9°F since record keeping began in 1895; most of this increase has occurred since about 1970. The most recent decade was the nation's warmest on record. Temperatures in the United States are expected to continue to rise. Because human-induced warming is superimposed on a naturally varying climate, the temperature rise has not been, and will not be, uniform or smooth across the country or over time.

## Extreme Weather

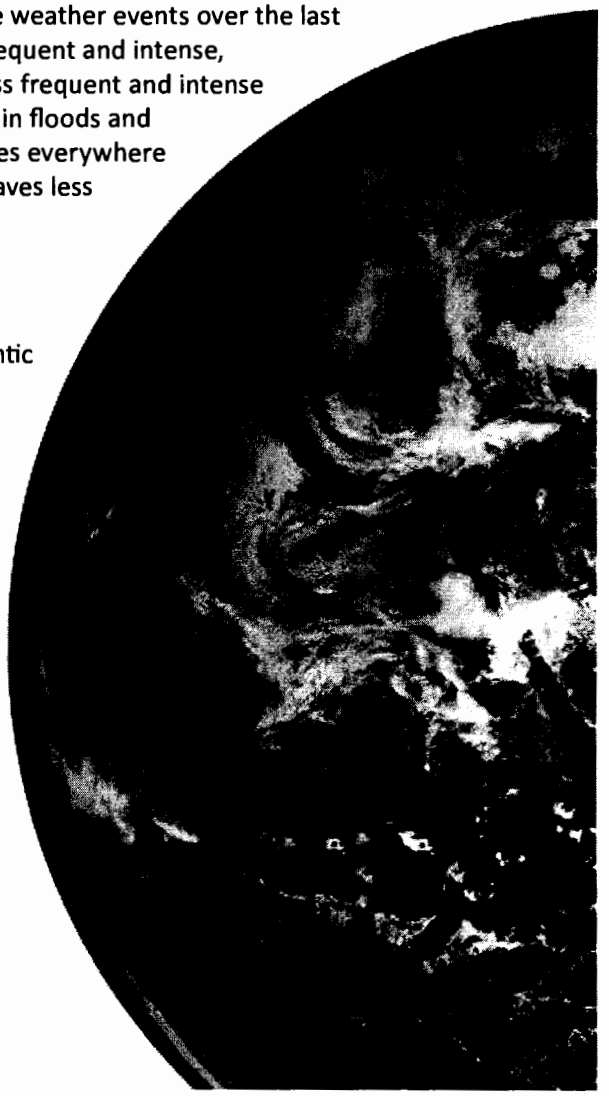
There have been changes in some types of extreme weather events over the last several decades. Heat waves have become more frequent and intense, especially in the West. Cold waves have become less frequent and intense across the nation. There have been regional trends in floods and droughts. Droughts in the Southwest and heat waves everywhere are projected to become more intense, and cold waves less intense everywhere.

## Hurricanes

The intensity, frequency, and duration of North Atlantic hurricanes, as well as the frequency of the strongest (Category 4 and 5) hurricanes, have all increased since the early 1980s. The relative contributions of human and natural causes to these increases are still uncertain. Hurricane-associated storm intensity and rainfall rates are projected to increase as the climate continues to warm.

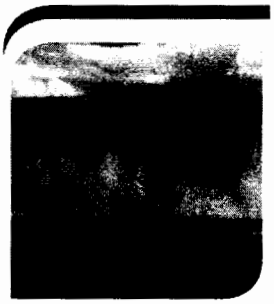
## Severe Storms

Winter storms have increased in frequency and intensity since the 1950s, and their tracks have shifted northward over the United States. Other trends in severe storms, including the intensity and frequency of tornadoes, hail, and damaging thunderstorm winds, are uncertain and are being studied intensively.



## Precipitation

Average U.S. precipitation has increased since 1900, but some areas have had increases greater than the national average, and some areas have had decreases. More winter and spring precipitation is projected for the northern United States, and less for the Southwest, over this century.

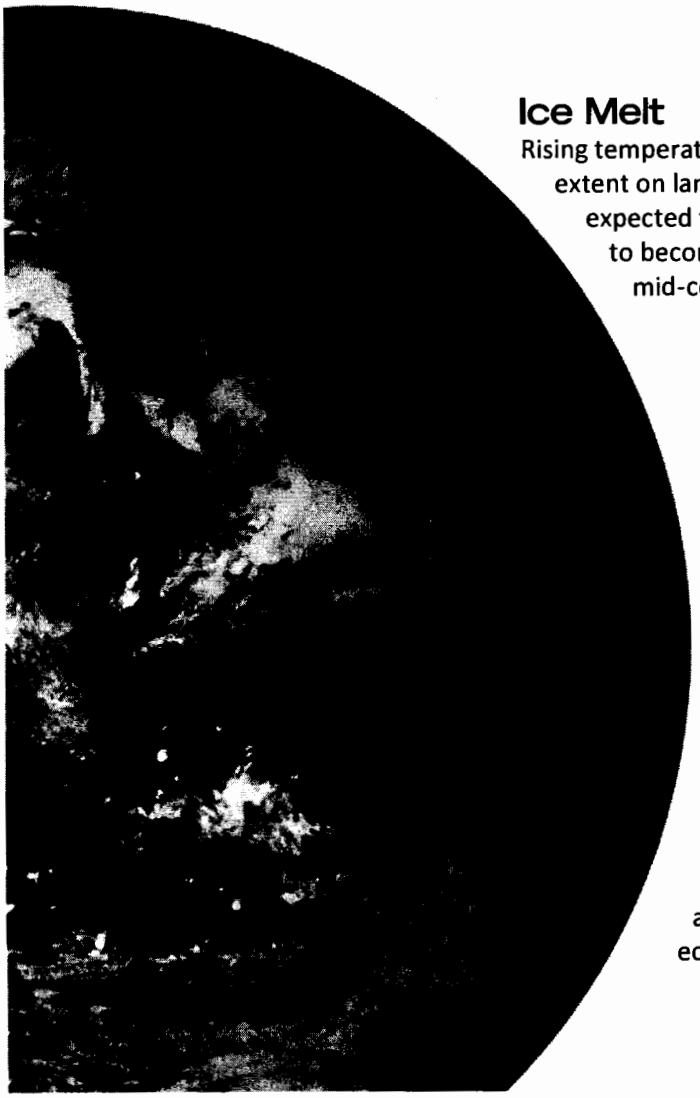


## Heavy Downpours

Heavy downpours are increasing nationally, especially over the last three to five decades. Largest increases are in the Midwest and Northeast. Increases in the frequency and intensity of extreme precipitation events are projected for all U.S. regions.

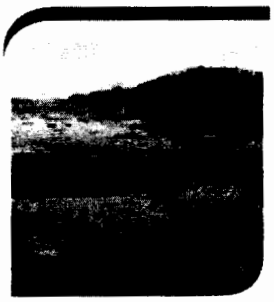
## Frost-free Season

The length of the frost-free season (and the corresponding growing season) has been increasing nationally since the 1980s, with the largest increases occurring in the western United States, affecting ecosystems and agriculture. Across the United States, the growing season is projected to continue to lengthen.



## Ice Melt

Rising temperatures are reducing ice volume and surface extent on land, lakes, and sea. This loss of ice is expected to continue. The Arctic Ocean is expected to become essentially ice free in summer before mid-century.



## Sea Level

Global sea level has risen by about 8 inches since reliable record keeping began in 1880. It is projected to rise another 1 to 4 feet by 2100.

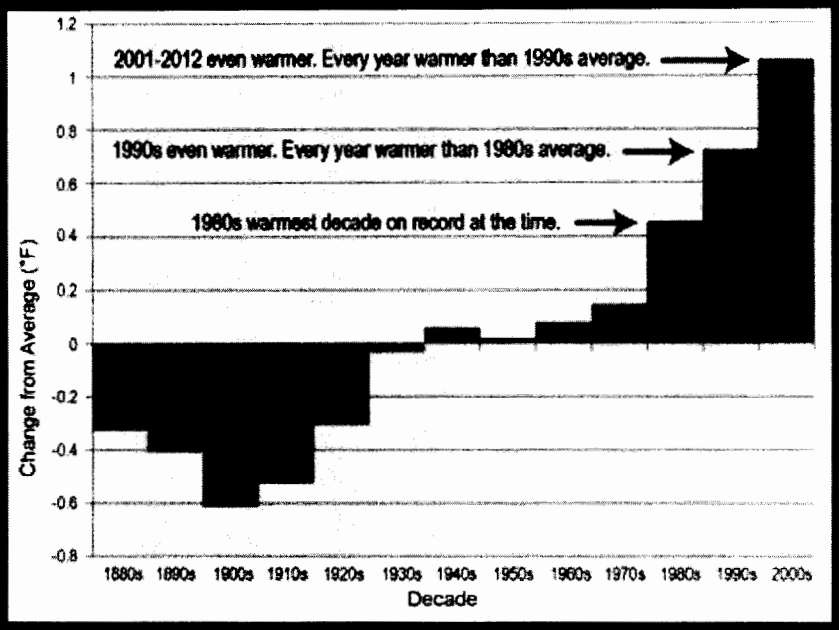
## Ocean Acidification

The oceans are currently absorbing about a quarter of the carbon dioxide emitted to the atmosphere annually and are becoming more acidic as a result, leading to concerns about intensifying impacts on marine ecosystems. See page 60.

# FINDING

## Global climate is changing and this is apparent across a wide range of observations.

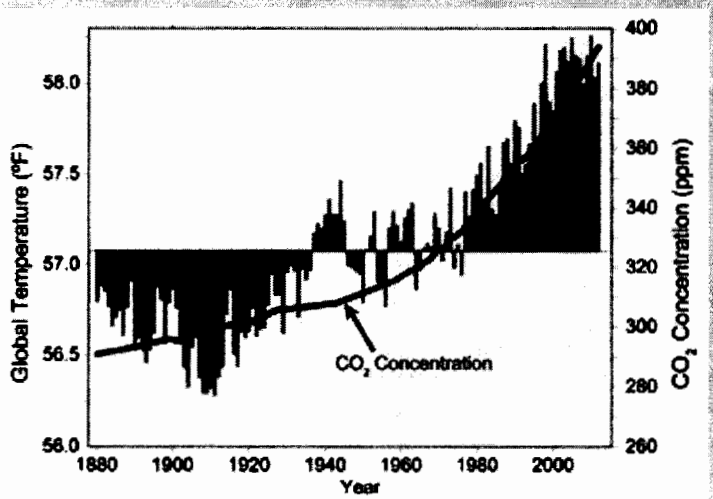
Evidence for changes in Earth's climate can be found from the top of the atmosphere to the depths of the oceans. Researchers from around the world have compiled this evidence using satellites, weather balloons, thermometers at surface stations, and many other types of observing systems that monitor the Earth's weather and climate. The sum total of this evidence tells an unambiguous story: the planet is warming.




The last five decades have seen a progressive rise in the Earth's average surface temperature. Bars show the difference between each decade's average temperature and the overall average for 1901-2000. (Figure source: NOAA NCDC).

Temperatures at Earth's surface, in the troposphere (the active weather layer extending up to about 5 to 10 miles above the ground), and in the oceans have all increased over recent decades. The largest increases in temperature are occurring closer to the poles, especially in the Arctic. This warming has triggered many other changes to the Earth's climate. Snow and ice cover have decreased in most areas. Atmospheric water vapor is increasing in the lower atmosphere because a warmer atmosphere can hold more water. Sea level is increasing because water expands as it warms and because melting ice on land adds water to the oceans. Changes in other climate-relevant indicators such as growing season length have been observed in many areas. Worldwide, the observed changes in average conditions have been accompanied by increasing trends in extremes of heat and heavy precipitation events, and decreases in extreme cold. It is the sum total of these indicators that leads to the conclusion that warming of our planet is unequivocal.

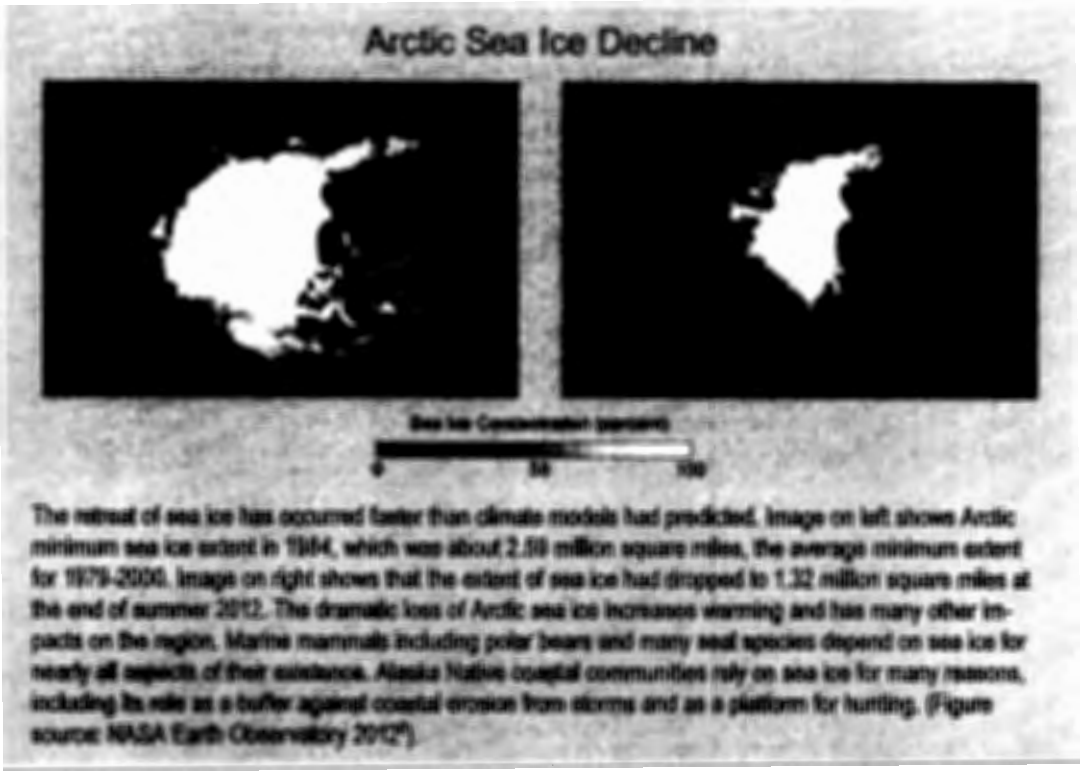
### Global Temperature and Carbon Dioxide




Global annual average temperature (as measured over both land and oceans) has increased by more than 1.5°F (0.8°C) since 1880 (through 2012). Red bars show temperatures above the long-term average, and blue bars indicate temperatures below the long-term average. The black line shows atmospheric carbon dioxide ($CO_2$) concentration in parts per million (ppm). While there is a clear long-term global warming trend, some years do not show a temperature increase relative to the previous year, and some years show greater changes than others. These year-to-year fluctuations in temperature are due to natural processes, such as the effects of El Niños, La Niñas, and volcanic eruptions. (Figure source: updated from Karl et al. 2009[1]).

FAQ

Sea ice in the Arctic has decreased dramatically since the satellite record began in 1978. Minimum Arctic sea ice extent (which occurs in early to mid-September) has decreased by more than 40%.[2] This decline is unprecedented in the historical record, and the reduction of ice volume and thickness is even greater. Ice thickness decreased by more than 50% from 1958-1976 to 2003-2008.[3] The percentage of the March ice cover made up of thicker ice (ice that has survived a summer melt season) decreased from 75% in the mid-1980s to 45% in 2011.[4]

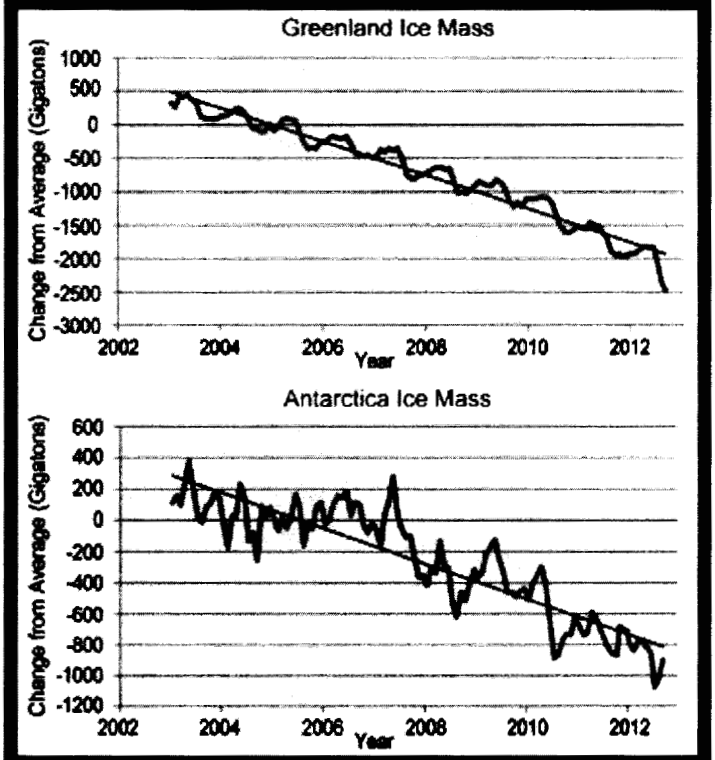



The retreat of sea ice has occurred faster than climate models had predicted. Image on left shows Arctic minimum sea ice extent in 1984, which was about 2.59 million square miles, the average minimum extent for 1979-2000. Image on right shows that the extent of sea ice had dropped to 1.32 million square miles at the end of summer 2012. The dramatic loss of Arctic sea ice increases warming and has many other impacts on the region. Marine mammals including polar bears and many seal species depend on sea ice for nearly all aspects of their existence. Alaska Native coastal communities rely on sea ice for many reasons, including its role as a buffer against coastal erosion from storms and as a platform for hunting. (Figure source: NASA Earth Observatory 2012[8]).

Ice loss increases Arctic warming by replacing white, reflective ice with dark water that absorbs more energy from the sun. More open water can also increase snowfall over northern land areas[5] and increase the north-south meanders of the jet stream, consistent with the occurrence of unusually cold and snowy winters at mid-latitudes in several recent years.[5,6] Significant uncertainties remain in interpreting the effect of Arctic ice changes on mid-latitude weather patterns.[7]

In addition to the rapid decline of Arctic sea ice, rising temperatures are reducing the volume and surface extent of ice on land and lakes. Snow cover on land has also decreased over the past several decades, especially in late spring.

The ice sheets on Greenland and Antarctica are losing mass, adding to global sea level rise.

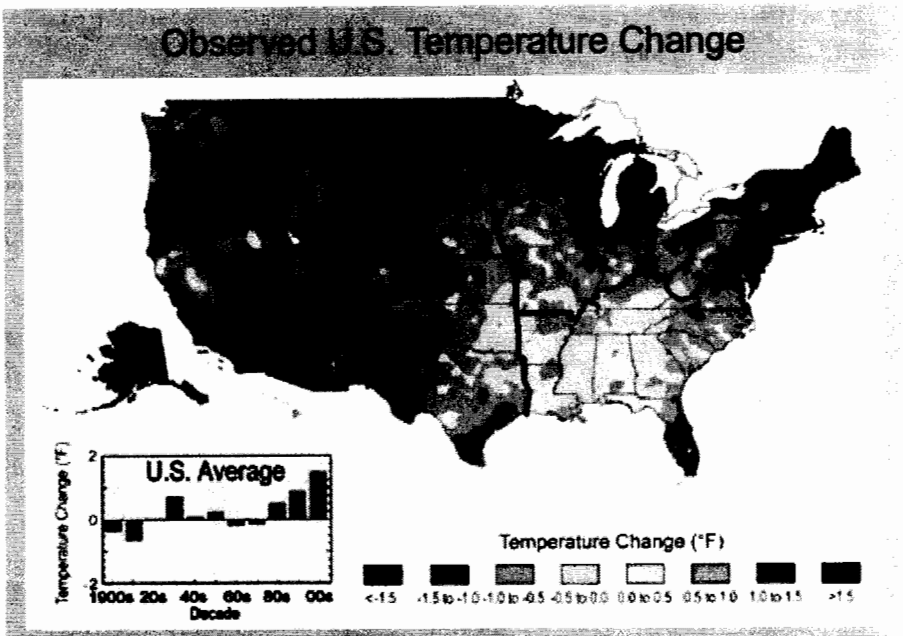



Satellite measurements show that both Greenland and Antarctica are losing ice as the atmosphere and oceans warm. Melting of the polar ice sheets and glaciers on land add water to the oceans and raise sea level. How fast these two polar ice sheets melt will largely determine how quickly sea level rises. (Figure source: adapted from Wouters et al. 2013[9]).

# Finding 1: OUR CHANGING CLIMATE

## Climate in the United States is changing.

U.S. average temperature has increased by 1.3°F to 1.9°F since record keeping began in 1895; most of this increase has occurred since about 1970. The most recent decade was the nation's warmest on record. Because human-induced warming is superimposed on a naturally varying climate, the temperature rise has not been, and will not be, uniform or smooth across the country or over time.




The colors on the map show temperature changes over the past 22 years (1991-2012) compared to the 1901-1960 average for the contiguous U.S., and to the 1951-1980 average for Alaska and Hawaii. The bars on the graph show the average temperature changes for the U.S. by decade for 1901-2012 (relative to the 1901-1960 average). The far right bar (2000s decade) includes 2011 and 2012. The period from 2001 to 2012 was warmer than any previous decade in every region. (Figure source: NOAA NCDC / CICS-NC).

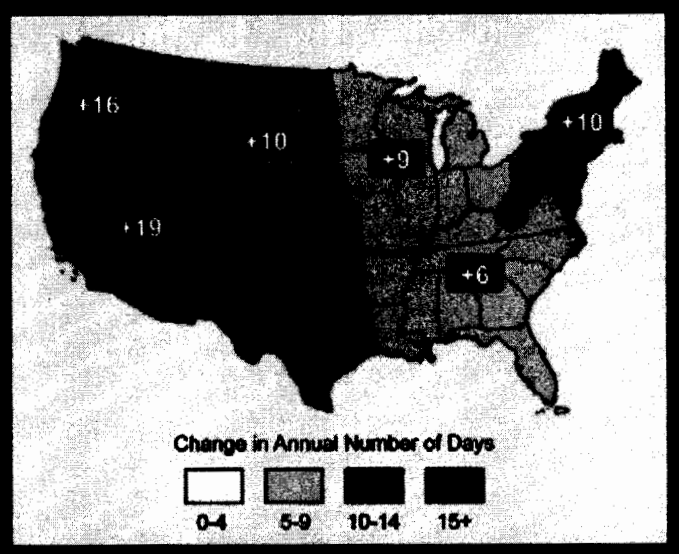
While surface air temperature is the most widely cited measure of climate change, other aspects of climate that are affected by temperature are often more directly relevant to both human society and the natural environment. Examples include shorter duration of ice on lakes and rivers, reduced glacier extent, earlier melting of snowpack, reduced lake levels due to increased evaporation, lengthening of the growing season, changes in plant hardiness zones, increased humidity, rising ocean temperatures, rising sea level, and changes in some types of extreme weather.

Taken as a whole, these changes provide compelling evidence that increasing temperatures are affecting both ecosystems and human society.

A longer growing season provides a longer period for plant growth and productivity and can slow the increase in atmospheric $CO_2$ concentrations through increased $CO_2$ uptake by living things and their environment.[10] The longer growing season can increase the growth of beneficial plants (such as crops and forests) as well as undesirable ones (such as ragweed).[11] In some cases where moisture is limited, the greater evaporation and loss of moisture through plant transpiration (release of water from plant leaves) associated with a longer growing season can mean less productivity because of increased drying[12] and earlier and longer fire seasons.

On the left is a photograph of Muir Glacier in Alaska taken on August 13, 1941; on the right, a photograph taken from the same vantage point on August 31, 2004. Total glacial mass has declined sharply around the globe, adding to sea level rise. (Left photo by glaciologist William O. Field; right photo by geologist Bruce F. Molnia of the United States Geological Survey.)

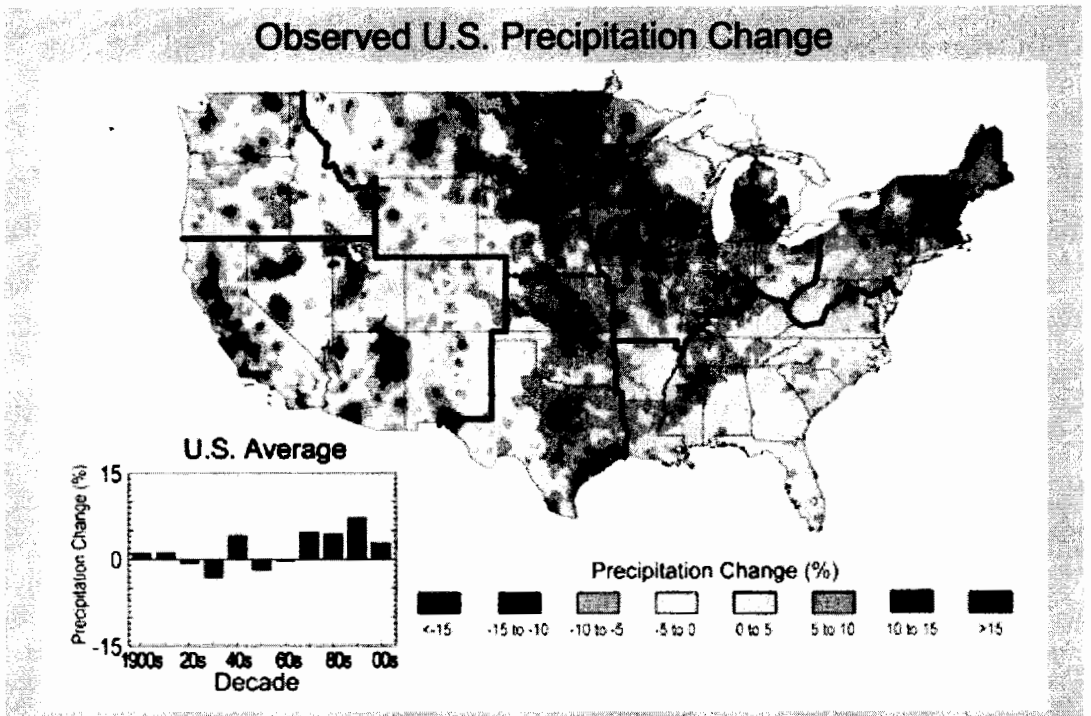
Increased frost-free season length, especially in already hot and moisture-stressed regions like the Southwest, can lead to further heat stress on plants and increased water demands for crops. Higher temperatures and fewer frost-free days during winter can lead to early bud burst or bloom of some perennial plants, resulting in frost damage when cold conditions occur in late spring. In addition, with higher winter temperatures, some agricultural pests can persist year-round, and new pests and diseases may become established.[13]




The frost-free season length, defined as the period between the last occurrence of 32°F in the spring and the first occurrence of 32°F in the fall, has increased in each U.S. region during 1991-2012 relative to 1901-1960. Increases in frost-free season length correspond to similar increases in growing season length. (Figure source: NOAA NCDC / CICS-NC).

The lengthening of the frost-free season has been somewhat greater in the western U.S. than the eastern U.S.,[1] increasing by 2 to 3 weeks in the Northwest and Southwest, 1 to 2 weeks in the Midwest, Great Plains, and Northeast, and slightly less than 1 week in the Southeast. These differences mirror the overall trend of more warming in the north and west and less warming in the Southeast.

Average annual precipitation over the U.S. has increased in recent decades, although there are important regional differences. For example, precipitation since 1991 (relative to 1901-1960) increased the most in the Northeast (8%), Midwest (9%), and southern Great Plains (8%), while much of the Southeast and Southwest had a mix of areas of increases and decreases.




The colors on the map show annual total precipitation changes for 1991-2012 compared to the 1901-1960 average, and show wetter conditions in most areas. The bars on the graph show average precipitation differences by decade for 1901-2012 (relative to the 1901-1960 average). The far right bar is for 2001-2012. (Figure source: NOAA NCDC / CICS-NC).

# Finding 1: OUR CHANGING CLIMATE

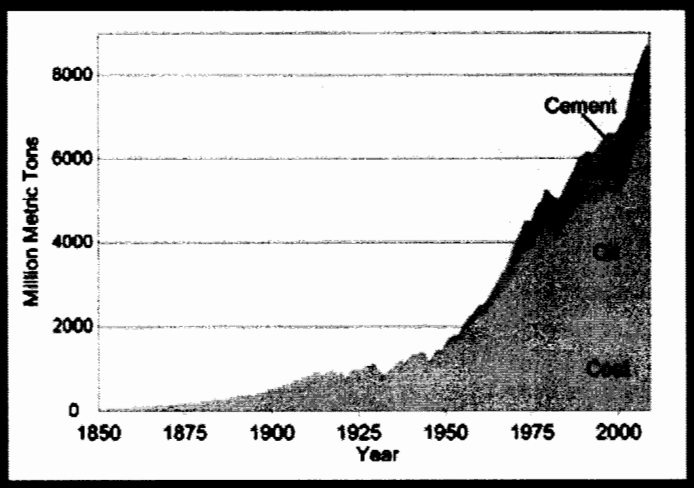
## The global warming of the past 50 years is primarily due to human activities, predominantly the burning of fossil fuels.

Climate has changed naturally throughout Earth's history. However, natural factors cannot explain the recent observed warming.

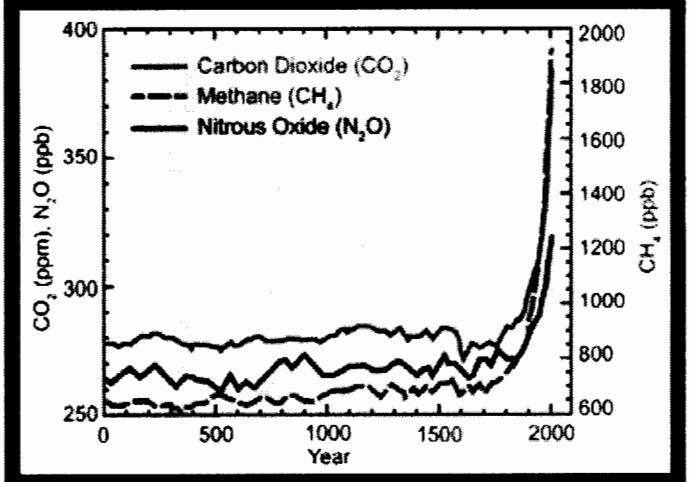
In the past, climate change was driven exclusively by natural factors: explosive volcanic eruptions that injected reflective particles into the upper atmosphere, changes in energy from the sun, periodic variations in the Earth's orbit, natural cycles that transfer heat between the ocean and the atmosphere, and slowly changing natural variations in heat-trapping gases in the atmosphere.

All of these natural factors, and their interactions with each other, have altered global average temperature over periods ranging from months to thousands of years. For example, past glacial periods were initiated by shifts in the Earth's orbit, and then amplified by resulting decreases in atmospheric levels of carbon dioxide and subsequently by greater reflection of the sun's energy by ice and snow as the Earth's climate system responded to a cooler climate.

Natural factors are still affecting the planet's climate today. The difference is that, since the beginning of the Industrial Revolution, humans have been increasingly affecting global climate, to the point where we are now the primary cause of recent and projected future change.




Carbon emissions from burning coal, oil, and gas and producing cement, in units of million metric tons of carbon. These emissions account for about 80% of the total emissions of carbon from human activities, with land-use changes (like cutting down forests) accounting for the other 20% in recent decades. (Data from Boden et al. 2012[15]).




Increases in concentrations of these gases since 1750 are due to human activities in the industrial era. Concentrations are parts per million (ppm) or parts per billion (ppb), indicating the number of molecules of the greenhouse gas per million or billion molecules of air. (Figure source: Forster et al. 2007 ).

The majority of the warming at the global scale over the past 50 years can only be explained by the effects of human influences, especially the emissions from burning fossil fuels (coal, oil, and natural gas) and from deforestation.

The emissions from human influences affecting climate include heat-trapping gases such as carbon dioxide ($CO_2$), methane, and nitrous oxide, and particles such as black carbon (soot), which has a warming influence, and sulfates, which have an overall cooling influence. In addition to human-induced global climate change, local climate can also be affected by other human factors (such as crop irrigation) and natural variability.

Carbon dioxide has been building up in the atmosphere since the beginning of the industrial era in the mid-1700s, primarily due to burning coal, oil, and gas, and secondarily due to clearing of forests. Atmospheric levels have increased by about 40% relative to pre-industrial levels.

Methane levels in the atmosphere have increased due to human activities including agriculture (with livestock producing methane in their digestive tracts and rice farming producing it via bacteria that live in the flooded fields); mining coal, extraction and transport of natural gas, and other fossil fuel-related activities;

and waste disposal including sewage and decomposing garbage in landfills. Since pre-industrial times, methane levels have increased by 250%.

Other heat-trapping gases produced by human activities include nitrous oxide, halocarbons, and ozone. Nitrous oxide levels are increasing, primarily as a result of fertilizer use and fossil fuel burning. The concentration of nitrous oxide has increased by about 20% relative to pre-industrial times.

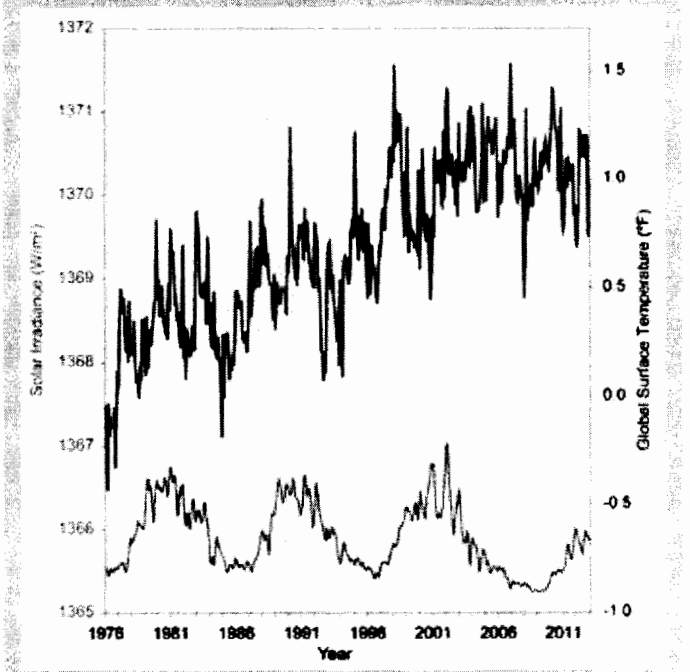
The conclusion that human influences are the primary driver of recent climate change is based on multiple lines of independent evidence. The first line of evidence is our fundamental understanding of how certain gases trap heat, how the climate system responds to increases in these gases, and how other human and natural factors influence climate. The second line of evidence is from reconstructions of past climates using evidence such as tree rings, ice cores, and corals. These show that global surface temperatures over the last several decades are clearly unusual, with the last decade (2000-2009) warmer than any time in at least the last 1,300 years and perhaps much longer.

The third line of evidence comes from using climate models to simulate the climate of the past century, separating the human and natural factors that influence climate. When the human factors are removed, these models show that solar and volcanic activity would have tended to slightly cool the earth, and other natural variations are too small to explain the amount of warming. Only when the human influences are included do the models reproduce the warming observed over the past 50 years.

Another line of evidence involves so-called "fingerprint" studies that are able to attribute observed climate changes to particular causes. For example, the fact that the stratosphere (the layer above the troposphere) is cooling while the Earth's surface and lower atmosphere are warming is a fingerprint that the warming is due to increases in heat-trapping gases. In contrast, if the observed warming had been due to increases in solar output, Earth's atmosphere would have warmed throughout its entire extent, including the stratosphere. In addition to such temperature analyses, scientific attribution of observed changes to human influence extends to many other aspects of climate, such as changing patterns in precipitation, increasing humidity, changes in pressure, and increasing ocean heat content.

Oil used for transportation and coal used for electricity generation are the largest contributors to the rise in carbon dioxide that is the primary driver of recent climate change.

## Measurements of Surface Temperature and Sun's Energy




The full record of satellite measurements of the sun's energy received at the top of the Earth's atmosphere is shown in red, following its natural 11-year cycle of small ups and downs, without any net increase. Over the same period, global temperature relative to 1961-1990 average (shown in blue) has risen markedly. This is a clear indication that changes in the sun are not responsible for the observed warming over recent decades. (Figure source: NOAA NCDC / CICS-NC).

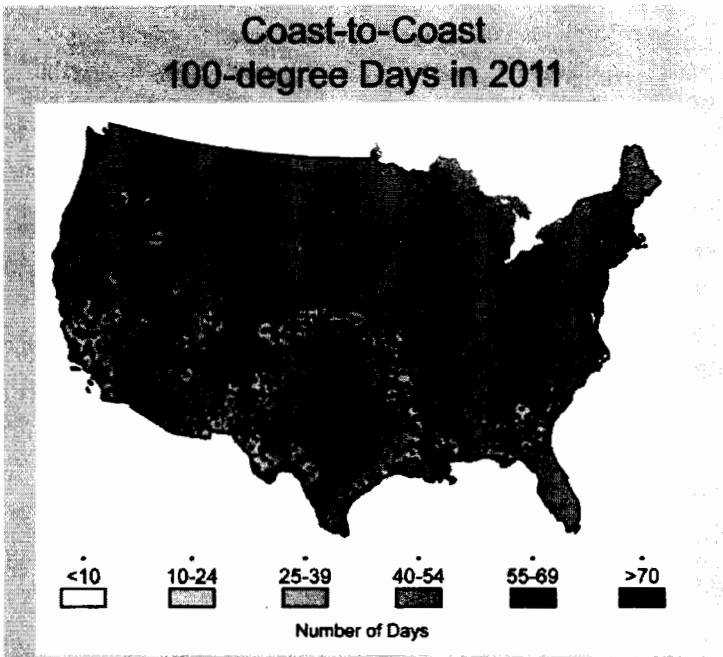
# FINDING

**Some extreme weather and climate events have increased in recent decades, and new and stronger evidence confirms that some of these increases are related to human activities.**

As the world has warmed, that warming has triggered many other changes to the Earth's climate. Changes in extreme weather and climate events, such as heat waves and droughts, are the primary way that most people experience climate change. Human-induced climate change has already increased the number and strength of some of these extreme events. Over the last 50 years, much of the U.S. has seen increases in prolonged periods of excessively high temperatures, heavy downpours, and in some regions, severe floods and droughts.

## Heat Waves

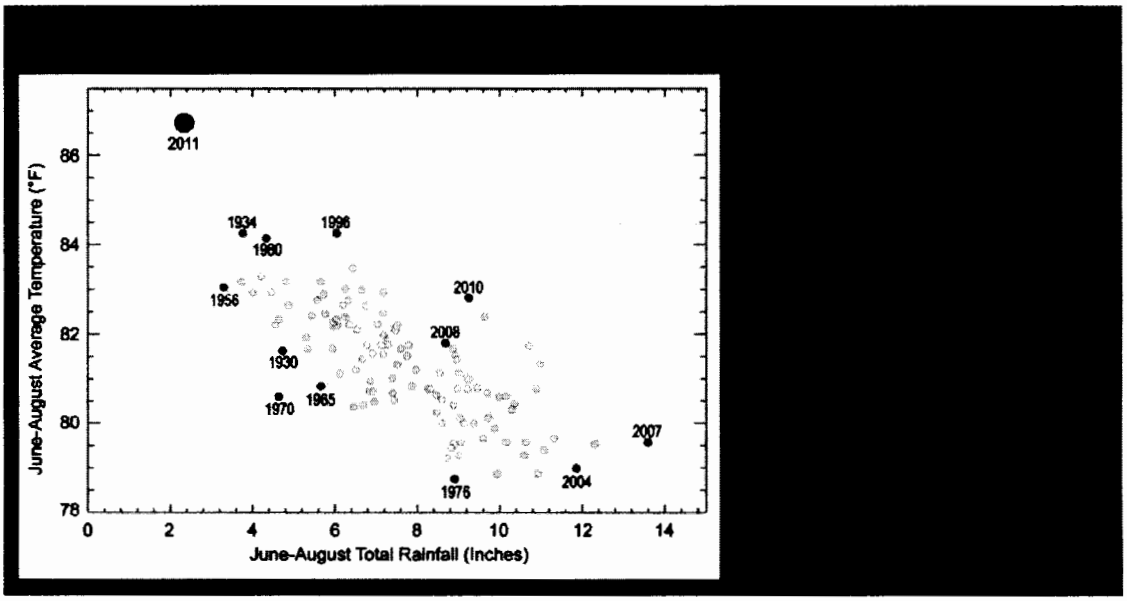
Heat waves are periods of abnormally hot weather lasting days to weeks. The number of heat waves has been increasing in recent years. This trend has continued in 2011 and 2012, with the number of intense heat waves being almost triple the long-term average. The recent heat waves and droughts in Texas (2011) and the Midwest (2012) set records for highest monthly average temperatures. Analyses show that human-induced climate change has generally increased the probability of heat waves.[1] And prolonged (multi-month) extreme heat has been unprecedented since the start of reliable instrumental records in 1895.

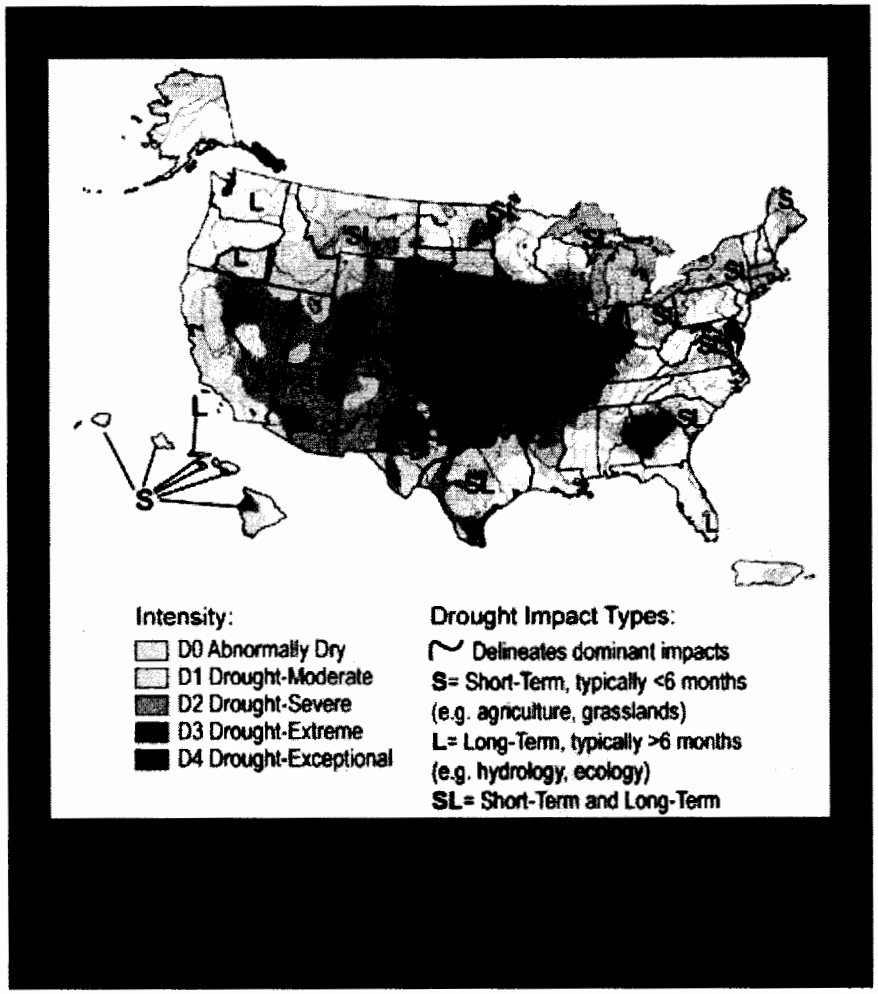


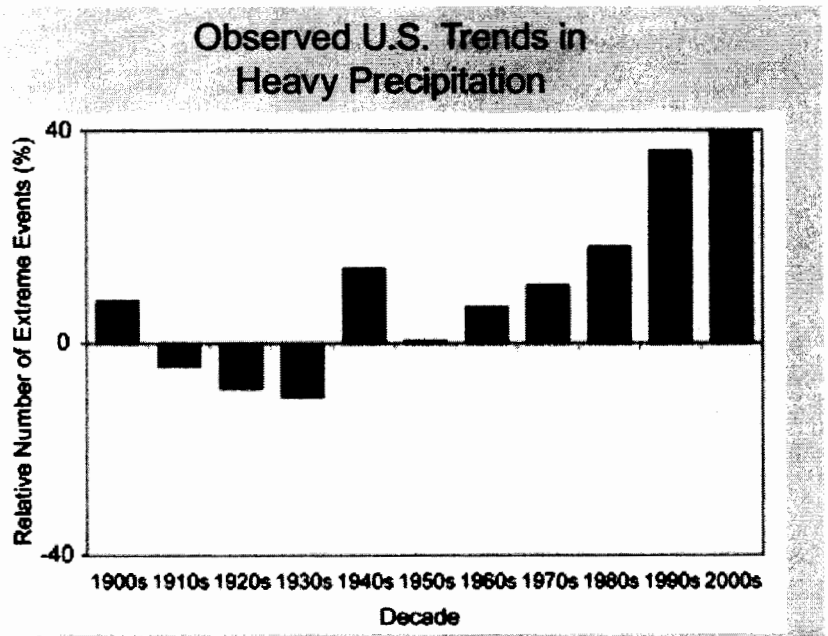

Map shows numbers of days with temperatures above 100°F during 2011. Black circles denote the location of observing stations recording at least one such day. The number of days with temperatures exceeding 100°F is expected to increase. The record temperatures and drought during the summer of 2011 represent conditions that will occur more frequently in the U.S. as climate change continues. (Figure source: NOAA NCDC).

## Drought

Higher temperatures lead to increased rates of evaporation, including more loss of moisture through plant leaves. Even in areas where precipitation does not decrease, these increases in surface evaporation and loss of water from plants lead to more rapid drying of soils if the effects of higher temperatures are not






One measure of heavy precipitation events is a two-day precipitation total that is exceeded on average only once in a 5-year period, also known as the once-in-five-year event. As this extreme precipitation index for 1901-2012 shows, the occurrence of such events has become much more common in recent decades. Changes are compared to the period 1901-1960, and do not include Alaska or Hawai'i. (Figure source: adapted from Kunkel et al. 2013[7]).

offset by other changes (such as reduced wind speed or increased humidity).[4] As soil dries out, a larger proportion of the incoming heat from the sun goes into heating the soil and adjacent air rather than evaporating its moisture, resulting in hotter summers under drier climatic conditions.[5]

An example of recent drought occurred in 2011, when many locations in Texas and Oklahoma experienced more than 100 days over 100°F. Both states set new records for the hottest summer since record keeping began in 1895. Rates of water loss, due in part to evaporation, were double the long-term average. The heat and drought depleted water resources and contributed to more than $10 billion in direct losses to agriculture alone.

## Heavy Downpours

Heavy downpours are increasing nationally, especially over the last three to five decades. The heaviest rainfall events have become heavier and more frequent, and the amount of rain falling on the heaviest rain days has also increased. Since 1991, the amount of rain falling in very heavy precipitation events has been significantly above average. This increase has been greatest in the Northeast, Midwest, and upper Great Plains – more than 30% above the 1901-1960 average. There has also been an increase in flooding events in the Midwest and Northeast, where the largest increases in heavy rain amounts have occurred.

The mechanism driving these changes is well understood. Warmer air can contain more water vapor than cooler air. Global analyses show that the amount of water vapor in the atmosphere has in fact increased due to human-caused warming.[6] This extra moisture is available to storm systems, resulting in heavier rainfalls. Climate change also alters characteristics of the atmosphere that affect weather patterns and storms.

# Finding 2: EXTREME WEATHER

## Floods

Flooding may intensify in many U.S. regions, even in areas where total precipitation is projected to decline. A flood is defined as any high flow, overflow, or inundation by water that causes or threatens damage.[8] Floods are caused or amplified by both weather- and human-related factors. Major weather factors include heavy or prolonged precipitation, snowmelt, thunderstorms, storm surges from hurricanes, and ice or debris jams. Human factors include structural failures of dams and levees, altered drainage, and land-cover alterations (such as pavement).

Increasingly, humanity is also adding to weather-related factors, as human-induced warming increases heavy downpours, causes more extensive storm surges due to sea level rise, and leads to more rapid spring snowmelt.

All flood types are affected by climate-related factors, some more than others.

**Flash floods** occur in small and steep watersheds and waterways and can be caused by short-duration intense precipitation, dam or levee failure, or collapse of debris and ice jams. Most flood-related deaths in the U.S. are associated with flash floods.

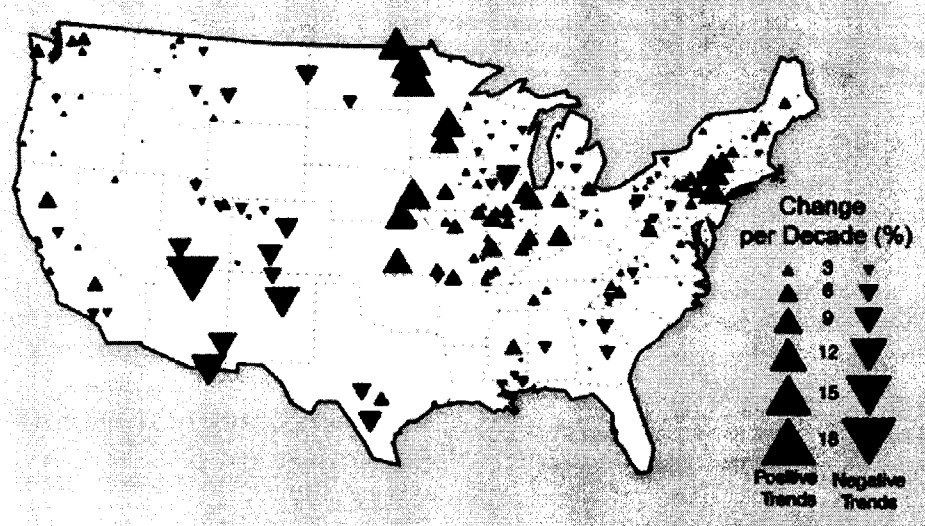
**Urban flooding** can be caused by short-duration very heavy precipitation. Urbanization creates large areas of impervious surfaces (such as roads, pavement, parking lots, and buildings) that increased immediate runoff, and heavy downpours can exceed the capacity of storm drains and cause urban flooding.

Flash floods and urban flooding are directly linked to heavy precipitation and are expected to increase as a result of increases in heavy precipitation events.

**River flooding** occurs when surface water drained from a watershed into a stream or a river exceeds channel capacity, overflows the banks, and inundates adjacent low lying areas. Riverine flooding depends on precipitation as well as many other factors, such as existing soil moisture conditions and snowmelt.

**Coastal flooding** is predominantly caused by storm surges that accompany hurricanes and other storms that push large seawater domes toward the shore. Storm surge can cause deaths, widespread infrastructure damage, and severe beach erosion. Storm-related rainfall can also cause inland flooding and is responsible for more than half of the deaths associated with tropical storms.[8] Climate change affects coastal flooding through sea level rise and storm surge, and increases in heavy rainfall during storms.

Worldwide, from 1980 to 2009, floods caused more than 500,000 deaths and affected more than 2.8 billion people.[9] In the United States, floods caused 4,586 deaths from 1959 to 2005[10] while property and crop damage averaged nearly 8 billion dollars per year (in 2011 dollars) over 1981 through 2011.[8] The risks from future floods are significant, given expanded development in coastal areas and floodplains, unabated urbanization, land-use changes, and human-induced climate change.[9]

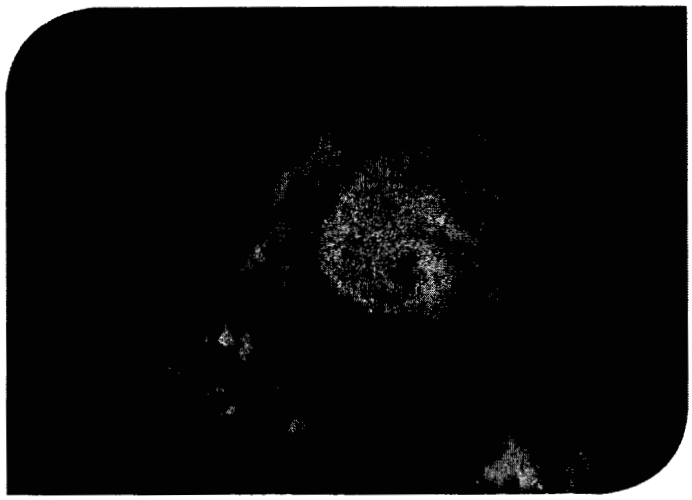



### Trends in Flood Magnitude

There are significant trends in the magnitude of river flooding in many parts of the United States.[11] River flood magnitudes (from the 1920s through 2008) have decreased in the Southwest and increased in the eastern Great Plains, parts of the Midwest, and from the northern Appalachians into New England.[12] The map shows increasing trends in floods in green and decreasing trends in brown. The magnitude of these trends is illustrated by the size of the triangles. (Figure source: Peterson et al. 2013[12]).

## Hurricanes

There has been a substantial increase in most measures of Atlantic hurricane activity since the early 1980s, the period during which high quality satellite data are available.[13] These include measures of intensity, frequency, and duration as well as the number of strongest (Category 4 and 5) storms. The recent increases in activity are linked, in part, to higher sea surface temperatures in the region that Atlantic hurricanes form in and move through. Numerous factors have been shown to influence these local sea surface temperatures, including natural variability, human-induced emissions of heat-trapping gases, and particulate pollution. Quantifying the relative contributions of natural and human-caused factors is an active focus of research.



North Atlantic hurricanes have increased in intensity, frequency, and duration since the early 1980s.

Hurricane development, however, is influenced by more than just sea surface temperature. How hurricanes develop also depends on how the local atmosphere responds to changes in local sea surface temperatures, and this atmospheric response depends critically on the cause of the change.[14] For example, the atmosphere responds differently when local sea surface temperatures increase due to a local decrease of particulate pollution that allows more sunlight through to warm the ocean, versus when sea surface temperatures increase more uniformly around the world due to increased amounts of human-caused heat-trapping gases.[15]

Storm surges reach farther inland as they ride on top of sea levels that are higher due to warming.

By late this century, models, on average, project an increase in the number of the strongest (Category 4 and 5) hurricanes. Models also project greater rainfall rates in hurricanes in a warmer climate, with increases of about 20% averaged near the center of hurricanes.

## Change in Other Storms

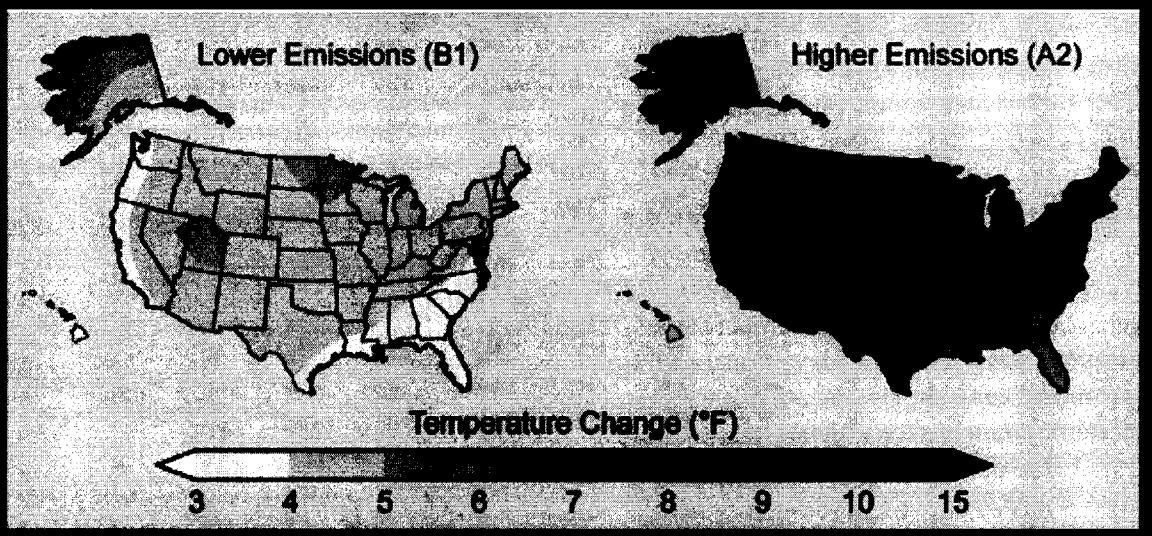
Winter storms have increased in frequency and intensity since the 1950s,[16] and their tracks have shifted northward over the United States.[17] Other trends in severe storms, including the intensity and frequency of tornadoes, hail, and damaging thunderstorm winds, are uncertain and are being studied intensively. There has been a sizable upward trend in the number of storms causing large financial and other losses.[18] However, there are societal contributions to this trend, such as increases in population and wealth.[7]

Heavy snowfalls during winter storms affect transportation systems and other infrastructure.

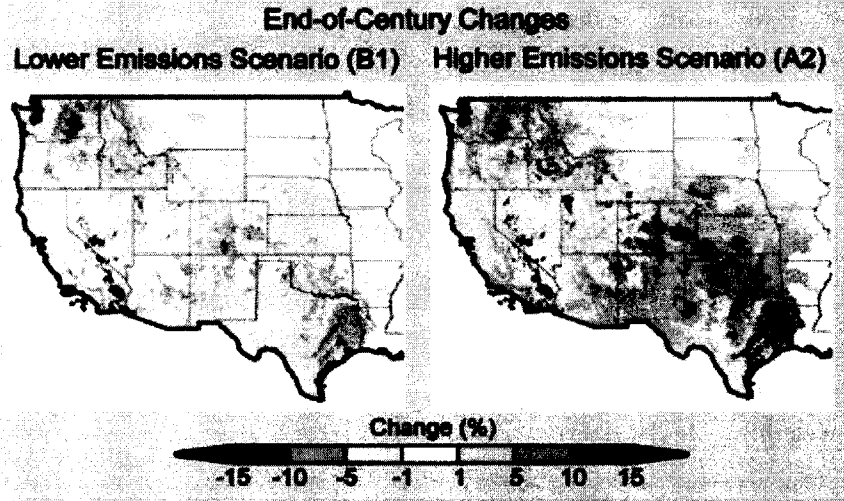
# FINDING

## Human-induced climate change is projected to continue, and it will accelerate significantly if emissions of heat-trapping gases continue to increase.

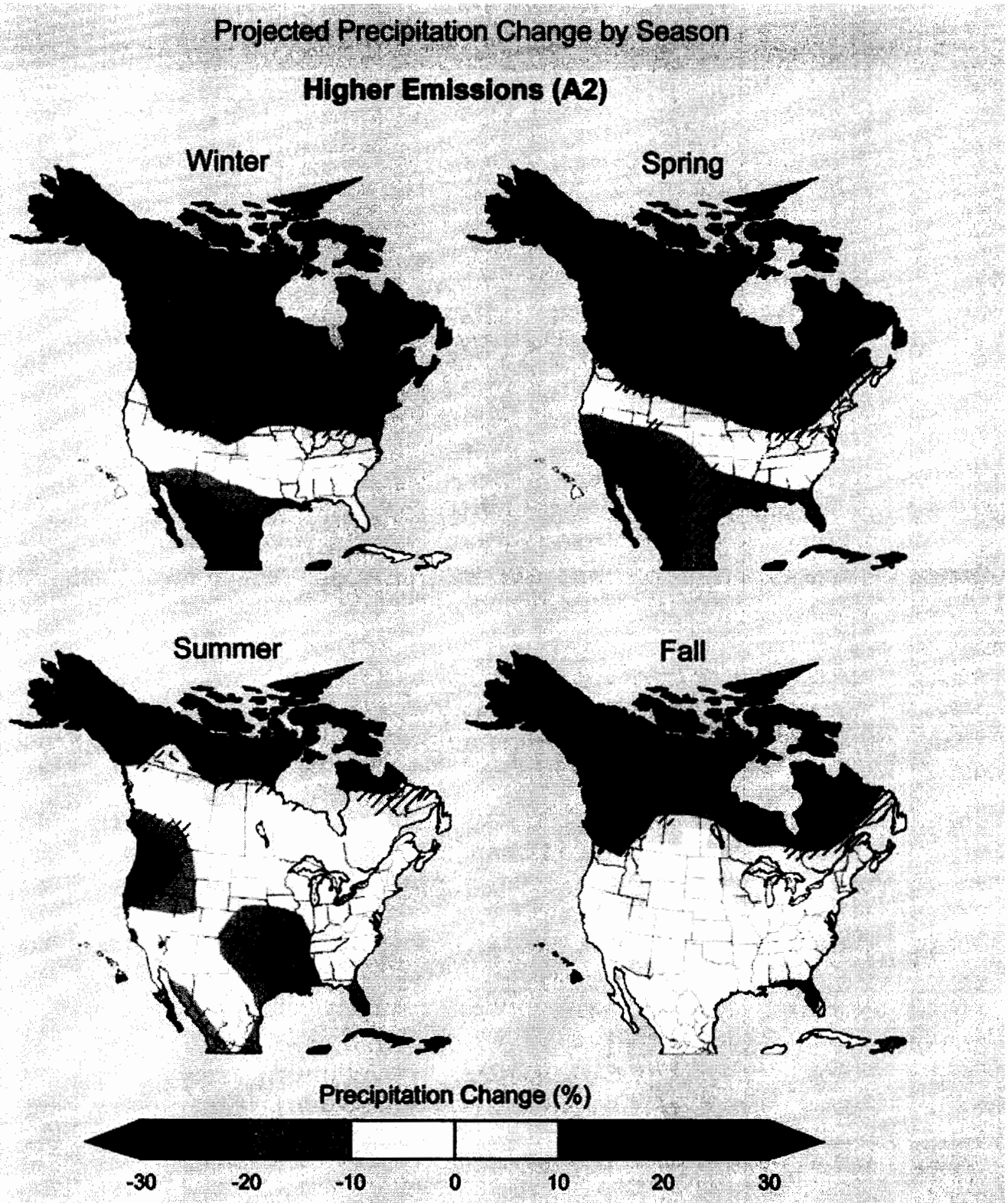
Heat-trapping gases already in the atmosphere have committed us to a hotter future with more climate-related impacts over the next few decades. The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases that human activities emit globally, now and in the future.




### Projected Changes in Soil Moisture

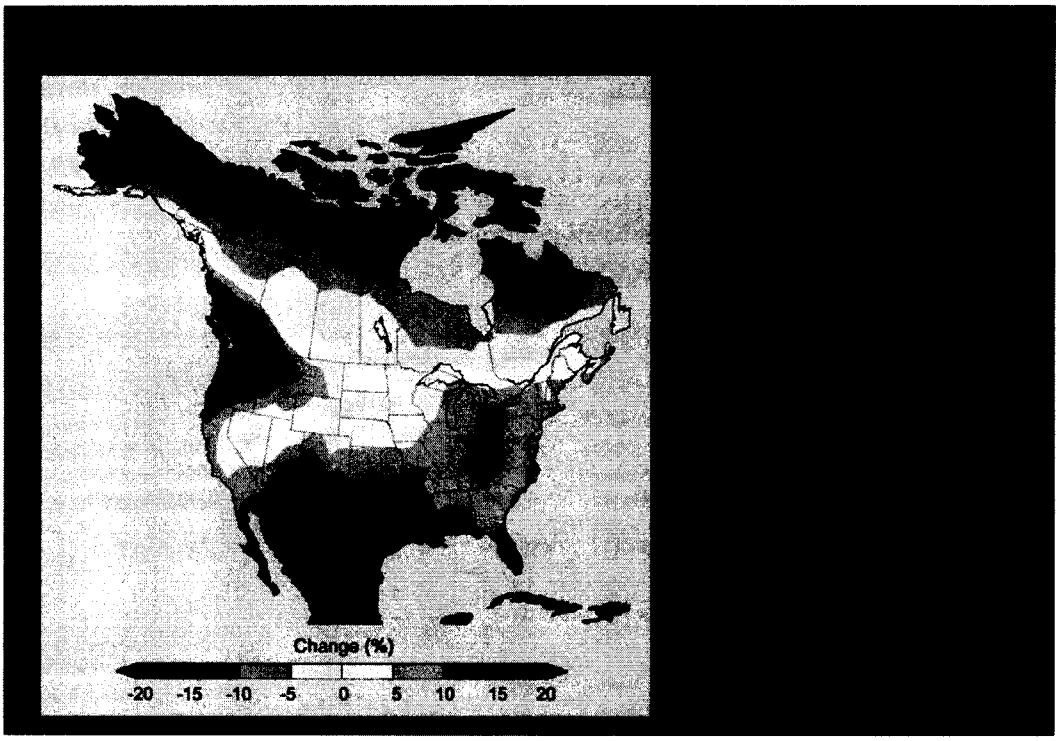



Increased temperatures and changing precipitation patterns will alter soil moisture, which is important for agriculture and ecosystems and has many societal implications. These maps show average change in soil moisture compared to 1971-2000, as projected for late this century (2071-2100) under two emissions scenarios, a lower scenario (B1) and a higher scenario (A2).[1] Eastern U.S. is not displayed because model simulations were only run for the area shown. (Figure source: NOAA NCDC / CICS-NC).




Climate change affects more than just temperature. The location, timing, and amounts of precipitation will also change as temperatures rise. Maps show projected percent change in precipitation in each season for 2071-2099 (compared to the period 1970-1999) under an emissions scenario that assumes continued increases in emissions (A2). Teal indicates precipitation increases, and brown, decreases. Hatched areas indicate that the projected changes are significant and consistent among models. White areas indicate that the changes are not projected to be larger than could be expected from natural variability. In general, the northern part of the U.S. is projected to see more winter and spring precipitation, while the southwestern U.S. is projected to experience less precipitation in the spring. Wet regions are generally projected to become wetter while dry regions become drier. Summer drying is projected for parts of the U.S., including the Northwest and southern Great Plains. (Figure source: NOAA NCDC / CICS-NC).

# Finding 3: FUTURE CLIMATE

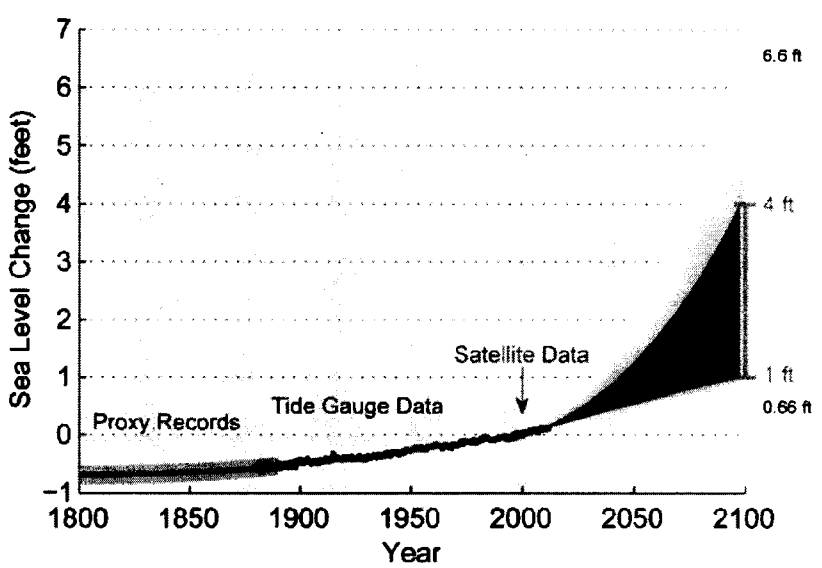


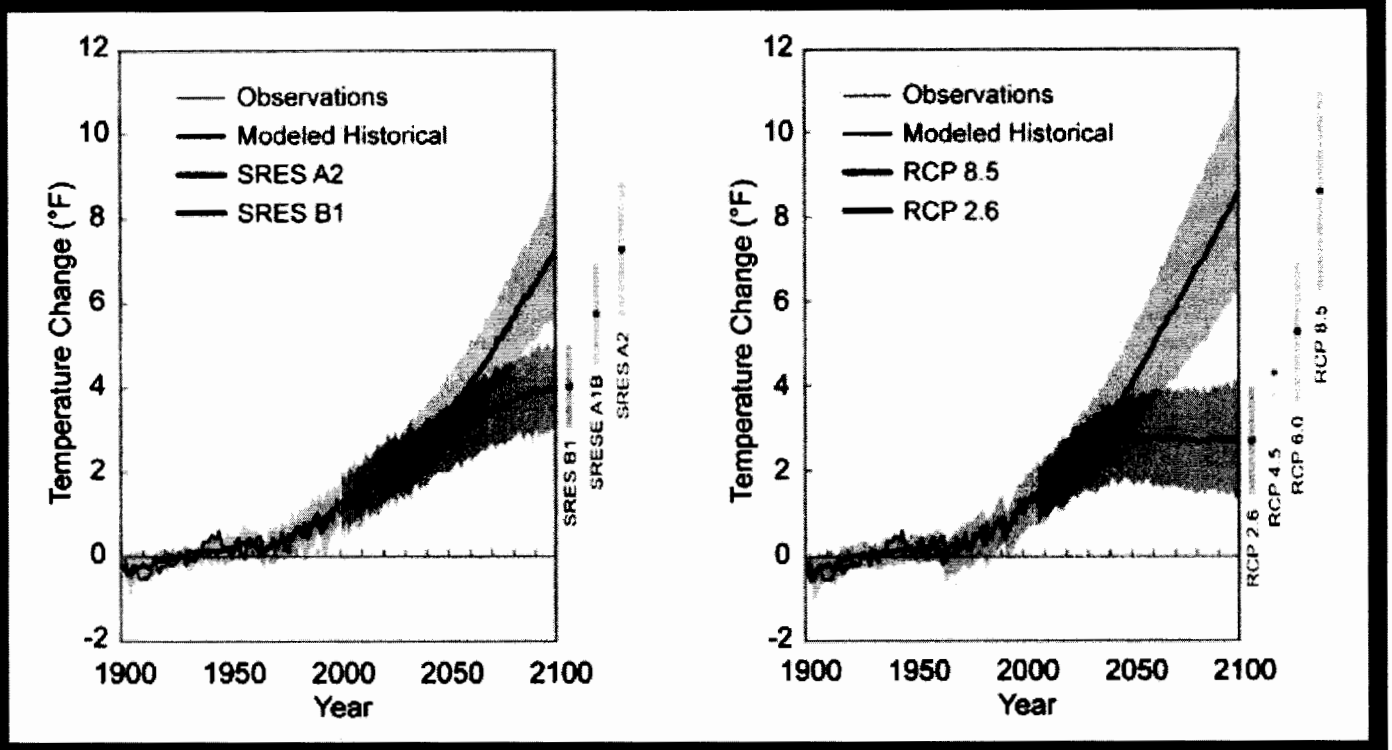
## Sea level rise

Global sea level has risen about 8 inches since reliable record keeping began in 1880. It is projected to rise another 1 to 4 feet by 2100. The oceans are absorbing over 90% of the increased atmospheric heat associated with emissions from human activity.[2] Like mercury in a thermometer, water expands as it warms up (this is referred to as "thermal expansion") causing sea levels to rise. Melting of glaciers and ice sheets is also contributing to sea level rise at increasing rates.[3]

### Past and Projected Changes in Global Sea Level

Figure shows estimated, observed, and possible amounts of global sea level rise from 1800 to 2100, relative to the year 2000. Estimates from proxy data[4] (for example, based on sediment records) are shown in red (1800-1890, pink band shows uncertainty), tide gauge data in blue for 1880-2009,[5] and satellite observations are shown in green from 1993 to 2012.[6] The future scenarios range from 0.66 feet to 6.6 feet in 2100.[7] These scenarios are not based on climate model simulations, but rather reflect the range of possible scenarios based on other kinds of scientific studies. The orange line at right shows the currently projected range of sea level rise of 1 to 4 feet by 2100, which falls within the larger risk-based scenario range. The large projected range reflects uncertainty about how glaciers and ice sheets will react to the warming ocean, the warming atmosphere, and changing winds and currents. As seen in the observations, there are year-to-year variations in the trend. (Figure source: Adapted from Parris et al. 2012,[7] with contributions from NASA Jet Propulsion Laboratory).






temperature. In the figure, each line represents a central estimate of global average temperature rise for a specific emissions pathway (relative

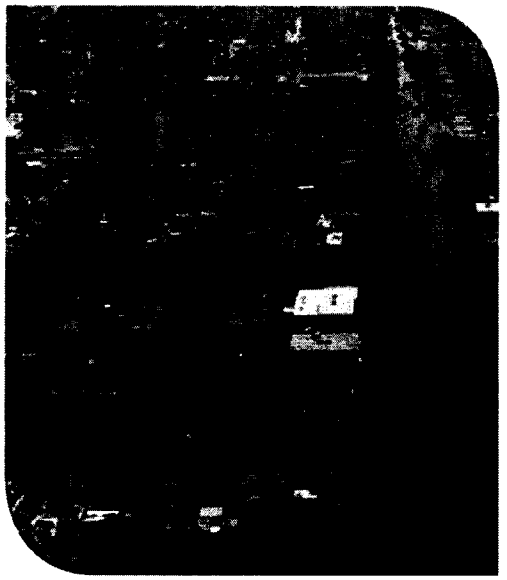
tury, and B1 assumes significant emissions reductions beginning around 2050, though not due explicitly to climate change policies. The right

## Where we are heading

Both voluntary activities and a variety of policies and measures that lower emissions are currently in place at federal, state, and local levels in the U.S., even though there is no comprehensive national climate legislation. Over the remainder of this century, aggressive and sustained greenhouse gas emission reductions by the U.S. and by other nations would be needed to reduce global emissions to a level consistent with the lower scenario (B1) analyzed in this assessment.

# FINDING

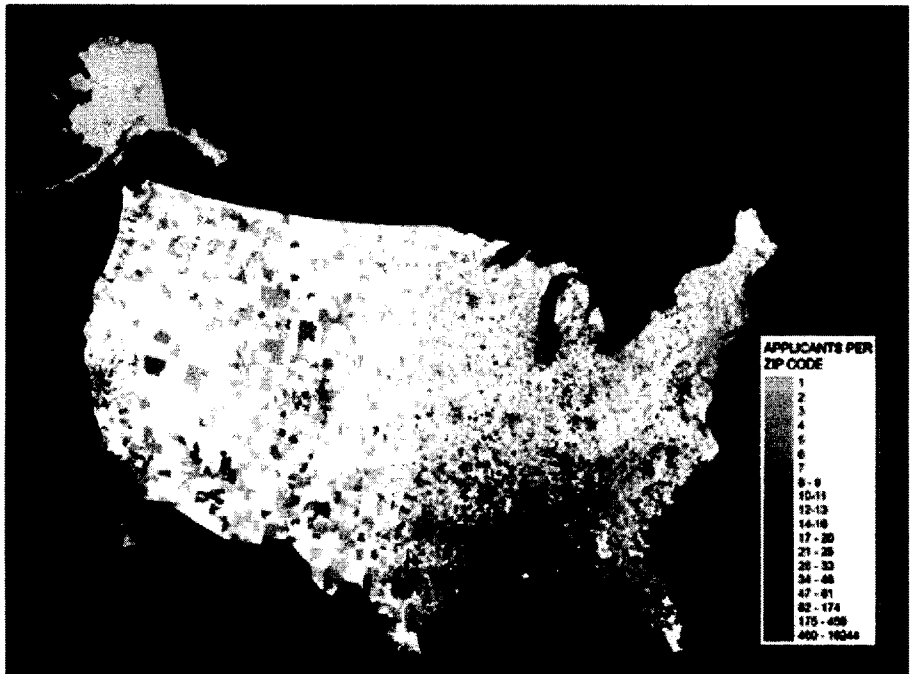
**Impacts related to climate change are already evident in many sectors and are expected to become increasingly disruptive across the nation throughout this century and beyond.**



Storm surge on top of sea level rise exacerbates coastal flooding during hurricanes.

Climate change is already affecting societies and the natural world. Climate change interacts with other environmental and societal factors in ways that can either moderate or intensify these impacts. The types and magnitudes of impacts vary across the nation and through time. Children, the elderly, the sick, and the poor are especially vulnerable. There is mounting evidence that harm to the nation will increase substantially in the future unless global emissions of heat-trapping gases are greatly reduced.

Because environmental, cultural, and socioeconomic systems are tightly coupled, climate change impacts can either be amplified or reduced by cultural and socioeconomic decisions. In many arenas, it is clear that societal decisions have substantial influence on the vulnerability of valued resources to climate change. For example, rapid population growth and development in coastal areas tends to amplify climate change related impacts. Recognition of these couplings, together with recognition of multiple sources of vulnerability, helps identify what information decision-makers need as they manage risks.



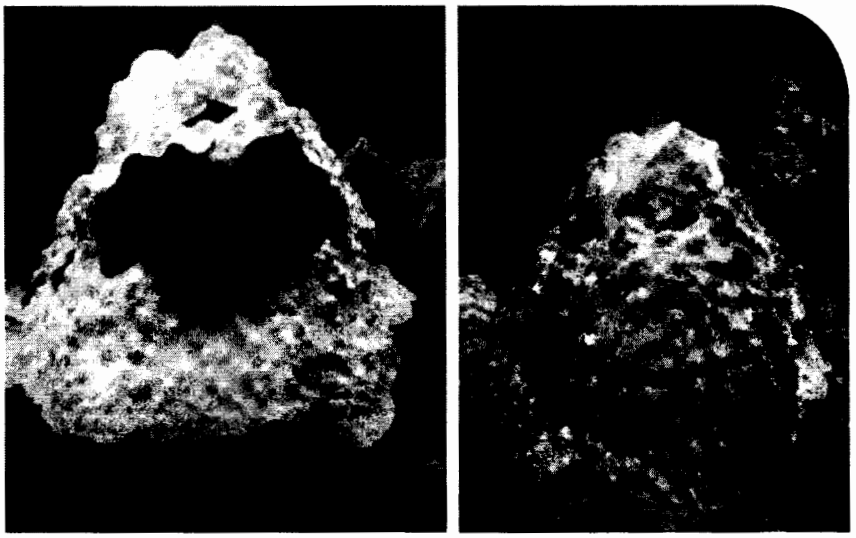

across the entire nation, illustrating the wide-ranging impacts that can flow from extreme

## Multiple System Failures During Extreme Events

Impacts are particularly severe when critical systems simultaneously fail. We have already seen multiple system failures during an extreme weather event in the United States, as when Hurricane Katrina struck New Orleans.[1] Infrastructure and evacuation failures and collapse of critical response services during a storm is one example of multiple system failures. Another example is a loss of electrical power during heat waves or wildfires, which can reduce food and water safety.[2] Air conditioning has helped reduce illness and death due to extreme heat,[3] but if power is lost, everyone is vulnerable. By their nature, such events can exceed our capacity to respond.[4] In succession, these events severely deplete resources needed to respond, from the individual to the national scale, but disproportionately affect the most vulnerable populations.[5]

## Coral Reef Ecosystem Collapse

In many social and natural systems, climate change combines with other stresses to cause or expand impacts. For example, coral reefs are threatened by a combination of ocean acidification caused by increased carbon dioxide, rising ocean temperatures, and a variety of other factors caused by human activities.



Warm water caused this coral colony to "bleach" (left) as it expelled the symbiotic algae that gave it color and nourishment. The coral then experienced more disease (right), which eventually killed the colony.

Recent research indicates that 75% of the world's coral reefs are threatened due to the interactive effects of climate change and local sources of stress, such as overfishing, nutrient pollution, and disease.[7] In Florida, all reefs are rated as threatened; with significant impacts on valuable ecosystem services they provide.[8] Caribbean coral cover has decreased 80% in less than three decades.[9] These declines have in turn led to a flattening of the three dimensional structure of coral reefs and hence a decrease in the capacity of coral reefs to provide shelter and additional resources for other reef-dependent ocean life.[10]

The relationship between coral and zooxanthellae (algae vital for reef-building corals) is disrupted by higher than usual temperatures and results in a condition where the coral is still alive, but devoid of all its color (bleaching). Bleached corals can later die or become infected with disease.[11] Thus, high temperature events alone can kill large stretches of coral reef, although cold water and poor water quality can also cause localized bleaching and death. Evidence suggests that relatively pristine reefs, with fewer human impacts and with intact fish and associated invertebrate communities, are more resilient to coral bleaching and disease.[12]

## Cascading Effects Across Sectors

Agriculture, water, energy, transportation, and more, are all affected by climate change. These sectors of our economy do not exist in isolation and are linked in increasingly complex ways. For example, water supply and energy use are completely intertwined, since water is used to generate energy, and energy is required to pump, treat, and deliver water – which means that irrigation-dependent farmers and urban dwellers are linked as well.

Heat and drought lead to cascading impacts among sectors including agriculture, water, and energy.

A recent illustration of these interconnections took place during the widespread drought of 2011-2012 when high temperatures caused increased demand for electricity for air conditioning, which resulted in increased water withdrawal and consumption for electricity generation. Heat, increased evaporation, drier soils, and lack of rain led to higher irrigation demands, which added stress on water resources required for energy production. At the same time, low-flowing and warmer rivers threatened to suspend power plant production in several locations, reducing the options for dealing with the concurrent increase in electricity demand.

With electricity demands at all-time highs, water shortages threatened more than 3,000 megawatts of generating capacity – enough power to supply more than one million homes.[13] As a result of the record demand and reduced supply, electricity prices spiked.[14]

# FINDING

## Climate change threatens human health and well-being in many ways.

Climate change is increasing the risks of respiratory stress from poor air quality, heat stress, and the spread of food-borne, insect-borne, and waterborne diseases. Extreme weather events often lead to fatalities and a variety of health impacts on vulnerable populations, including impacts on mental health, such as anxiety and post-traumatic stress disorder. Large-scale changes in the environment due to climate change and extreme weather events are increasing the risk of the emergence or reemergence of health threats that are currently uncommon in the United States, such as dengue fever.

Key weather and climate drivers of health impacts include increasingly frequent, intense, and longer-lasting extreme heat, which worsens drought, wildfire, and air pollution risks; increasingly frequent extreme precipitation, intense storms, and changes in precipitation patterns that can lead to flooding, drought, and ecosystem changes; and rising sea levels that intensify coastal flooding and storm surge, causing injuries, deaths, stress due to evacuations, and water quality impacts, among other effects on public health.

### Key Messages: Human Health

Climate change threatens human health and well-being in many ways, including impacts from increased extreme weather events, wildfire, decreased air quality, threats to mental health, and illnesses transmitted by food, water, and disease-carriers such as mosquitoes and ticks. Some of these health impacts are already underway in the United States.

Climate change will, absent other changes, amplify some of the existing health threats the nation now faces. Certain people and communities are especially vulnerable, including children, the elderly, the sick, the poor, and some communities of color.

Public health actions, especially preparedness and prevention, can do much to protect people from some of the impacts of climate change. Early action provides the largest health benefits. As threats increase, our ability to adapt to future changes may be limited.

Responding to climate change provides opportunities to improve human health and well-being across many sectors, including energy, agriculture, and transportation. Many of these strategies offer a variety of benefits, protecting people while combating climate change and providing other societal benefits.

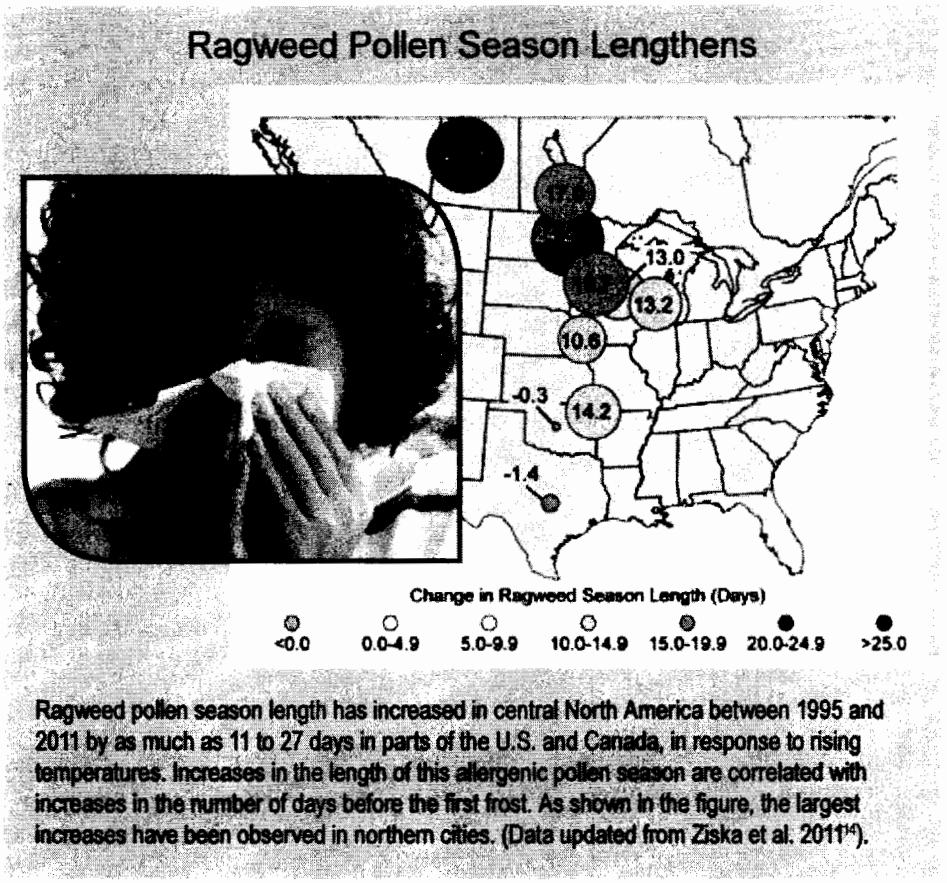
### Air Quality

Climate change is projected to harm human health by increasing ground-level ozone and/or particulate matter in some locations. Ground-level ozone (a key component of smog) is associated with many health problems, such as diminished lung function, increased hospital admissions and emergency room visits for asthma, and increases in premature deaths.[1] Factors that affect ozone formation include heat, concentrations of precursor chemicals, and methane emissions, while particulate matter concentrations are affected by wildfire emissions and air stagnation episodes, among other factors.[2]

### Wildfire Smoke has Widespread Health Effects

Wildfires, which are projected to increase in some regions due to climate change, have health impacts that can extend hundreds of miles. Forest fires in Quebec, Canada, during July 2002 resulted in up to a 30-fold increase in airborne fine particle concentrations in Baltimore, a city nearly a thousand miles downwind. These fine particles are extremely harmful to human health, affecting both indoor and outdoor air quality. An average of 6.4 million acres burned in U.S. wildfires each year between 2000 and 2010, with 9.5 million acres burned in 2006 and 9.1 million acres in 2012. Global deaths from wildfire smoke have been estimated at 260,000 to 600,000 annually. (Figure source: MODIS instrument on the Terra Satellite, Land Rapid Response Team, NASA/GSFC).

Warmer and drier conditions have already contributed to increasing wildfire extent across the western United States, and future increases are projected in some regions.[5,6] Long periods of record high temperatures are associated with droughts that contribute to dry conditions and drive wildfires in some areas.[7] Wildfire smoke contains particulate matter, carbon monoxide, and other compounds, which can significantly reduce air quality, both locally and in areas downwind of fires.[8,9] Smoke exposure increases respiratory and cardiovascular hospitalizations, emergency room visits and medication for asthma, bronchitis, chest pain, and other ailments.[8,10,11] It has been associated with hundreds of thousands of deaths globally each year.[4,8,10,12] Future climate change is projected to increase wildfire risks and associated emissions, with harmful impacts on health.[6,13]




Ragweed pollen season length has increased in central North America between 1995 and 2011 by as much as 11 to 27 days in parts of the U.S. and Canada, in response to rising temperatures. Increases in the length of this allergenic pollen season are correlated with increases in the number of days before the first frost. As shown in the figure, the largest increases have been observed in northern cities. (Data updated from Ziska et al. 2011[14]).

## Allergies and Asthma

Climate change, as well as increased $CO_2$ by itself, can contribute to increased production of plant-based allergens.[6,14,15] Higher pollen concentrations and longer pollen seasons can increase allergic sensitizations and asthma episodes,[16,17] and diminish productive work and school days.[14,17,18] Simultaneous exposure to toxic air pollutants can worsen allergic responses.[19] Extreme rainfall and rising temperatures can also foster indoor air quality problems, including the growth of indoor fungi and molds, with increases in respiratory and asthma-related conditions.[20]

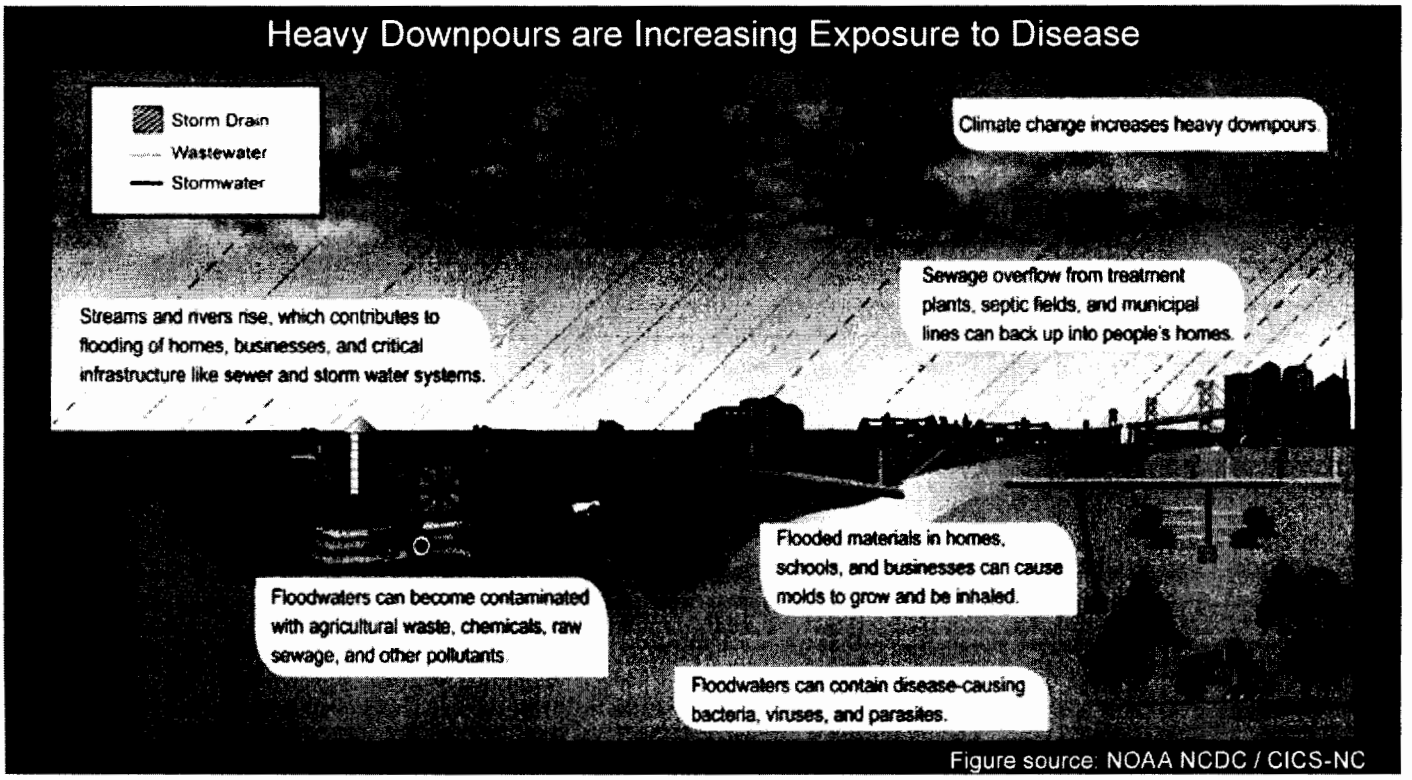



Figure source: NOAA NCDC / CICS-NC

# Finding 5: HUMAN HEALTH

## Food and Waterborne Diarrheal Disease

Diarrheal disease is a major public health issue in developing countries and while not generally increasing in the United States, remains a persistent concern nonetheless. Exposure to a variety of pathogens in water and food causes diarrheal disease. Air and water temperatures, precipitation patterns, extreme rainfall events, and seasonal variations are all known to affect disease transmission.[21] In the U.S., children and the elderly are most vulnerable to serious outcomes, and those exposed to inadequately or untreated groundwater will be among those most affected.

In general, diarrheal diseases including Salmonellosis and Campylobacteriosis are more common when temperatures are higher,[22] though patterns differ by place and pathogen. Diarrheal diseases have also been found to occur more frequently in conjunction with both unusually high and low precipitation.[23] Sporadic increases in streamflow rates, often preceded by rapid snowmelt[24] and changes in water treatment,[25] have also been shown to precede outbreaks. Risks of waterborne illness, and beach closures resulting from heavy rain and rising water temperatures are expected to increase in the Great Lakes region due to projected climate change.[26,27]

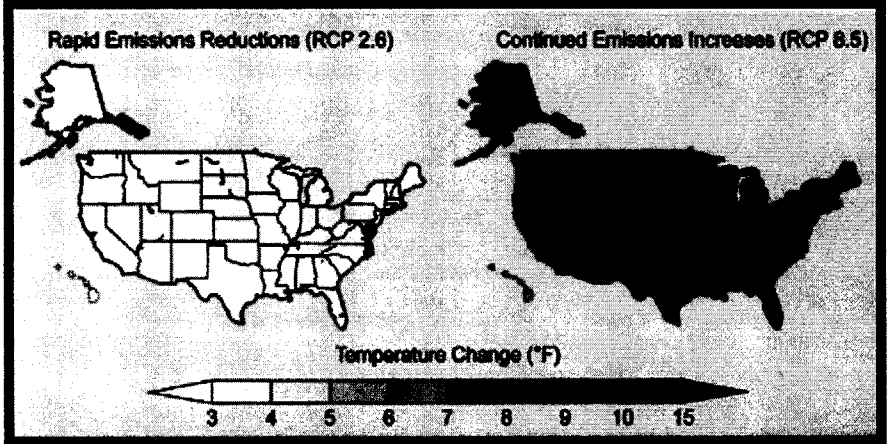
## Extreme Heat

Extreme heat events are the leading weather-related cause of death in the United States.[28] Many cities, including St. Louis, Philadelphia, Chicago, and Cincinnati have suffered dramatic spikes in death rates during heat waves. Deaths result from heat stroke and related conditions,[29] but also from cardiovascular disease, respiratory disease, and cerebrovascular disease.[30,31] Heat waves are also associated with increased hospital admissions for cardiovascular, kidney, and respiratory disorders.[31,32]

Extreme summer heat is increasing in the United States. The effects of heat stress are greatest during heat waves lasting several days or more. As human-induced climate change causes temperatures to continue to rise, heat waves are projected to increase in frequency, intensity, and duration.[33]

Some of the risks of heat-related sickness and death have diminished in recent decades, possibly due to better forecasting, heat-health early warning systems, and/or increased access to air conditioning for the U.S. population.[34] However, extreme heat events remain a cause of preventable death nationwide. Urban heat islands, combined with an aging population and increased urbanization, are projected to increase the vulnerability of urban populations, especially the poor, to heat-related health impacts in the future.[35]

### The Hottest Days Will Get Hotter




The maps show projected increases in the average temperature on the hottest days by late this century (2081-2100) relative to 1986-2005 under a scenario that assumes a rapid reduction in heat-trapping gases (RCP 2.6) and a scenario that assumes continued increases in these gases (RCP 8.5). The hottest days are those so hot they occur only once in 20 years. Across most of the continental U.S., those days will be about 10°F to 15°F hotter in the future under the higher emissions scenario. increasing health risks. (Figure source: NOAA NCDC / CICS-NC).

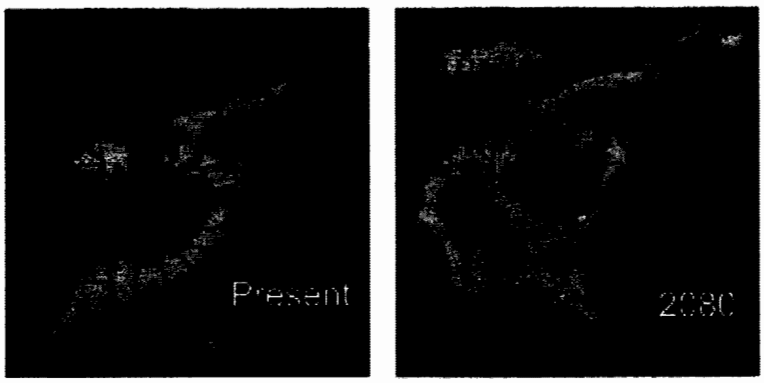
While deaths and injuries related to extreme cold events are projected to decline due to climate change, these reductions are not expected to compensate for the increase in heat-related deaths.[36]

Climate is one of the factors that influences the distribution of diseases borne by vectors (such as fleas, ticks, and mosquitoes, which spread pathogens that cause illness).[37,38,39,40] The geographic and seasonal distribution of vector populations, and the diseases they can carry, depend not only on climate, but also on land use, socioeconomic and cultural factors, pest control, access to health care, and human responses to disease risk, among other factors.[38,41,42]

North Americans are currently at risk from numerous vector-borne diseases, including Lyme, dengue fever, West Nile virus, Rocky Mountain spotted fever, plague, and tularemia.[40,43,44] Vector-borne pathogens not currently found in the U.S., such as chikungunya, Chagas disease, and Rift Valley fever viruses, are also threats. Climate change effects on the geographical distribution and incidence of vector-borne diseases in other countries where these diseases are already found can also affect North Americans, especially as a result of increasing trade with, and travel to, tropical and subtropical areas.[39,42]

The development and survival of blacklegged ticks, their animal hosts, and the bacterium that causes Lyme disease, are strongly influenced by climatic factors, especially temperature, precipitation, and humidity. Potential impacts of climate change on the transmission of Lyme disease include: 1) changes in the geographic distribution of the disease due to the increase in favorable habitat for ticks to survive off their hosts;[45] 2) a lengthened transmission season due to earlier onset of higher temperatures in the spring and later onset of cold and frost; 3) higher tick densities leading to greater risk in areas where the disease is currently observed due to milder winters and potentially larger rodent host populations; and 4) changes in human behaviors, including increased time outdoors, which may lead to a higher risk of exposure to infected ticks.

## Projected Changes in Tick Habitat




Tick Establishment Probability (%)

0-19 20-39 40-59 60-79 80-99

The maps show the current and projected (for 2080) probability of establishment of tick populations (*Ixodes scapularis*) that transmit Lyme disease. The projected expansion of tick habitat includes much of the eastern half of the country by 2080. For some areas around the Gulf Coast, the probability of tick population establishment is projected to decrease by 2080. (Figure source: adapted from Brownstein et al. 2005[46]).

## Multiple Benefits

Policies and other strategies intended to reduce carbon pollution and mitigate climate change can often have independent influences on human health. For example, reducing $CO_2$ emissions through renewable electrical power generation can reduce air pollutants like particles and sulfur dioxide. Efforts to improve the resiliency of communities and human infrastructure to climate change impacts can also improve human health. There is a growing recognition that the magnitude of health "co-benefits," like reducing both pollution and cardiovascular disease, could be significant, both from a public health and an economic standpoint.[47]

Innovative urban design could create increased access to active transport (such as walking and biking).[27] The compact geographical area found in cities presents opportunities to reduce energy use and emissions of heat-trapping gases and other air pollutants through active transit, improved building construction, provision of services, and infrastructure creation, such as bike paths and sidewalks.[48,49] Urban planning strategies designed to reduce the urban heat island effect, such as green/cool roofs, increased green space, parkland, and urban canopy, could reduce indoor temperatures and improve indoor air quality, and could also produce additional societal co-benefits by promoting social interaction and prioritizing vulnerable urban populations.[48,50]

## Infrastructure is being damaged by sea level rise, heavy downpours, and extreme heat; damages are projected to increase with continued climate change.

Sea level rise, storm surge, and heavy downpours, in combination with the pattern of continued development in coastal areas, are increasing damage to U.S. infrastructure including roads, buildings, and industrial facilities, and are also increasing risks to ports and coastal military installations. Flooding along rivers, lakes, and in cities following heavy downpours, prolonged rains, and rapid melting of snowpack is exceeding the limits of flood protection infrastructure designed for historical conditions. Extreme heat is damaging transportation infrastructure such as roads, rail lines, and airport runways.

Infrastructure around the country has been compromised by extreme weather events and rising sea levels. Power outages and road and bridge damage are among the infrastructure failures that have occurred during these extreme events. A disruption in any one system affects others. For example, a failure of the electrical grid can affect everything from water treatment to public health.

## Key Messages: Urban Systems, Infrastructure, and Vulnerability

Climate change and its impacts threaten the well-being of urban residents in all U.S. regions. Essential infrastructure systems such as water, energy supply, and transportation will increasingly be compromised by interrelated climate change impacts. The nation's economy, security, and culture all depend on the resilience of urban infrastructure systems.

In urban settings, climate-related disruptions of services in one infrastructure system will almost always result in disruptions in one or more other infrastructure systems.

Climate vulnerability and adaptive capacity of urban residents and communities are influenced by pronounced social inequalities that reflect age, ethnicity, gender, income, health, and (dis)ability differences.

City government agencies and organizations have started adaptation plans that focus on infrastructure systems and public health. To be successful, these adaptation efforts require cooperative private sector and governmental activities, but institutions face many barriers to implementing coordinated efforts.

Climate change poses a series of interrelated challenges to the country's most densely populated places: its cities. The U.S. is highly urbanized, with about 80% of its population living in cities and metropolitan areas. Cities depend on infrastructure, like water and sewage systems, roads, bridges, and power plants, much of which is aging and in need of repair or replacement. These issues will be compounded by rising sea levels, storm surges, heat waves, and extreme weather events, stressing or even overwhelming essential services.

Urban dwellers are particularly vulnerable to disruptions in essential infrastructure services, in part because many of these infrastructure systems are reliant on each other. For example, electricity is essential to multiple systems, and a failure in the electrical grid can affect water treatment, transportation services, and public health. These infrastructure systems – lifelines to millions – will continue to be affected by various climate-related events and processes.

New York City's subway system, the nation's busiest, sustained the worst damage in its 108 years of operation on October 29, 2012. Millions of people were left without service for at least a week. The damages from Superstorm Sandy are indicative of what powerful tropical storms and higher sea levels could bring more frequently in the future, and were very much in line with vulnerability assessments conducted over the past four years.[4] The effects of the storm would have been far worse if local climate resilience strategies had not been in place. The City of New York and the Metropolitan Transportation Authority worked aggressively to protect life and property by stopping the operation of the city's subway before the storm hit and moving the train cars out of low-lying, flood-prone areas. Catastrophic loss of life would have resulted if there had been subway trains operating in the tunnels when the storm struck.

Cities have become early responders to climate change challenges and opportunities. Integrating climate change action in everyday city and infrastructure operations and governance is an important planning and implementation tool for advancing adaptation in cities.[1,2] By integrating climate-change considerations into daily operations, these efforts can forestall the need to develop a new and isolated set of climate-change-specific policies or procedures.[3] This strategy enables cities and other government agencies to take advantage of existing funding sources and programs, and achieve co-benefits in areas such as sustainability, public health, economic development, disaster preparedness, and environmental justice. Pursuing low-cost, no-regrets options is a particularly attractive short-term strategy for many cities.[1,3]

# Finding 6: INFRASTRUCTURE

## Key Messages: Transportation

The impacts from sea level rise and storm surge, extreme weather events, higher temperatures and heat waves, precipitation changes, Arctic warming, and other climatic conditions are affecting the reliability and capacity of the U.S. transportation system in many ways.

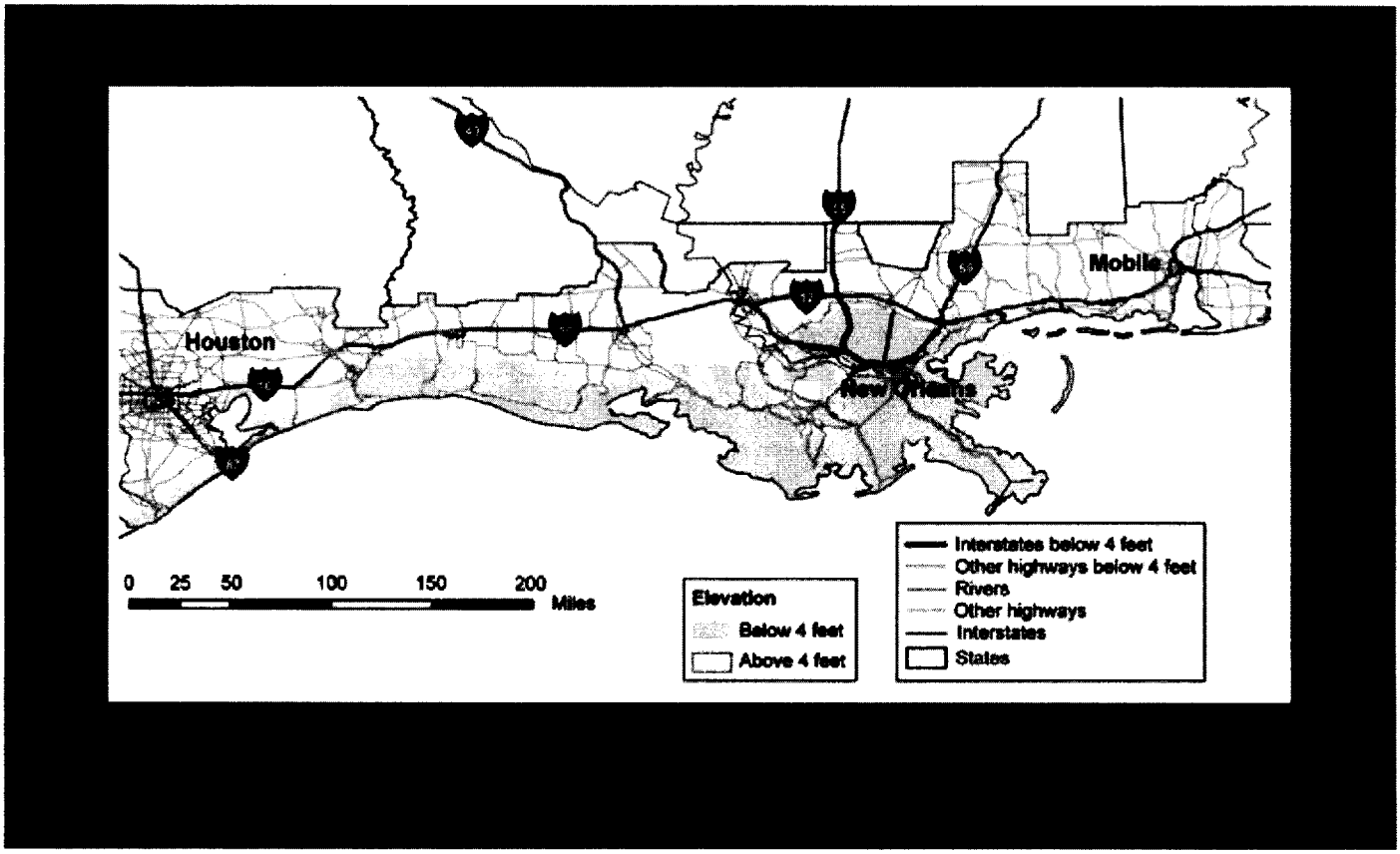
Sea level rise, coupled with storm surge, will continue to increase the risk of major coastal impacts on transportation infrastructure, including both temporary and permanent flooding of airports, ports and harbors, roads, rail lines, tunnels, and bridges.

Extreme weather events currently disrupt transportation networks in all areas of the country; projections indicate that such disruptions will increase.

Climate change impacts will increase the total costs to the nation's transportation systems and their users, but these impacts can be reduced through rerouting, mode change, and a wide range of adaptive actions.

Transportation systems are affected by climate change and also contribute to climate change. In 2010, the U.S. transportation sector accounted for 27% of all U.S. heat-trapping greenhouse gas emissions, with cars and trucks accounting for 65% of that total.[5] Petroleum accounts for 93% of the nation's transportation energy use.[5] This means that policies and behavioral changes aimed at reducing greenhouse gas emissions will have significant implications for the various components of the transportation sector.

Transportation systems are already experiencing costly climate change related impacts. Many inland states, including Vermont, Tennessee, Iowa, and Missouri, have experienced severe precipitation events, hail, and flooding during the past three years, damaging roads, bridges, and rail systems and the vehicles that use them. Over the coming decades, all modes of transportation and regions will be affected by increasing temperatures, more extreme weather events, and changes in precipitation. Concentrated transportation impacts are particularly expected to occur in Alaska and along seacoasts.



## Key Messages: Energy Supply and Use

**Extreme weather events are affecting energy production and delivery facilities, causing supply disruptions of varying lengths and magnitudes and affecting other infrastructure that depends on energy supply. The frequency and intensity of certain types of extreme weather events are expected to change.**

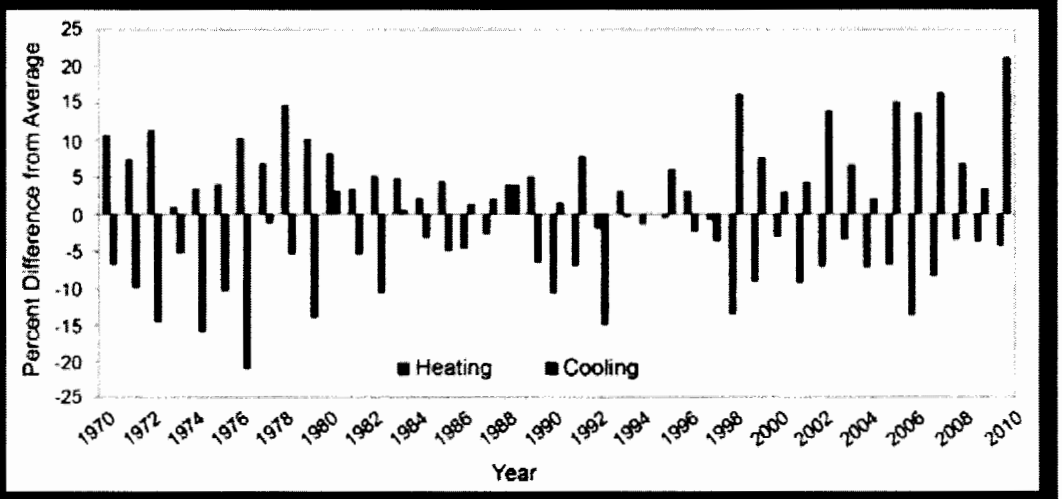
**Higher summer temperatures will increase electricity use, causing higher summer peak loads, while warmer winters will decrease energy demands for heating. Net electricity use is projected to increase.**

**Changes in water availability, both episodic and long-lasting, will constrain different forms of energy production.**

**In the longer term, sea level rise, extreme storm surge events, and high tides will affect coastal facilities and infrastructure on which many energy systems, markets, and consumers depend.**

**As new investments in energy technologies occur, future energy systems will differ from today's in uncertain ways. Depending on the character of changes in the energy mix, climate change will introduce new risks as well as opportunities.**

The U.S. energy system provides a secure supply of energy with only occasional interruptions. However, projected impacts of climate change will increase energy use in the summer and pose additional risks to reliability. Extreme weather events and water shortages are already interrupting energy supply and impacts are expected to increase in the future. Most vulnerabilities and risks to energy supply and use are unique to local situations; others are national in scope.




defined as the number of degrees that a day's average temperature is above 65°F, while heating degree days are the number of degrees a day's average temperature is below 65°F. (Data from NOAA NCDC 2012

Increases in average temperatures and high temperature extremes are expected to lead to increasing demands for electricity for cooling in every U.S. region. Virtually all cooling load is handled by the electrical grid. In order to meet increased demands for peak electricity, additional generating and distribution facilities will be needed, or demand will have to be managed through a variety of mechanisms. Electricity at peak demand typically is more expensive to supply than at average demand.[7]

In addition to being vulnerable to the effects of climate change, electricity generation is a major source of the heat-trapping gases that contribute to climate change. As a result, regulatory or policy efforts aimed at reducing emissions would also affect the energy supply system.

# FINDING

## Water quality and water supply reliability are jeopardized by climate change in a variety of ways that affect ecosystems and livelihoods.

Surface and groundwater supplies in some regions are already stressed by increasing demand as well as declining runoff and groundwater recharge. In some regions, particularly the southern U.S. and the Caribbean and Pacific islands, climate change is increasing the likelihood of water shortages and competition for water. Water quality is diminishing in many areas, particularly due to increasing sediment and contaminant concentrations after heavy downpours.

### Key Messages: Water Resources

#### Climate Change Impacts on the Water Cycle

Annual precipitation and river-flow increases are observed now in the Midwest and the Northeast regions. Very heavy precipitation events have increased nationally and are projected to increase in all regions. The length of dry spells is projected to increase in most areas, especially the southern and northwestern portions of the contiguous United States.

Short-term (seasonal or shorter) droughts are expected to intensify in most U.S. regions. Longer-term droughts are expected to intensify in large areas of the Southwest, southern Great Plains, and Southeast.

Flooding may intensify in many U.S. regions, even in areas where total precipitation is projected to decline.

Climate change is expected to affect water demand, groundwater withdrawals, and aquifer recharge, reducing groundwater availability in some areas.

Sea level rise, storms and storm surges, and changes in surface and groundwater use patterns are expected to compromise the sustainability of coastal freshwater aquifers and wetlands.

Increasing air and water temperatures, more intense precipitation and runoff, and intensifying droughts can decrease river and lake water quality in many ways, including increases in sediment, nitrogen, and other pollutant loads.

#### Climate Change Impacts on Water Resources Use and Management

Climate change affects water demand and the ways water is used within and across regions and economic sectors. The Southwest, Great Plains, and Southeast are particularly vulnerable to changes in water supply and demand.

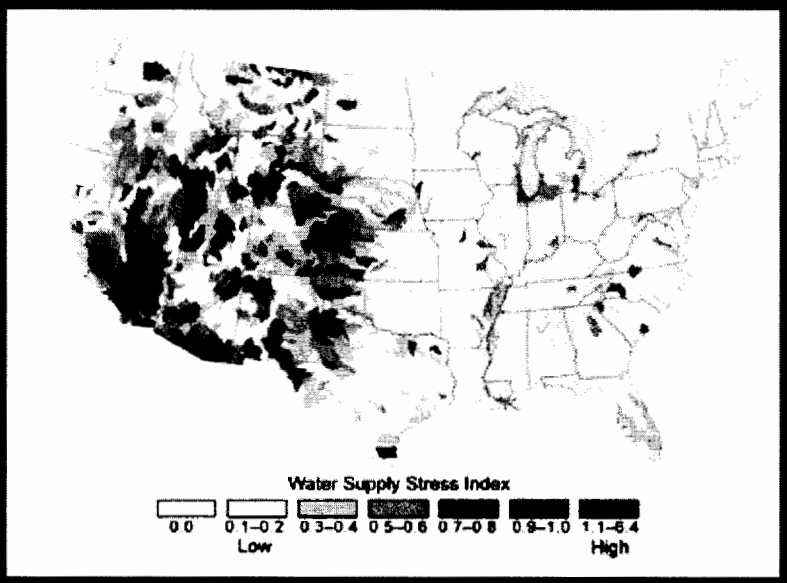
Changes in precipitation and runoff, combined with changes in consumption and withdrawal, have reduced surface and groundwater supplies in many areas. These trends are expected to continue, increasing the likelihood of water shortages for many uses.

Increasing flooding risk affects human safety and health, property, infrastructure, economies, and ecology in many basins across the United States.

#### Adaptation and Institutional Responses

In most U.S. regions, water resources managers and planners will encounter new risks, vulnerabilities, and opportunities that may not be properly managed within existing practices.

Increasing resilience and enhancing adaptive capacity provide opportunities to strengthen water resources management and plan for climate change impacts. Many institutional, scientific, economic, and political barriers present challenges to implementing adaptive strategies.



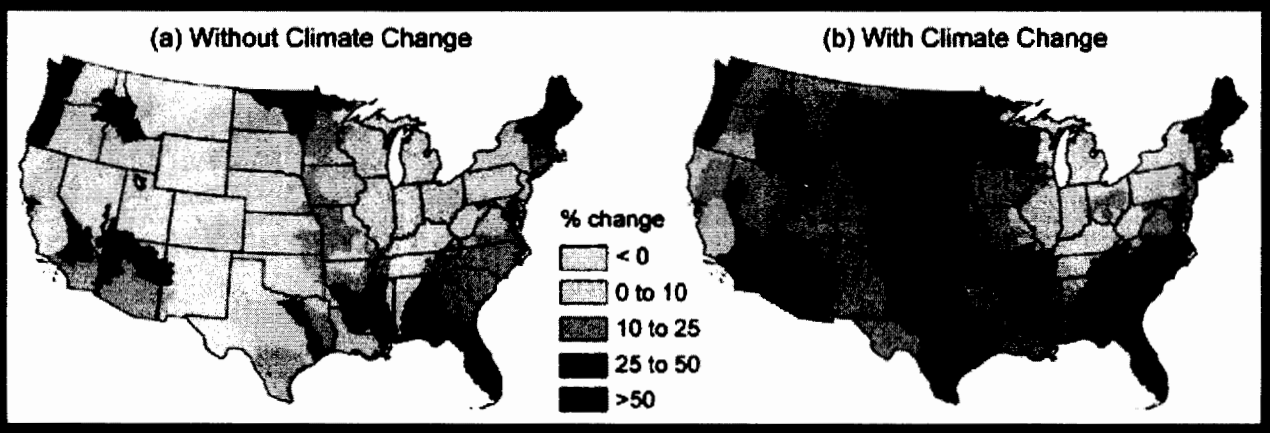

plants, and municipalities exceeds 40% of available supply. This often causes conflict

## Changes to Water Demand and Use

Climate change, acting concurrently with demographic, land-use, energy generation and use, and socioeconomic changes, is challenging existing water management practices by affecting water availability and demand and by exacerbating competition among uses and users. In some regions, these current and expected impacts are hastening efficiency improvements in water withdrawal and use, the deployment of more proactive water management and adaptation approaches, and the re-assessment of the water infrastructure and institutional responses.[1]

## Water Withdrawals

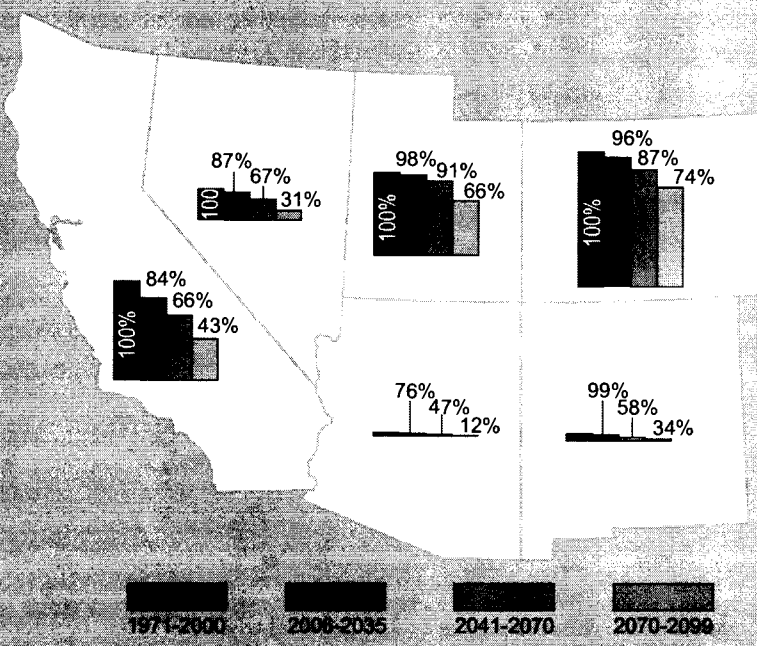
Total freshwater withdrawals (including water withdrawn and consumed as well as water that returns to the original source) and consumptive uses have leveled off nationally since 1980 at 350 billion gallons of withdrawn water and 100 billion gallons of consumptive water per day, despite the addition of 68 million people from 1980 to 2005.[2] Irrigation and electric power plant cooling withdrawals account for approximately 77% of total withdrawals, municipal and industrial for 20%, and livestock and aquaculture for 3%. Most thermoelectric withdrawals are returned back to rivers after their use for power plant cooling, while most irrigation withdrawals are consumed by the processes of evapotranspiration (evaporation and loss of moisture from leaves) and plant growth. Thus, consumptive water use is dominated by irrigation (81%) followed distantly by municipal and industrial (8%) and the remaining water uses (5%). The largest withdrawals occur in the drier western states for crop irrigation. In the east, water withdrawals mainly serve municipal, industrial, and thermoelectric uses. Some of the largest demand increases are projected in regions where groundwater aquifers are the main water supply source, such as the Great Plains and parts of the Southwest and Southeast. The projected water demand increases (shown below) combined with potentially declining recharge rates threaten the sustainability of many aquifers.




significantly increase water demand across most of the United States. Maps show percent change from 2005 to 2060 in projected demand

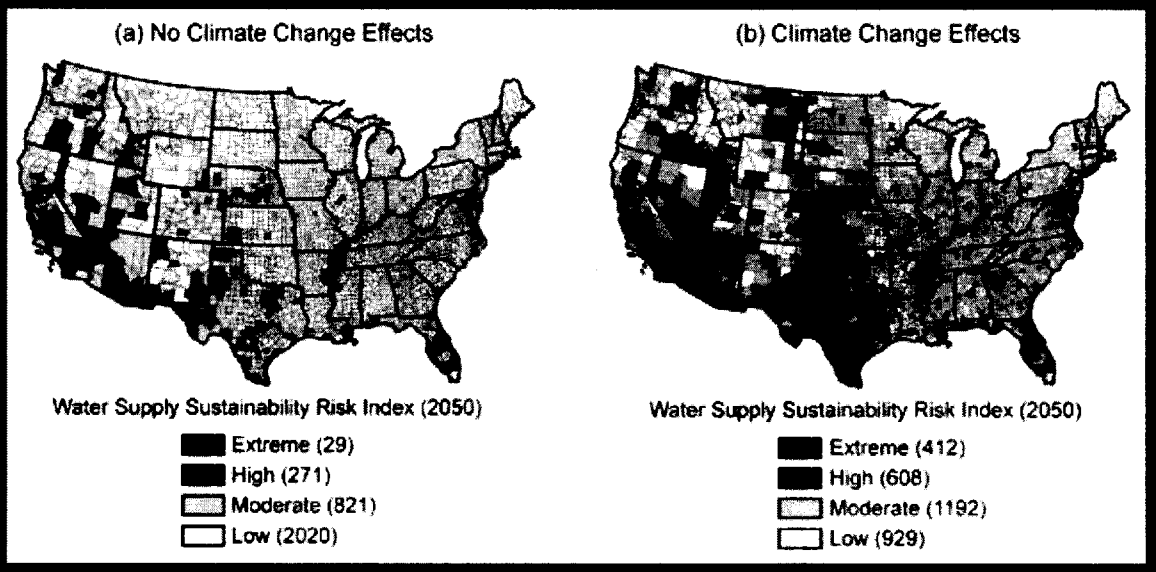
## Projected Snow Water Equivalent

Snow water equivalent refers to the amount of water held in a volume of snow, which depends on the density of the snow and other factors. Figure shows projected snow water equivalent for the Southwest, as a percentage of 1971-2000 levels, assuming continued increases in global emissions (A2 scenario). The size of the bars is in proportion to the amount of snow each state contributes to the regional total; thus, the bars for Arizona are much smaller than those for Colorado, which contributes the most to region-wide snowpack. Declines in peak snow water equivalent are strongly correlated with early timing of runoff and decreases in total runoff. For watersheds that depend on snowpack to provide the majority of the annual runoff, such as in the Sierra Nevada and in the Upper Colorado and Upper Rio Grande River Basins, lower snow water equivalent generally translates to reduced reservoir water storage. (Data from Scripps Institution of Oceanography).




### Water Quality

Lower and more persistent low flows under drought conditions as well as higher flows during floods can worsen water quality. Increasing precipitation intensity, along with the effects of wildfires and fertilizer use, are increasing sediment, nutrient, and contaminant loads in surface waters used by downstream water users[5] and ecosystems in some places. Changing land cover, flood frequencies, and flood magnitudes are expected to increase mobilization of sediments in large river basins.[6]




decline, and even in some areas where precipitation is expected to increase. Compared to 10% of counties today, by 2050, 32% of counties

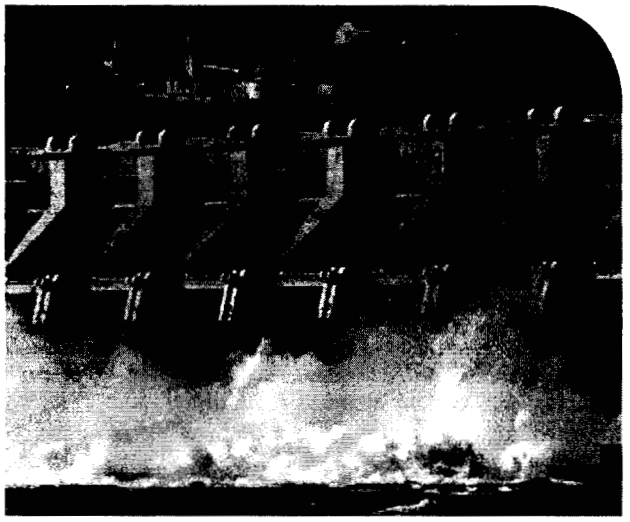
greenhouse gas emissions through 2050 and a slow decline thereafter (A1B scenario). (Figure source: Reprinted with permission from Roy et

## Key Messages: Energy, Water, and Land Use

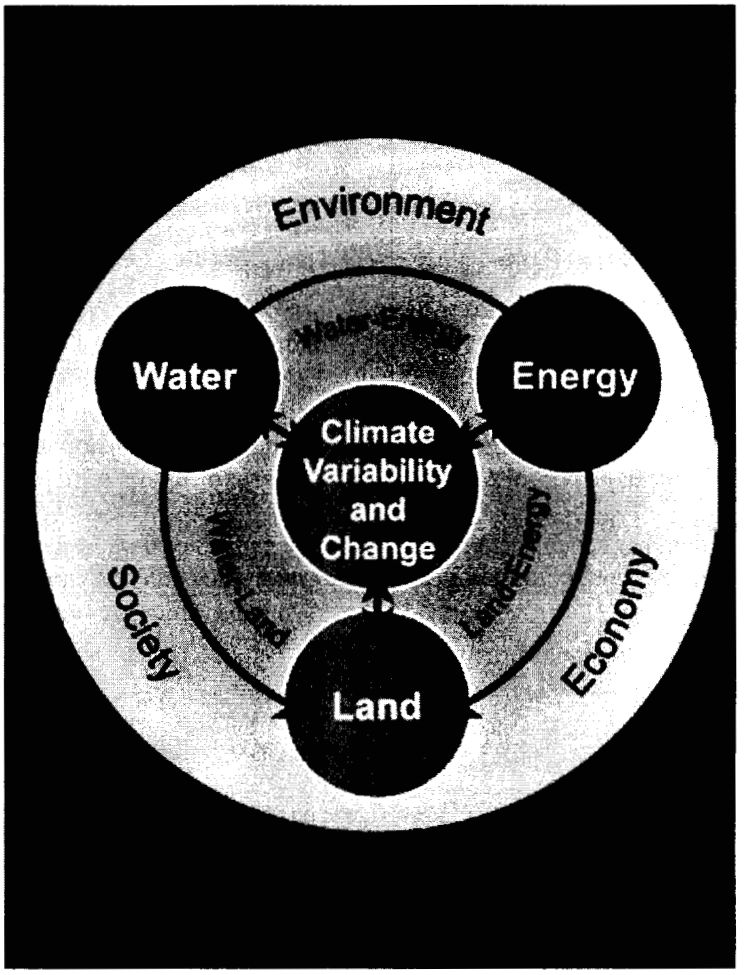
**Energy, water, and land systems interact in many ways. Climate change affects the individual sectors and their interactions; the combination of these factors affects climate change vulnerability as well as adaptation and mitigation options for different regions of the country.**

**The dependence of energy systems on land and water supplies will influence the development of these systems and options for reducing greenhouse gas emissions, as well as their climate change vulnerability.**

**Jointly considering risks, vulnerabilities, and opportunities associated with energy, water, and land use is challenging, but can improve the identification and evaluation of options for reducing climate change impacts.**



Energy production, land use, and water resources are linked in complex ways. Electric utilities and energy companies compete with farmers and ranchers for water rights in some parts of the country. Land-use planners need to consider the interactive impacts of strained water supplies on cities, agriculture, and ecological needs. Across the country, these intertwined sectors will witness increased stresses due to climate changes that are projected to reduce water quality and/or quantity in many regions and change heating and cooling electricity demand, among other impacts.



# FINDING

## Climate disruptions to agriculture have been increasing and are projected to become more severe over this century.

Some areas are already experiencing climate-related disruptions, particularly due to extreme weather events. While some U.S. regions and some types of agricultural production will be relatively resilient to climate change over the next 25 years or so, others will increasingly suffer from stresses due to extreme heat, drought, disease, and heavy downpours. From mid-century on, climate change is projected to have more negative impacts on crops and livestock across the country – a trend that could diminish the security of our food supply.

### Key Messages: Agriculture

Climate disruptions to agricultural production have increased in the past 40 years and are projected to increase over the next 25 years. By mid-century and beyond, these impacts will be increasingly negative on most crops and livestock.

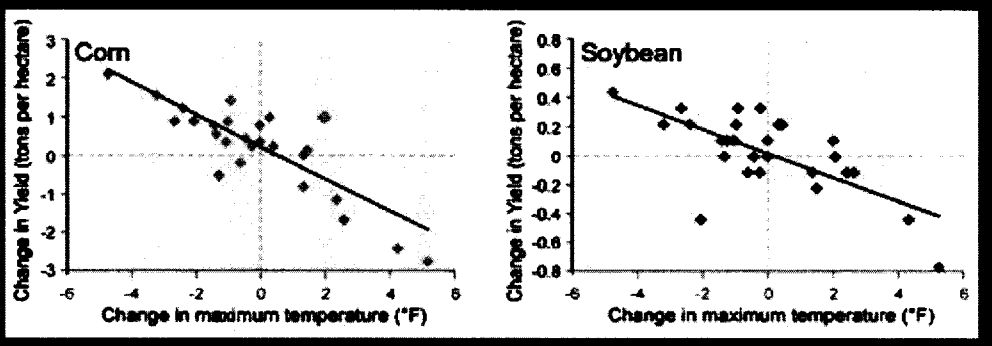
Many agricultural regions will experience declines in crop and livestock production from increased stress due to weeds, diseases, insect pests, and other climate change induced stresses.

Current loss and degradation of critical agricultural soil and water assets due to increasing extremes in precipitation will continue to challenge both rainfed and irrigated agriculture unless innovative conservation methods are implemented.

The rising incidence of weather extremes will have increasingly negative impacts on crop and livestock productivity because critical thresholds are already being exceeded.

Agriculture has been able to adapt to recent changes in climate; however, increased innovation will be needed to ensure the rate of adaptation of agriculture and the associated socioeconomic system can keep pace with climate change over the next 25 years.

Climate change effects on agriculture will have consequences for food security, both in the U.S. and globally, through changes in crop yields and food prices and effects on food processing, storage, transportation, and retailing. Adaptation measures can help delay and reduce some of these impacts.

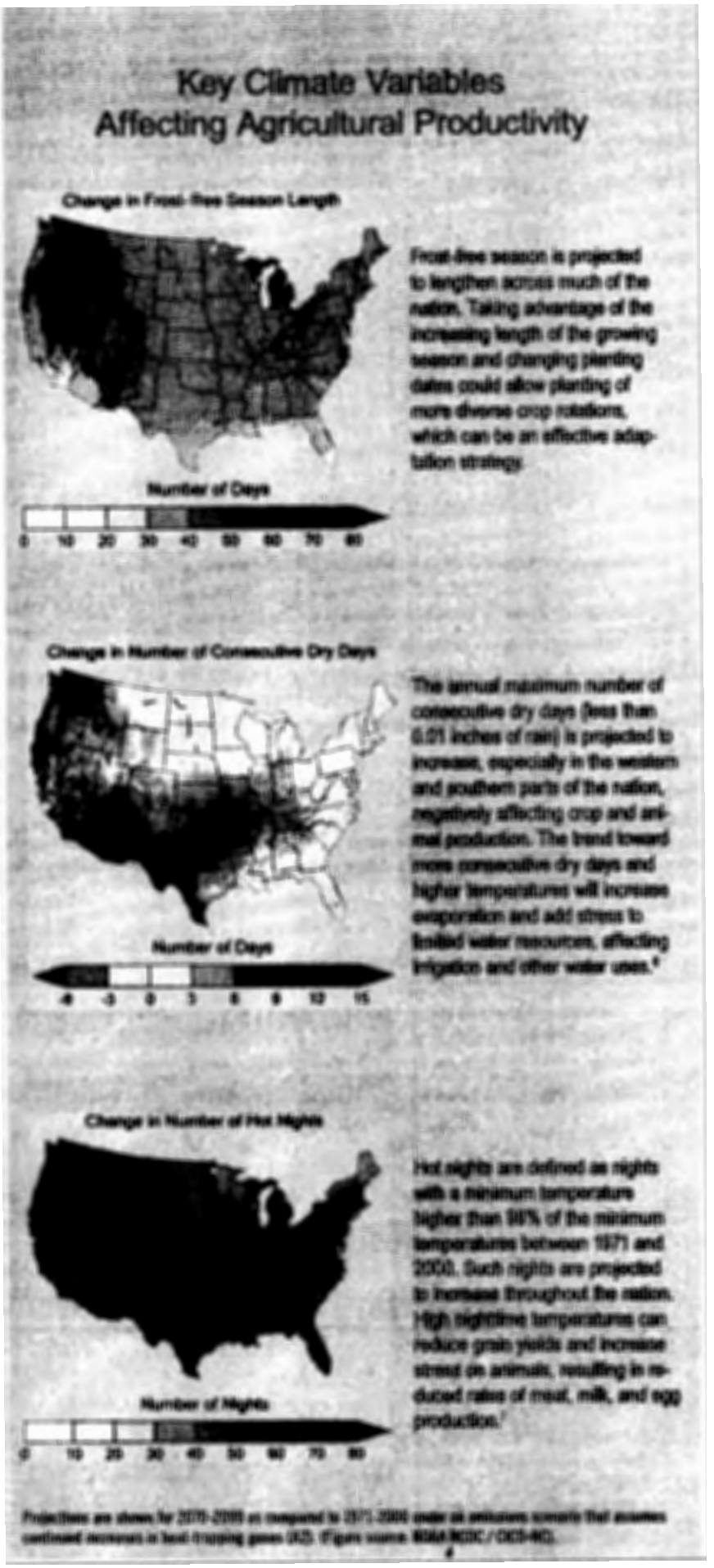



during the pollination and grain-filling period. For example, corn (left) and soybean (right) harvests in Illinois and Indiana, two major producers, were lower in years with average maximum summer (June, July, and August) temperatures that were higher than the 1980-2007 average. Most years with below-average yields are both warmer and drier than normal.[1] There is a very high correlation between warm and dry conditions during Midwest summers
(Figure source: redrawn from Mishra and Cherkauer 2010[1]).

Climate change poses a major challenge to U.S. agriculture, because of the critical dependence of the agricultural system on climate and because of the complex role agriculture plays in social and economic systems. Climate change has the potential to both positively and negatively affect the location, timing, and productivity of crop, livestock, and fishery systems at local, national, and global scales.

The U.S. produces nearly $330 billion per year in agricultural commodities.[5] This productivity is vulnerable to direct impacts on crop and livestock development and yield from changing climate conditions and extreme weather events, and indirect impacts through increasing pressures from pests and pathogens. Climate change has the potential to both positively and negatively affect agricultural systems at local, national, and global scales. Climate change will also alter the stability of food supplies and create new food security challenges for the U.S. as the world seeks to feed nine billion people by 2050.

The agricultural sector continually adapts through a variety of strategies that have allowed previous agricultural production to increase, as evidenced by the continued growth in production and efficiency across the United States. However, the magnitude of climate change projected for this century and beyond, particularly under higher emissions scenarios, will challenge the ability of the agriculture sector to continue to successfully adapt.



## Climate change poses particular threats to Indigenous Peoples' health, well-being, and ways of life.

The peoples, lands, and resources of indigenous communities in the United States, including Alaska and the Pacific Rim, face an array of climate change impacts and vulnerabilities. The consequences of observed and projected climate change have and will undermine indigenous ways of life that have persisted for thousands of years. Native cultures are directly tied to Native places and homelands, and many indigenous peoples regard all people, plants, and animals that share our world as relatives rather than resources. Language, ceremonies, cultures, practices, and food sources evolved in concert with the inhabitants, human and non-human, of specific homelands.

Human-caused stresses such as dam building have greatly reduced salmon on the Klamath River.

Climate change impacts on many of the 566 federally recognized tribes and other tribal and indigenous groups are projected to be especially severe, since these impacts are compounded by a number of persistent social and economic problems.[1] Key vulnerabilities include the loss of traditional knowledge in the face of rapidly changing ecological conditions, increased food insecurity due to reduced availability of traditional foods, changing water availability, Arctic sea ice loss, permafrost thaw, and relocation from historic homelands.[2,3]

### Key Messages: Indigenous Peoples, Lands, and Resources

Observed and future impacts from climate change threaten Native Peoples' access to traditional foods such as fish, game, and wild and cultivated crops, which have provided sustenance as well as cultural, economic, medicinal, and community health for generations.

A significant decrease in water quality and quantity due to a variety of factors, including climate change, is affecting drinking water, food, and cultures. Native communities' vulnerabilities and limited capacity to adapt to water-related challenges are exacerbated by historical and contemporary government policies and poor socioeconomic conditions.

Declining sea ice in Alaska is causing significant impacts to Native communities, including increasingly risky travel and hunting conditions, damage and loss to settlements, food insecurity, and socioeconomic and health impacts from loss of cultures, traditional knowledge, and homelands.

Alaska Native communities are increasingly exposed to health and livelihood hazards from increasing temperatures and thawing permafrost, which are damaging critical infrastructure, adding to other stressors on traditional lifestyles.

Climate change related impacts are forcing relocation of tribal and indigenous communities, especially in coastal locations. These relocations, and the lack of governance mechanisms or funding to support them, are causing loss of community and culture, health impacts, and economic decline, further exacerbating tribal impoverishment.

Indigenous communities in various parts of the U.S. have observed climatic changes that result in impacts such as the loss of traditional foods, medicines, and water supplies. The Southwest's 182 federally recognized tribes and communities in its U.S.-Mexico border region share particularly high vulnerabilities to climate changes such as high temperatures, drought, and severe storms. Changes in long-term average temperature, precipitation, and declining snowpack have altered the physical and hydrologic environment on the Colorado Plateau, making the Navajo Nation more susceptible to drought impacts.[4] Southwest tribes have observed damage to agriculture and livestock, the loss of springs and medicinal and culturally important plants and animals, and impacts on drinking water supplies.[5] In the Northwest, tribal treaty rights are being affected by the reduction of rainfall and snowmelt in the mountains, melting glaciers, rising temperatures, and shifts in ocean currents.[6] Tribal communities in coastal Louisiana are experiencing climate change induced rising sea levels, along with saltwater intrusion, subsidence, and intense erosion and land loss due to oil and gas extraction, levees, dams, and other river management techniques, forcing them to either relocate or try to find ways to save their land.[7] In Hawai'i, Native peoples have observed a shortening of the rainy season, increasing intensity of storms and flooding, and unpredictable rainfall patterns.[8]

Harvesting traditional foods is important to Native Peoples' culture, health, and economic well being. In the Great Lakes region, wild rice is unable to grow in its traditional range due to warming winters and changing water levels.

## Alaska Natives Face Multiple Climate Impacts

Alaska is home to 40% (229 of 566) of the federally recognized tribes in the United States.[9] The small number of jobs, high cost of living, and rapid social change make rural, predominantly Native, communities highly vulnerable to climate change through impacts on traditional hunting and fishing practices. In Alaska, water availability, quality, and quantity are threatened by the consequences of permafrost thaw, which has damaged community water infrastructure, as well as by the northward extension of diseases such as those caused by the *Giardia* parasite.[10]

Rising temperatures are causing damage in Native villages in Alaska as sea ice declines and permafrost thaws. Resident of Selawik, Alaska, and his granddaughter survey a water line sinking into the thawing permafrost, August 2011.

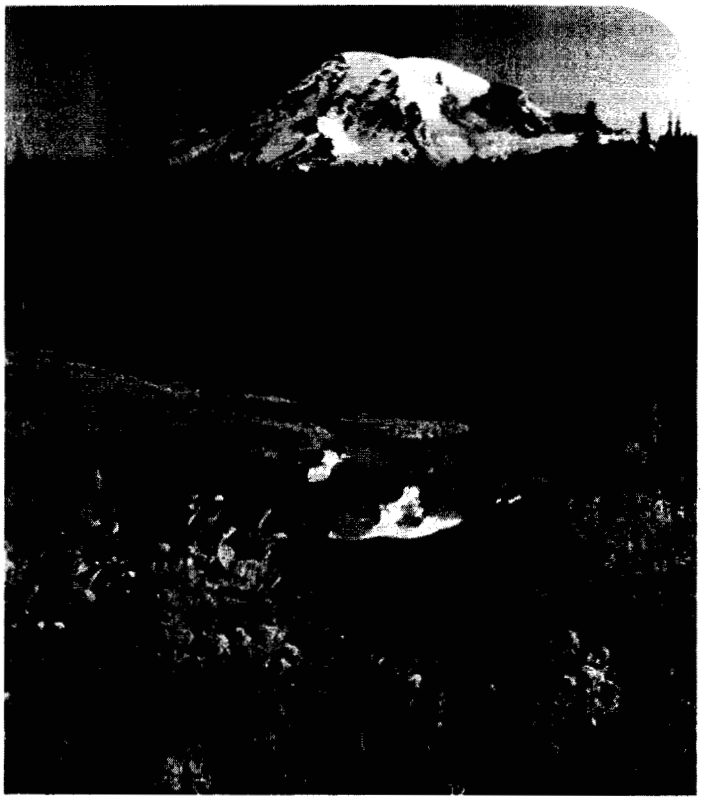
Arctic regional temperatures have risen at twice the global rate over the past few decades.[2] This temperature increase – which is expected to continue with future climate change – is accompanied by significant reductions in sea ice thickness and extent, increased permafrost thaw, more extreme weather and severe storms, and changes in seasonal ice melt/freeze of lakes and rivers, water temperature, sea level, flooding patterns, erosion, and snowfall timing and type.[11,12] These changes increase the number of serious problems for Alaska Native populations, which include: injury from extreme or unpredictable weather and thinning sea ice; changing snow and ice conditions that limit safe hunting, fishing, or herding practices; malnutrition and food insecurity from lack of access to subsistence food; contamination of food and water; increasing economic, mental, and social problems from loss of culture and traditional livelihood; increases in infectious diseases; and loss of buildings and infrastructure from permafrost erosion and thawing, resulting in the relocation of entire communities.[2,10,12,13] For more, see pages 82-83.

# FINDING

**Ecosystems and the benefits they provide to society are being affected by climate change. The capacity of ecosystems to buffer the impacts of extreme events like fires, floods, and severe storms is being overwhelmed.**

Climate change impacts on biodiversity are already being observed in alteration of the timing of critical biological events such as spring bud burst, and substantial range shifts of many species. In the longer term, there is an increased risk of species extinction. These changes have social, cultural, and economic effects. Events such as droughts, floods, wildfires, and pest outbreaks associated with climate change (for example, bark beetles in the West) are already disrupting ecosystems. These changes limit the capacity of ecosystems, such as forests, barrier beaches, and wetlands, to continue to play important roles in reducing the impacts of extreme events on infrastructure, human communities, and other valued resources.

In addition to direct impacts on ecosystems, societal choices about land use and agricultural practices affect the cycling of carbon, nitrogen, phosphorus, sulfur, and other elements, which also influence climate. These choices can affect, positively or negatively, the rate and magnitude of climate change and the vulnerabilities of human and natural systems.



Changes in snowmelt patterns are affecting water supply. Mt. Rainier, Washington.

## KEY MESSAGES: ECOSYSTEMS AND BIODIVERSITY

Climate change impacts on ecosystems reduce their ability to improve water quality and regulate water flows.

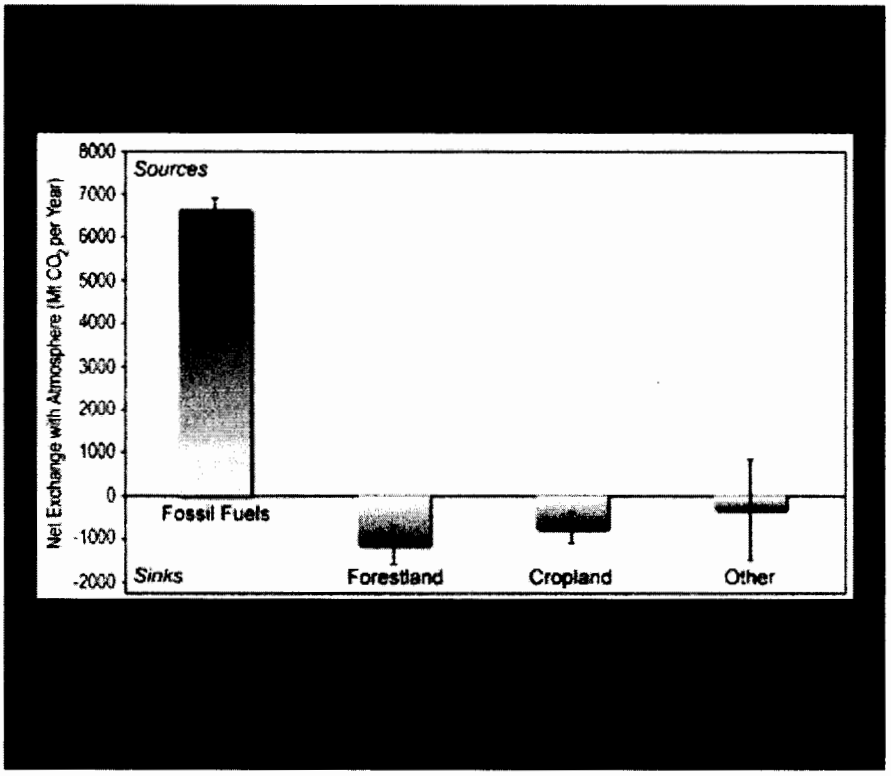
Climate change, combined with other stressors, is overwhelming the capacity of ecosystems to buffer the impacts from extreme events like fires, floods, and storms.

Landscapes and seascapes are changing rapidly, and species, including many iconic species, may disappear from regions where they have been prevalent, or become extinct, altering some regions so much that their mix of plant and animal life will become almost unrecognizable.

Timing of critical biological events, such as spring bud burst, emergence from overwintering, and the start of migrations, has shifted, leading to important impacts on species and habitats.

Whole system management is often more effective than focusing on one species at a time, and can help reduce the harm to wildlife, natural assets, and human well-being that climate disruption might cause.

Climate change affects the living world, including people, through changes in ecosystems, biodiversity, and ecosystem services. Ecosystems entail all the living things in a particular area as well as the non-living things with which they interact, such as air, soil, water, and sunlight. Biodiversity refers to the variety of life, including the number of species, life forms, genetic types, and habitats and biomes (which are characteristic groupings of plant and animal species found in a particular climate). Biodiversity and ecosystems produce a rich array of benefits that people depend on, including fisheries, drinking water, fertile soils for growing crops, climate regulation, inspiration, and aesthetic and cultural values.[1] These benefits are called "ecosystem services" – some of which, like food, are more easily quantified than others, such as climate regulation or cultural values. Changes in many such services are often not obvious to those who depend on them.




Ecosystem services contribute to jobs, economic growth, health, and human well-being. Although we interact with ecosystems and ecosystem services every day, their linkage to climate change can be elusive because they are influenced by so many additional entangled factors.[2] Ecosystem perturbations driven by climate change have direct human impacts, including reduced water supply and quality, the loss of iconic species and landscapes, distorted rhythms of nature, and the potential for extreme events to overwhelm the regulating services of ecosystems.

Forests absorb carbon dioxide and provide many other ecosystem services, such as purifying water and providing recreational opportunities.

Even with these well-documented ecosystem impacts, it is often difficult to quantify human vulnerability that results from shifts in ecosystem processes and services. For example, although it is relatively straightforward to predict how precipitation will change water flow, it is much harder to pinpoint which farms, cities, and habitats will be at risk of running out of water, and even more difficult to say how people will be affected by the loss of a favorite fishing spot or a wildflower that no longer blooms in the region. A better understanding of how a range of ecosystem responses affects people – from altered water flows to the loss of wildflowers – will help to inform the management of ecosystems in a way that promotes resilience to climate change.

Ecosystems also represent potential "sinks" for $CO_2$, which are places where carbon can be stored over the short or long term. At the continental scale, there has been a large and relatively consistent increase in forest carbon stocks over the last two decades,[3] due to recovery from past forest harvest, net increases in forest area, improved forest management regimes, and faster growth driven by climate or fertilization by $CO_2$ and nitrogen.[4,5] Emissions of $CO_2$ from human activities in the United States continue to exceed ecosystem $CO_2$ uptake by more than three times. As a result, North America remains a net source of $CO_2$ into the atmosphere[4] by a substantial margin.

# Finding 10: ECOSYSTEMS

## Key Messages: Forests

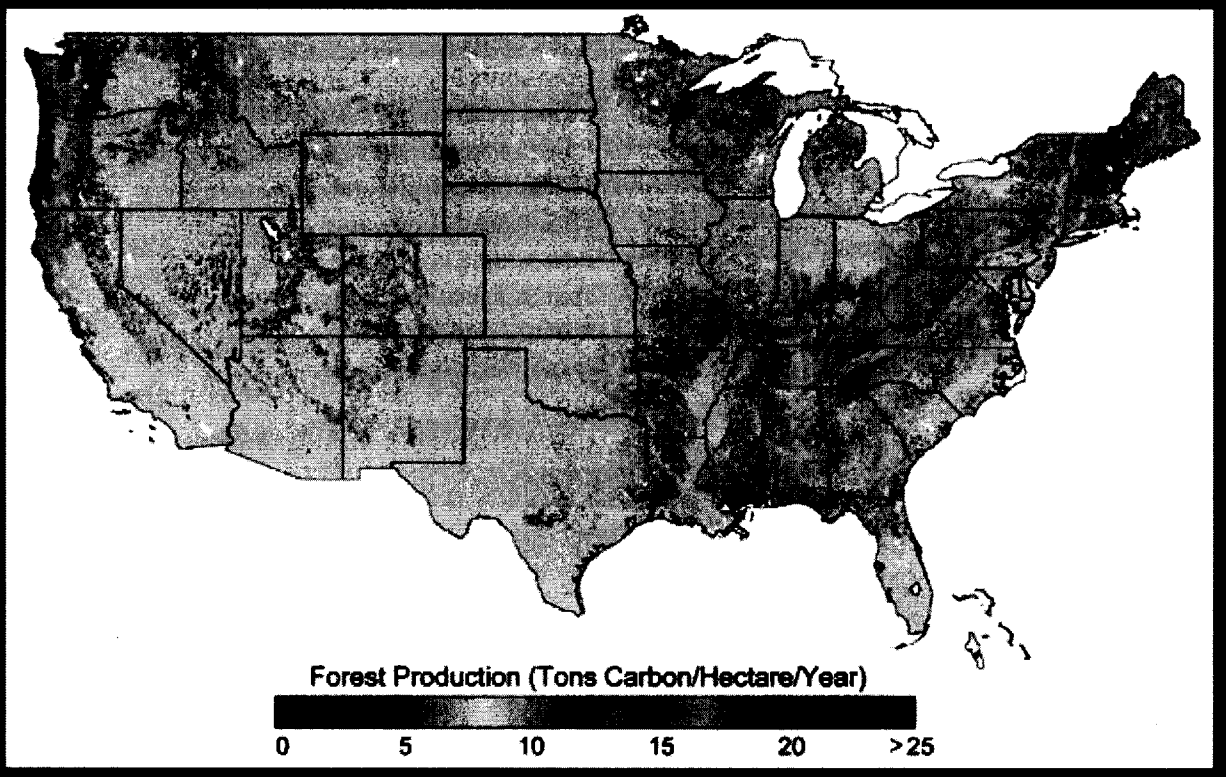
Climate change is increasing the vulnerability of many forests to ecosystem changes and tree mortality through fire, insect infestations, drought, and disease outbreaks.

U.S. forests and associated wood products currently absorb and store the equivalent of about 16% of all carbon dioxide ($CO_2$) emitted by fossil fuel burning in the U.S. each year. Climate change, combined with current societal trends in land use and forest management, is projected to reduce this rate of forest $CO_2$ uptake.

Bioenergy could emerge as a new market for wood and could aid in the restoration of forests killed by drought, insects, and fire.

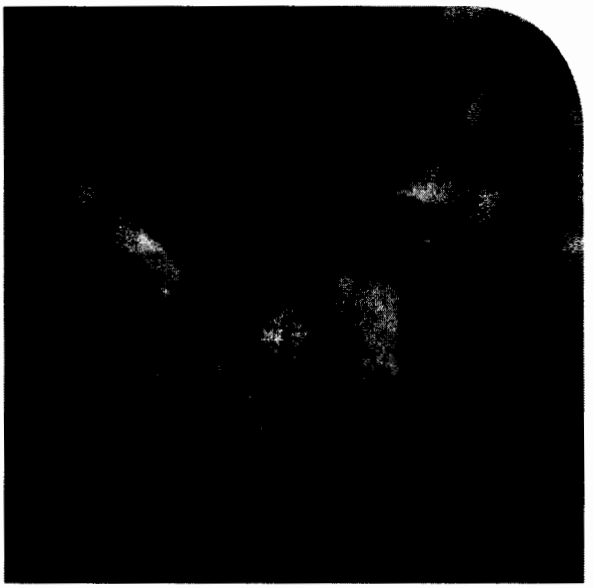
Forest management responses to climate change will be influenced by the changing nature of private forestland ownership, globalization of forestry markets, emerging markets for bioenergy, and U.S. climate change policy.

Forests occur within urban areas, at the interface between urban and rural areas (wildland-urban interface), and in rural areas. Urban forests contribute to clean air, cooling buildings, aesthetics, and recreation in parks. Development in the wildland-urban interface is increasing because of the appeal of owning homes near or in the woods. In rural areas, market factors drive land uses among commercial forestry and land uses such as agriculture. Across this spectrum, forests provide recreational opportunities, cultural resources, and social values such as aesthetics.[6]




largest component of the U.S. carbon sink, but growth rates of forests vary widely across the country. Well-watered forests of the Pacific

Economic factors have historically influenced both the overall area and use of private forestland. Private entities own 56% of U.S. forestlands while 44% of forests are on public lands.[8] Market factors can influence management objectives for public lands, but societal values also influence objectives by identifying benefits such as environmental services not ordinarily provided through markets, like watershed protection and wildlife habitat. Different challenges and opportunities exist for public and for private forest management decisions, especially when climate-related issues are considered on a national scale. For example, public forests typically carry higher levels of forest biomass, are more remote, and tend not to be as intensively managed as private forestlands.[6]



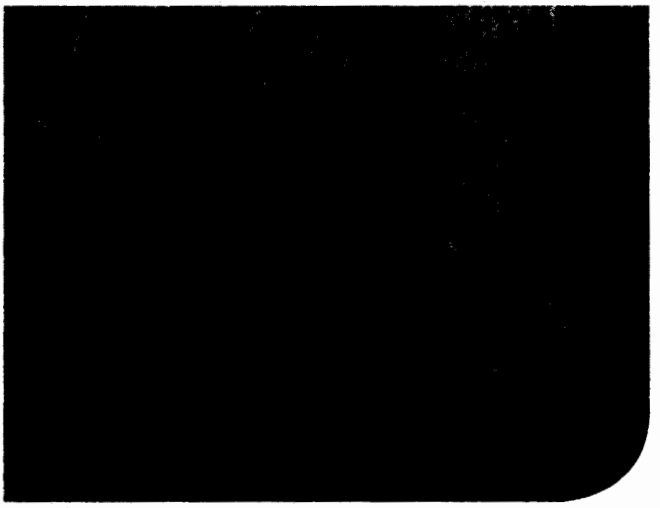
Climate change is increasing vulnerability to wildfires across the western U.S. and Alaska.

Forests provide opportunities to reduce future climate change by capturing and storing carbon, as well as by providing resources for bioenergy production (the use of forest-derived plant-based materials for energy production). The total amount of carbon stored in U.S. forest ecosystems and wood products (such as lumber and pulpwood) equals roughly 25 years of U.S. heat-trapping gas emissions at current rates of emission, providing an important national "sink" that could grow or shrink depending on the extent of climate change, forest management practices, policy decisions, and other factors.[9]

Factors affecting tree death, such as drought, physiological water stress, higher temperatures, and/or pests and pathogens, are often interrelated, which means that isolating a single cause of mortality is rare.[10] However, in western forests there have been recent large scale die-off events due to one or more of these factors,[11,12,13] and rates of tree mortality are well correlated with both rising temperatures and associated increases in evaporative water demand.[14]

A Montana saw mill owner inspects a lodgepole pine covered in pitch tubes that show the tree trying, unsuccessfully, to defend itself against the bark beetle. The bark beetle is killing lodgepole pines throughout the western United States.

Fire is another important forest disturbance. Given strong relationships between climate and fire, even when modified by land use and management, such as fuel treatments, projected climate changes suggest that western forests in the U.S. will be increasingly affected by large and intense fires that occur more frequently.[13,15]



Warmer winters allow more insects to survive the cold season, and a longer summer allows some insects to complete two life cycles in a year instead of one. Drought stress reduces trees' ability to defend against boring insects. Above, beetle-killed trees in Rocky Mountain National Park in Colorado.

# Finding 10: ECOSYSTEMS

## Key Messages: Land Use and Land Cover Change

Choices about land-use and land-cover patterns have affected and will continue to affect how vulnerable or resilient human communities and ecosystems are to the effects of climate change.

Land-use and land-cover changes affect local, regional, and global climate processes.

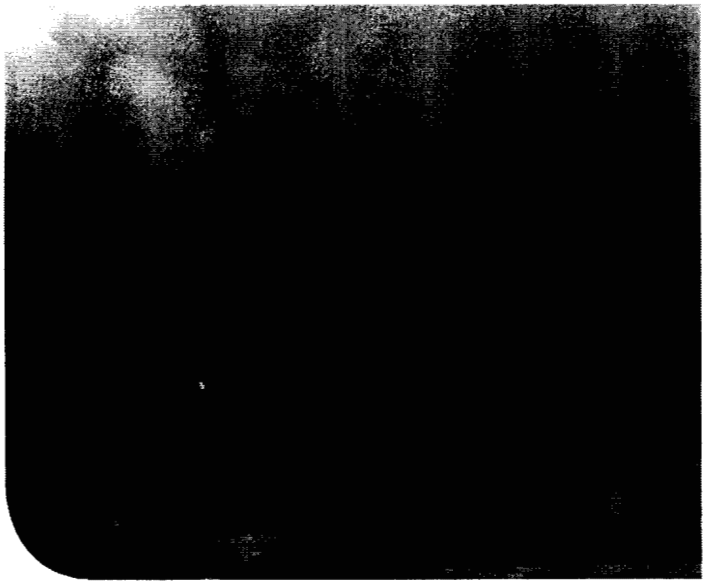
Individuals, businesses, non-profits, and governments have the capacity to make land-use decisions to adapt to the effects of climate change.

Choices about land use and land management may provide a means of reducing atmospheric greenhouse gas levels.

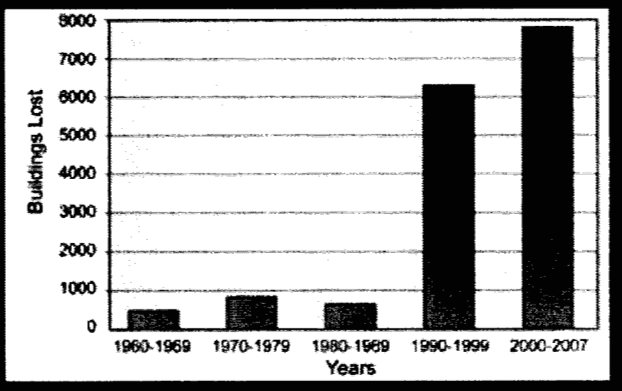
Land-use and land-cover changes affect climate processes. Above, development along Colorado's Front Range.

In addition to emissions of heat-trapping greenhouse gases from energy, industrial, agricultural, and other activities, humans affect climate through changes in land use (activities taking place on land, like growing food, cutting trees, or building cities) and land cover (the physical characteristics of the land surface, including grain crops, trees, or concrete). For example, cities are warmer than the surrounding countryside because the greater extent of paved areas in cities affects how water and energy are exchanged between the land and the atmosphere, and how exposed the population is to extreme heat events. Decisions about land use and land cover can therefore affect, positively or negatively, how much our climate will change, and what kind of vulnerabilities humans and natural systems will face as a result.

The combination of residential location choices with wildfire occurrence dramatically illustrates how the interactions between land use and climate processes can affect climate change impacts and vulnerabilities. Low-density (suburban and exurban) housing patterns in the U.S. have expanded, and are projected to continue to expand.[16] One result is a rise in the amount of construction in forests and other wildlands[17] that in turn has increased the exposure of houses, other structures, and people to damages from wildfires. The number of buildings lost in the 25 most destructive fires in California history increased significantly in the 1990s and 2000s compared to the previous three decades, as shown in the figure.[18] These losses are one example of how changing development patterns can interact with a changing climate to create dramatic new risks. In the western U.S., increasing frequencies of large wildfires and longer wildfire durations are strongly associated with increased spring and summer temperatures and an earlier spring snowmelt.[19]



Construction near forests and wildlands is growing. Here, wildfire approaches a housing development.




boom in what is known as the "wildland-urban interface." This figure

wildland-urban interface fires in California history from 1960 to 2007 (Figure source: Stephens et al. 2009

## KEY MESSAGES: BIOGEOCHEMICAL CYCLES

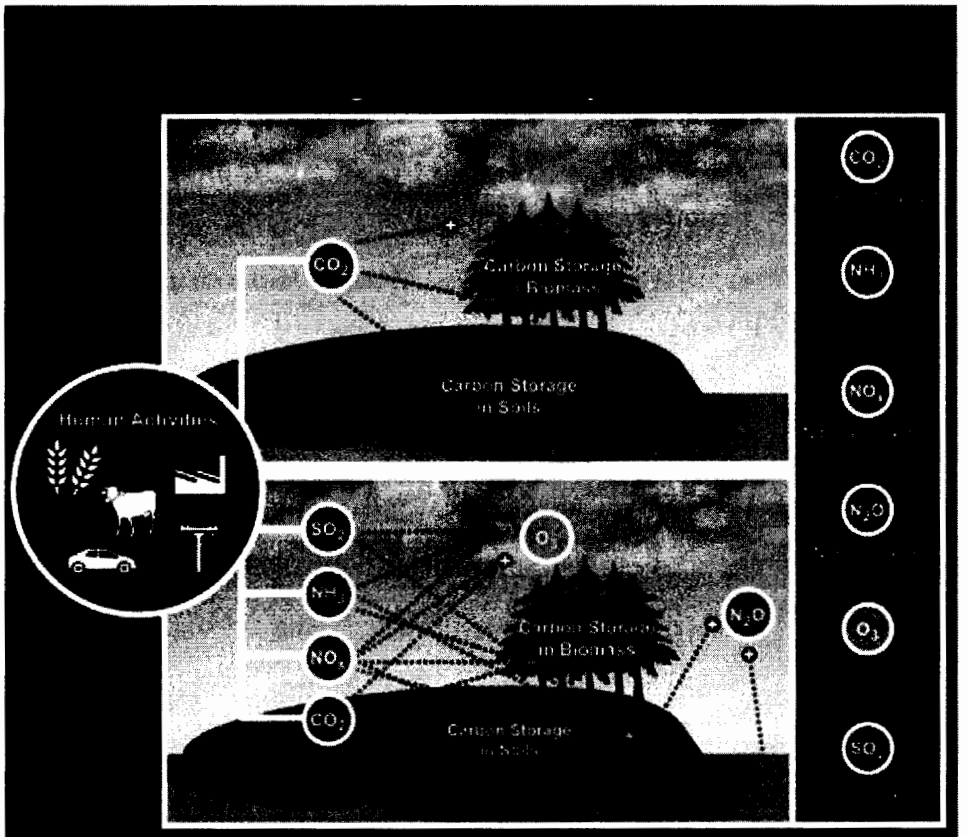
**Human activities have increased atmospheric carbon dioxide by about 40% over pre-industrial levels and more than doubled the amount of nitrogen available to ecosystems. Similar trends have been observed for phosphorus and other elements, and these changes have major consequences for biogeochemical cycles and climate change.**

**In total, land in the U.S. absorbs and stores an amount of carbon equivalent to about 17% of annual U.S. fossil fuel emissions. U.S. forests and associated wood products account for most of this land sink. The effect of this carbon storage is to partially offset warming from emissions of $CO_2$ and other greenhouse gases.**

**Altered biogeochemical cycles together with climate change increase the vulnerability of biodiversity, food security, human health, and water quality to changing climate. However, natural and managed shifts in major biogeochemical cycles can help limit rates of climate change.**

Biogeochemical cycles involve the fluxes of chemical elements among different parts of the Earth: from living to non-living, from atmosphere to land to sea, and from soils to plants. Human activities have mobilized Earth elements and accelerated their cycles – for example, more than doubling the amount of reactive nitrogen that has been added to the biosphere since pre-industrial times.[20]

Global-scale alterations of biogeochemical cycles are occurring from human activities, both in the U.S. and elsewhere, with impacts and implications now and into the future. Global carbon dioxide emissions are the most significant driver of human-caused climate change. But human-accelerated cycles of other elements, especially nitrogen, phosphorus, and sulfur, also influence climate. These elements can affect climate directly and indirectly, amplifying or reducing the impacts of climate change. Climate change is having, and will continue to have, impacts on biogeochemical cycles, which will alter future impacts on climate and affect our capacity to cope with coupled changes in climate, biogeochemistry, and other factors.



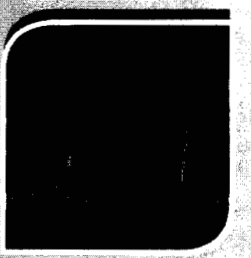

in the atmosphere exerts a warming influence, illustrated by the plus sign.

creasing the warming influence. On the other hand, it also leads to soil acidification, decreasing nutrients and therefore adding to the warming influence.

**Mussel and barnacle** beds have declined or disappeared along parts of the Northwest coast due to higher temperatures and drier conditions.[21]

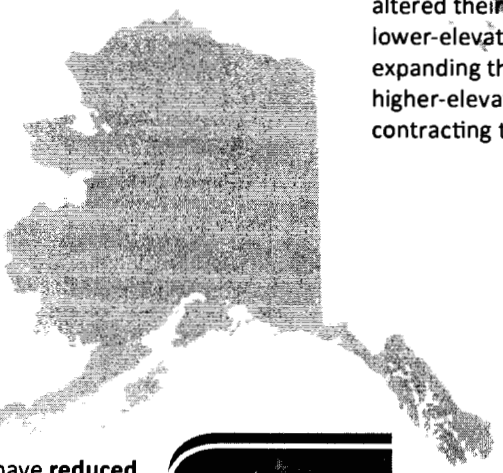
**Conifers** in many western forests have died, experiencing mortality rates up to 87%, from warming-induced changes in the prevalence of pests and pathogens and drought stress.[12]

In response to climate-related habitat change, many **small mammal species** have altered their ranges, with lower-elevation species expanding their ranges and higher-elevation species contracting their ranges.[23]



**Quaking aspen tree dominated systems are experiencing declines in the western U.S. due to** drought stress during the last decade.[24]

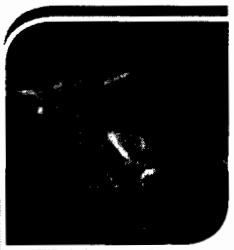
Decreases in the weight and **survival of polar bear offspring** along the north Alaska coast have been linked to changes in mother's body size and/or condition following years with lower availability of optimal sea ice habitat.[22]



Warmer springs in Alaska have **reduced calving success in caribou** populations as a result of earlier onset of plant emergence and decreased spatial variation in growth and availability of forage to breeding caribou.[25]

Climate change is likely to influence **elevational patterns in vegetation** as Hawaiian mountain vegetation types vary in their sensitivity to changes in moisture availability.[26]

Warming-induced interbreeding was detected between southern and northern flying squirrels in the Great Lakes region of Ontario, Canada, and Pennsylvania after a series of warm winters created more overlap in their habitat ranges.[27]

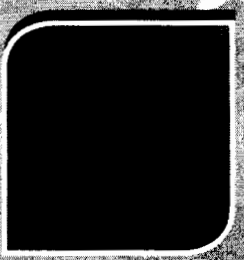


In the Northwest Atlantic, 24 out of 36 commercial fish stocks showed significant range shifts, both in latitude and depth, between 1968 and 2007 in response to increased sea surface and bottom temperatures.[29]

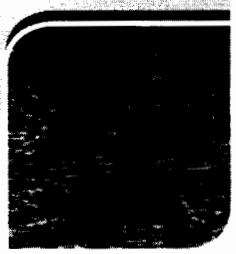
First flowering dates plant species in North Dakota have shifted significantly in more than 40% of the 178 species examined, with the greatest changes observed during the two warmest years of the study.[28]

Widespread declines in body size of resident and migrant birds in western Pennsylvania were documented over a 40-year period. The higher the average regional temperatures in the preceding year, the smaller the birds.[31]

Studies of black ratsnake populations in Illinois and Texas suggest that snake populations, particularly in the northern parts of their ranges, could benefit from rising temperatures if there are no negative impacts on their habitat and prey.[30]



Seedling survival for nearly 20 species of trees decreased during years of lower rainfall in the Southern Appalachians and the Piedmont areas, indicating reductions in native species.[33]



Climatic fluctuations increase the probability of infidelity in birds that are normally monogamous. This increases gene exchange and the likelihood of offspring survival.[32]

Some warm-water fishes have moved northwards, and some tropical and subtropical fishes in the northern Gulf of Mexico have increased in temperate ocean habitat.[34] Similar shifts and invasions have been documented in Long Island Sound and Narragansett Bay in the Atlantic Ocean.[35]

# FINDING

## Ocean waters are becoming warmer and more acidic, broadly affecting ocean circulation, chemistry, ecosystems, and marine life.

More acidic waters inhibit the formation of shells, skeletons, and coral reefs. Warmer waters harm coral reefs and alter the distribution, abundance, and productivity of many marine species. The rising temperature and changing chemistry of ocean water combine with other stresses, such as overfishing and coastal and marine pollution, to alter marine-based food production and harm fishing communities.

### Key Messages: Oceans

The rise in ocean temperature over the last century will persist into the future, with continued large impacts on climate, ocean circulation, chemistry, and ecosystems.

The ocean currently absorbs about a quarter of human-caused carbon dioxide emissions to the atmosphere, leading to ocean acidification that will alter marine ecosystems in dramatic yet uncertain ways.

Significant habitat loss will continue to occur due to climate change for many species and areas, including Arctic and coral reef ecosystems, while habitat in other areas and for other species will expand. These changes will consequently alter the distribution, abundance, and productivity of many marine species.

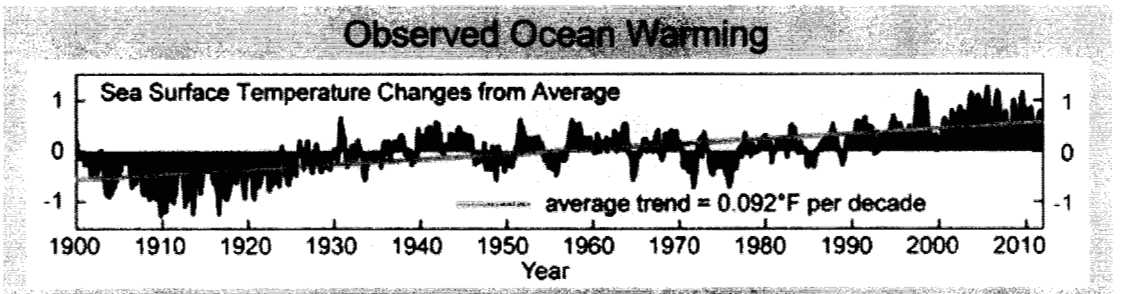
Rising sea surface temperatures have been linked with increasing levels and ranges of diseases in humans and marine life, including corals, abalones, oysters, fishes, and marine mammals.

Climate changes that result in conditions substantially different from recent history may significantly increase costs to businesses as well as disrupt public access and enjoyment of ocean areas.

In response to observed and projected climate impacts, some existing ocean policies, practices, and management efforts are incorporating climate change impacts. These initiatives can serve as models for other efforts and ultimately enable people and communities to adapt to changing ocean conditions.

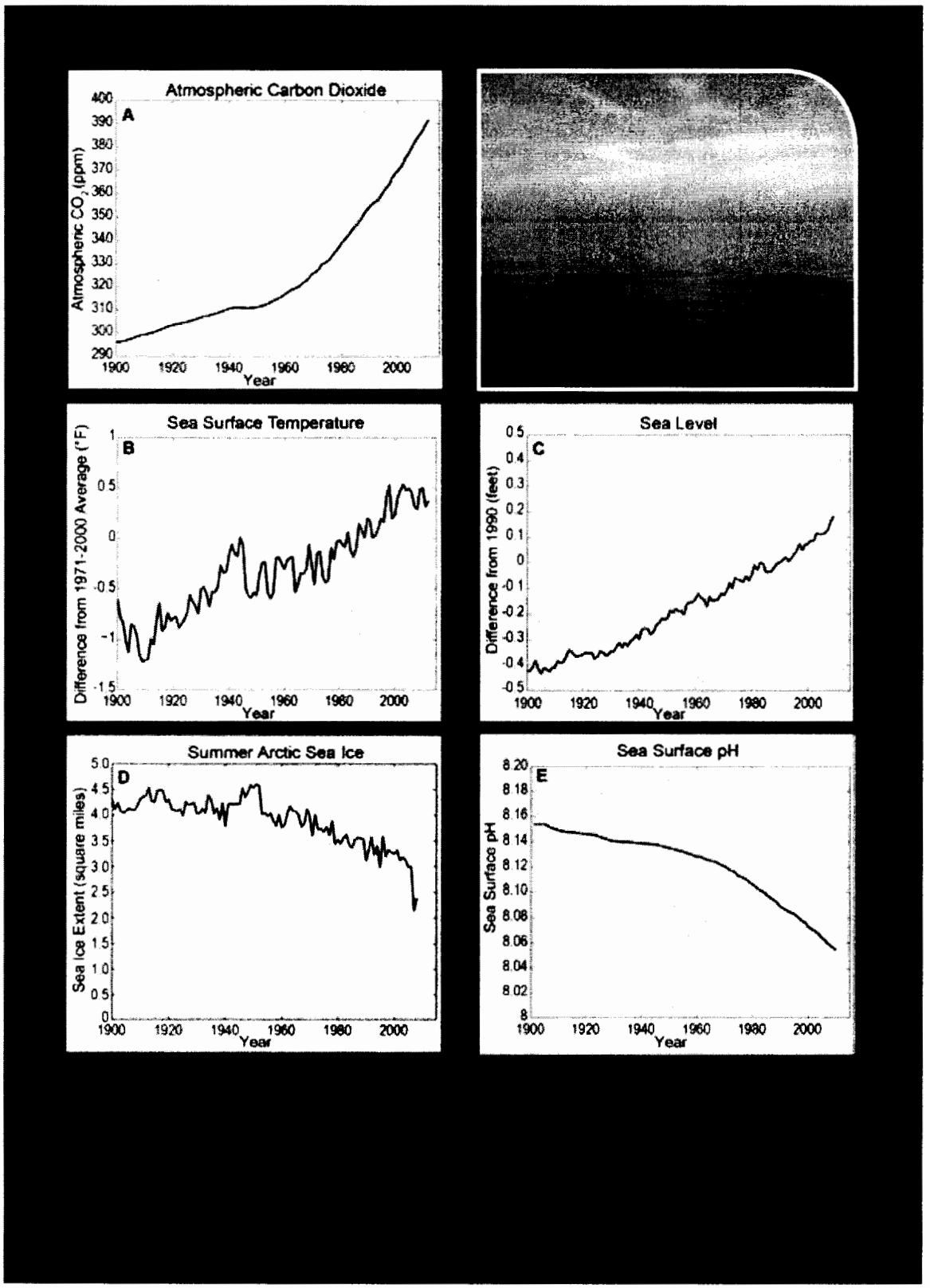
As a nation, we depend on the oceans for seafood, recreation and tourism, cultural heritage, transportation of goods, and, increasingly, energy and other critical resources. The U.S. Exclusive Economic Zone extends 200 nautical miles seaward from the coasts, spanning an area about 1.7 times the land area of the continental United States. This vast region is host to a rich diversity of marine plants and animals and a wide range of ecosystems, from tropical coral reefs to Arctic waters covered with sea ice.

Oceans support vibrant economies and coastal communities with numerous businesses and jobs. More than 160 million people live in the coastal watershed counties of the U.S., and population in this zone is expected to grow in the future. The oceans help regulate climate, absorb carbon dioxide, and strongly influence weather patterns far into the continental interior. Ocean issues touch all of us in both direct and indirect ways.[1,2]




Sea surface temperatures for the ocean surrounding the U.S. and its territories have risen by more than 0.9°F over the past century. (Figure source: adapted from Chavez et al. 2011[3]).

Changing climate conditions are already affecting these valuable marine ecosystems and the array of resources and services we derive from the sea. Some climate trends, such as rising seawater temperatures and ocean acidification, are common across much of the coastal areas and open ocean worldwide. The biological responses to climate change often vary from region to region, depending on the different combinations of species, habitats, and other attributes of local systems.



# Finding 11: OCEANS

The oceans cover more than two-thirds of the Earth's surface and play a very important role in regulating the Earth's climate and in climate change. Today, the world's oceans absorb more than 90% of the heat trapped by increasing levels of $CO_2$ and other greenhouse gases in the atmosphere due to human activities. This extra energy warms the ocean, causing it to expand and sea levels to rise. Of the global sea level rise observed over the last 35 years, about 40% is due to this warming of the water. Most of the rest is due to the melting of glaciers and ice sheets. Ocean levels are projected to rise another 1 to 4 feet over this century, with the precise number largely depending on the amount of global temperature rise and polar ice sheet melt.

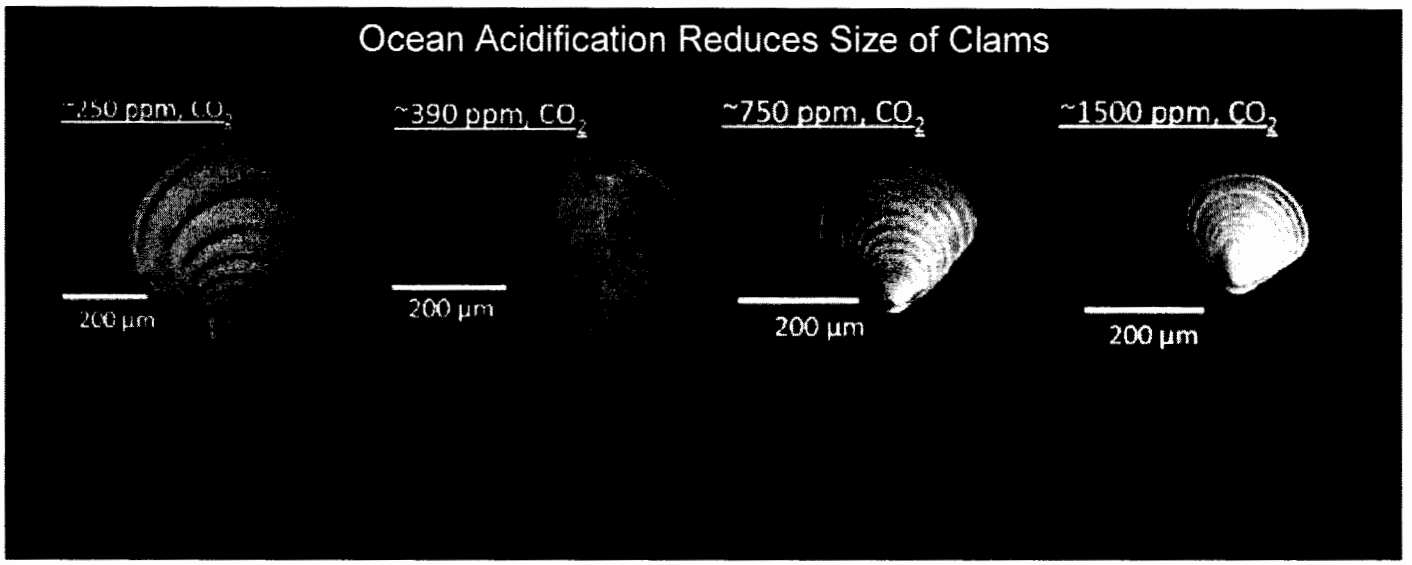
Observations from past climate combined with climate model projections of the future suggest that over the next 100 years the Atlantic Ocean's overturning circulation (known as the "Ocean Conveyor Belt") could slow down as a result of climate change. These ocean currents carry warm water northward across the equator in the Atlantic Ocean, warming the North Atlantic (and Europe) and cooling the South Atlantic. A slowdown of the Conveyor Belt would increase regional sea level rise along the east coast of the U.S. and change temperature patterns in Europe and rainfall in Africa and the Americas, but would not lead to global cooling.

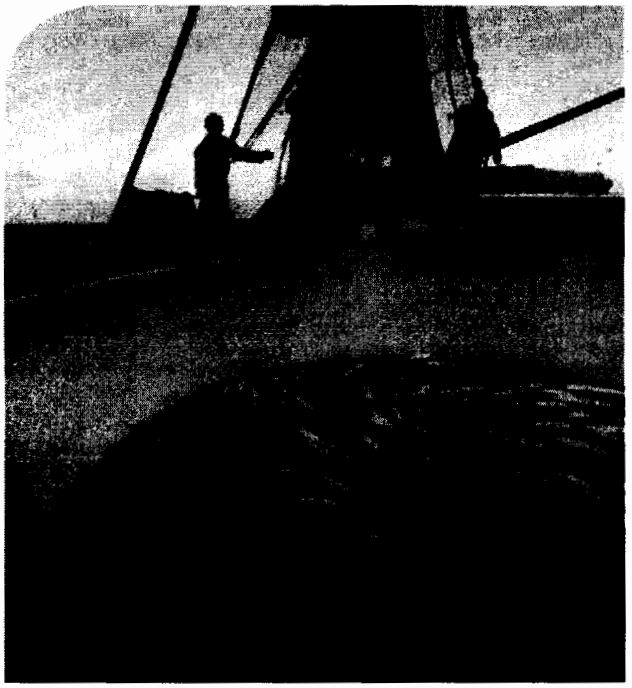
Warming ocean waters also affect marine ecosystems like coral reefs, which can be very sensitive to temperature changes. When water temperatures become too high, coral expel the algae (called zooxanthellae) which help nourish them and give them their vibrant color. This is known as coral bleaching. If the high temperatures persist, the coral die.

## Acidification

In addition to the warming, the acidity of seawater is increasing as a direct result of increasing atmospheric $CO_2$. Due to human-induced emissions, atmospheric $CO_2$ has risen by about 40% above pre-industrial levels.[5,6] About a quarter of this excess $CO_2$ has dissolved into the oceans, thereby changing seawater chemistry and decreasing pH (making seawater more acidic).[2,7] There has been about a 30% increase in surface ocean acidity since pre-industrial times.[8] Ocean acidification will continue in the future due to the interaction of atmospheric $CO_2$ and ocean water. Regional differences in ocean pH occur as a result of variability in regional or local conditions, such as upwelling that brings subsurface waters up to the surface.[9] Locally, coastal waters and estuaries can also exhibit acidification as the result of pollution and excess nutrient inputs.

More acidic waters create repercussions along the marine food chain. The chemical changes caused by the uptake of $CO_2$ make it more difficult for living things to form and maintain calcium carbonate shells and skeletons and increases erosion of coral reefs,[10] resulting in alterations in marine ecosystems that will become more severe as present-day trends in acidification continue or accelerate.[11] Tropical corals are particularly susceptible to the combination of ocean acidification and ocean warming, which would threaten the rich and biologically diverse coral reef habitats. See page 33.

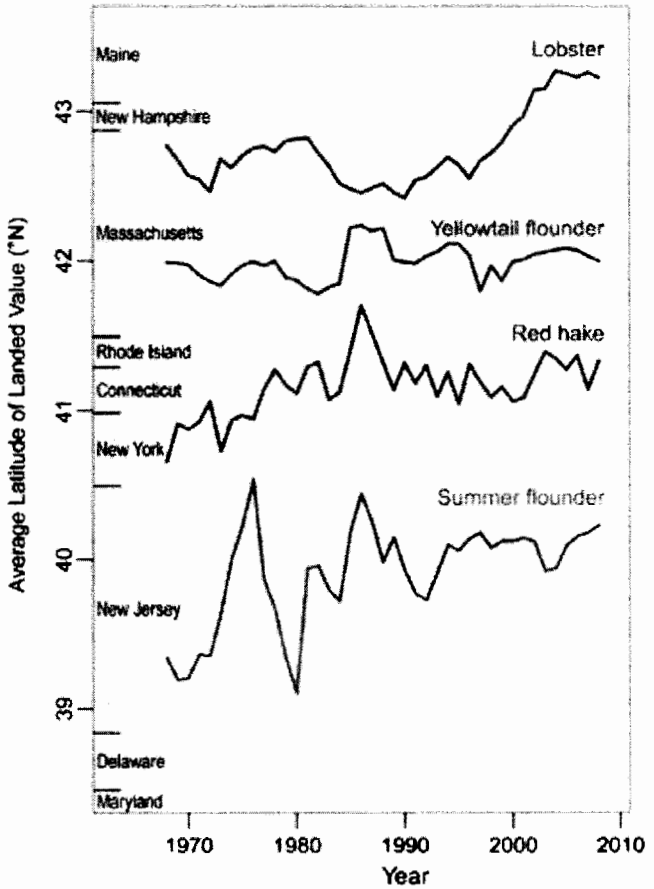


## Diseases

There has been a significant increase in reported incidences of disease in corals, urchins, mollusks, marine mammals, turtles, and echinoderms (a group of some 70,000 marine species including sea stars, sea urchins, and sand dollars) over the last several decades.[14,15] Increasing disease outbreaks in the ocean affecting ecologically important species, which provide critically important habitat for other species such as corals, algae, and eelgrass, have been linked with rising temperatures.[15,16,17] Disease increases mortality and can reduce abundance for affected populations as well as fundamentally change ecosystems by altering habitat or species relationships. For example, loss of eelgrass beds due to disease can reduce critical nursery habitat for several species of commercially important fish.[17,18]

## Fisheries Shifting North




Ocean species are shifting northward along U.S. coastlines as ocean temperatures rise. As a result, over the past 40 years, more northern ports have gradually increased their landings of four marine species compared to earlier landings. While some species move northward out of an area, other species move in from the south. This kind of information can inform decisions about how to adapt to climate change. Such adaptations take time and have costs, as local knowledge and equipment are geared to the species that have long been present in an area. (Figure source: adapted from Pinsky and Fogerty 2012[19]).

# FINDING

**Planning for adaptation (to address and prepare for impacts) and mitigation (to reduce future climate change, for example by cutting emissions) is becoming more widespread, but current implementation efforts are insufficient to avoid increasingly negative social, environmental, and economic consequences.**

Actions to reduce emissions, increase carbon uptake, adapt to a changing climate, and increase resilience to impacts that are unavoidable can improve public health, economic development, ecosystem protection, and quality of life.

Over the past few years, the focus moved from *"Is climate changing?"* to *"Can society manage unavoidable changes and avoid unmanageable changes?"*[1,2] Research demonstrates that both mitigation (efforts to reduce future climate changes) and adaptation (efforts to reduce the vulnerability of society to climate change impacts) are needed in order to minimize the damages from human-caused climate change and to adapt to the pace and ultimate magnitude of changes that will occur.[3] Adaptation and mitigation are closely linked; adaptation efforts will be more difficult, more costly, and less likely to succeed if significant mitigation actions are not taken.[2,4]

## KEY MESSAGES: ADAPTATION

Substantial adaptation planning is occurring in the public and private sectors and at all levels of government; however, few measures have been implemented and those that have appear to be incremental changes.

Barriers to implementation of adaptation include limited funding, policy and legal impediments, and difficulty in anticipating climate related changes at local scales.

There is no "one-size fits all" adaptation, but there are similarities in approaches across regions and sectors. Sharing best practices, learning by doing, and iterative and collaborative processes including stakeholder involvement, can help support progress.

Climate change adaptation actions often fulfill other societal goals, such as sustainable development, disaster risk reduction, or improvements in quality of life, and can therefore be incorporated into existing decision-making processes.

Vulnerability to climate change is exacerbated by other stresses such as pollution and habitat fragmentation. Adaptation to multiple stresses requires assessment of the composite threats as well as tradeoffs amongst costs, benefits, and risks of available options.

The effectiveness of climate change adaptation has seldom been evaluated, because actions have only recently been initiated, and comprehensive evaluation metrics do not yet exist.

Adaptation actions can be implemented reactively, after changes in climate occur, or proactively, to prepare for a changing climate.[5] Proactively preparing can reduce the harm from certain climate change impacts, such as increasingly intense extreme events, shifting zones for agricultural crops, and rising sea levels, while also facilitating a more rapid and efficient response to changes as they happen.

**FEDERAL:** A November 2013 Executive Order calls for, among other things, modernizing federal programs to support climate resilient investments, managing lands and waters for climate preparedness and resilience, creating a Council on Climate Preparedness and Resilience, and the creation of a State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience.[6] Federal agencies are all required to plan for adaptation. Actions include coordinated efforts at the White House, regional and cross-sector efforts, agency-specific adaptation plans, and support for local-level adaptation planning and action.

**STATE:** States have become important actors in national climate change related efforts. State governments can create policies and programs that encourage or discourage adaptation at other governance scales (such as counties or regions)[7] through regulation and by serving as laboratories for innovation.[8] Although many of these actions are not specifically designed to address climate change, they often include climate adaptation components. Many state level climate change-specific adaptation actions focus on planning. As of winter 2012, at least 15 states had completed

climate adaptation plans; four states are in the process of writing their plans; and seven states have made recommendations to create state-wide adaptation plans.[9]

**TRIBES:** Tribal governments have been particularly active in assessing and preparing for the impacts of climate change. Some are using traditional knowledge gleaned from elders, stories, and songs and combining this knowledge with downscaled climate data to inform decision-making.[10] Others have integrated climate change into decision-making in major sectors, such as education, fisheries, social services, and human health.[11]

**LOCAL:** Most adaptation efforts to date have occurred at local and regional levels. A survey of 298 U.S. local governments shows 59% engaged in some form of adaptation planning.[12] Mechanisms used by local governments to prepare for climate change include: land-use planning; provisions to protect infrastructure and ecosystems; regulations related to the design and construction of buildings, road, and bridges; and preparation for emergency response and recovery.[13] Local adaptation planning and actions are unfolding in municipalities of different sizes. Regional agencies and regional aggregations of governments too are taking actions.[14]

**BUSINESS:** Many companies are concerned about how climate change will affect feedstock, water quality, infrastructure, core operations, supply chains, and customers' ability to use products and services.[15] Some companies are taking action to avoid risk and explore potential opportunities, such as: developing or expanding into new products, services, and operational areas; extending growing seasons and hours of operation; and responding to increased demand for existing products and services.[15,16]

**NGOs:** Non-governmental organizations have played significant roles in the national effort to prepare for climate change by providing assistance to stakeholders that includes planning guidance, implementation tools, explanations of climate information, best practices, and help with bridging the science-policy divide.

See regional sections of this Highlights report for additional examples of adaptation efforts. Selected federal, state, tribal, and local actions appear in the Adaptation chapter of the full National Climate Assessment.

Adaptation to climate change is in a nascent stage. The federal government is beginning to develop institutions and practices necessary to cope with climate change. While the federal government will remain the funder of emergency responses following extreme events for which communities were not adequately prepared, an emerging federal role is to enable and facilitate early adaptation within states, regions, local communities, and the public and private sectors.[5] The approaches include working to limit current institutional constraints to effective adaptation, funding pilot projects, providing useful and usable adaptation information – including disseminating best practices, and helping develop tools and techniques to evaluate successful adaptation.

Despite emerging efforts, the pace and extent of adaptation activities are not proportional to the risks to people, property, infrastructure, and ecosystems from climate change; important opportunities available during the normal course of planning and management of resources are also being overlooked. A number of state and local governments are engaging in adaptation planning, but most have not taken action to implement the plans.[17] Some companies in the private sector and numerous non-governmental organizations have also taken early action, particularly in capitalizing on the opportunities associated with facilitating adaptive actions. Actions and collaborations have occurred across all scales. At the same time, barriers to effective implementation continue to exist.

The Southeast Florida Regional Compact is a joint commitment among Broward, Miami-Dade, Palm Beach, and Monroe Counties to partner in reducing heat-trapping gas emissions and adapting to climate impacts, including in transportation, water resources, natural resources, agriculture, and disaster risk reduction. Through the collaboration of county, state, and federal agencies, a comprehensive action plan was developed that includes hundreds of actions. Notable policies include regional collaboration to revise building codes and land development regulations to discourage new development or post-disaster redevelopment in vulnerable areas.[18]

Miami-Dade County staff leading workshop on incorporating climate change considerations in local planning.

# Finding 12: RESPONSES

## Key Messages: Mitigation

Carbon dioxide is removed from the atmosphere by natural processes at a rate that is roughly half of the current rate of emissions from human activities. Therefore, mitigation efforts that only stabilize global emissions will not reduce atmospheric concentrations of carbon dioxide, but will only limit their rate of increase. The same is true for other long-lived greenhouse gases.

To meet the lower emissions scenario (B1) used in this assessment, global mitigation actions would need to limit global carbon dioxide emissions to a peak of around 44 billion tons per year within the next 25 years and decline thereafter. In 2011, global emissions were around 34 billion tons, and have been rising by about 0.9 billion tons per year for the past decade. Therefore, the world is on a path to exceed 44 billion tons per year within a decade.

Over recent decades, the U.S. economy has emitted a decreasing amount of carbon dioxide per dollar of gross domestic product. Between 2008 and 2012, there was also a decline in the total amount of carbon dioxide emitted annually from energy use in the U.S. as a result of a variety of factors, including changes in the economy, the development of new energy production technologies, and various government policies.

Carbon storage in land ecosystems, especially forests, has offset around 17% of annual U.S. fossil fuel emissions of greenhouse gases over the past several decades, but this carbon "sink" may not be sustainable.

Both voluntary activities and a variety of policies and measures that lower emissions are currently in place at federal, state, and local levels in the U.S., even though there is no comprehensive national climate legislation. Over the remainder of this century, aggressive and sustained greenhouse gas emission reductions by the U.S. and by other nations will be needed to reduce global emissions to a level consistent with the lower scenario (B1) analyzed in this assessment.

The amount of future climate change will largely be determined by choices society makes about emissions. Lower emissions of heat trapping gases and particles mean less future warming and less severe impacts; higher emissions mean more warming and more severe impacts. Efforts to limit emissions or increase carbon uptake fall into a category of response options known as "mitigation."

Carbon dioxide accounted for 84% of total U.S. greenhouse gas emissions in 2011.[19] The vast majority (97%) of this $CO_2$ comes from energy use. Thus, the most direct way to reduce future climate change is to reduce emissions from the energy sector by using energy more efficiently and switching to lower carbon energy sources.

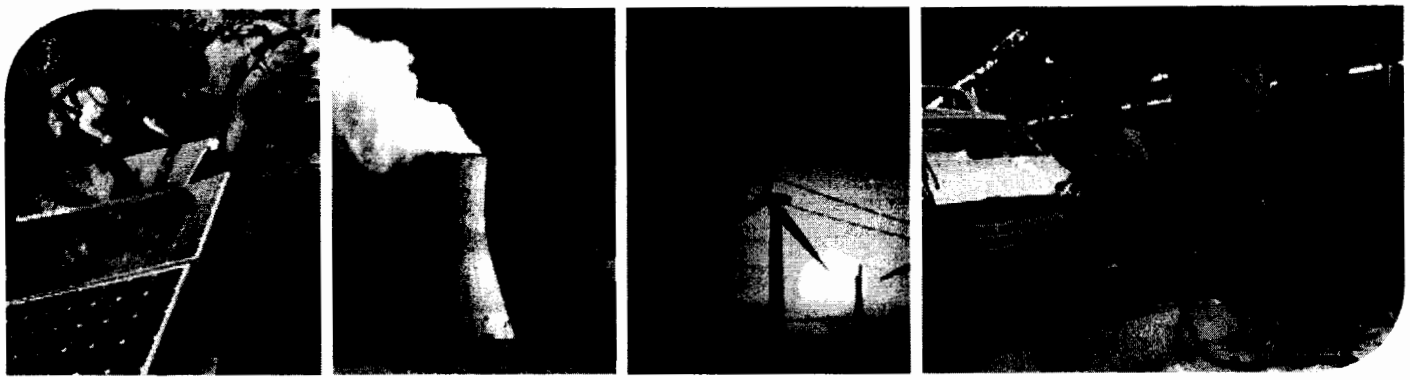
In 2011, 41% of U.S. carbon dioxide emissions were attributable to liquid fuels (petroleum), followed closely by solid fuels (principally coal in electric generation), and to a lesser extent by natural gas.[19] Electric power generation (coal and gas) and transportation (petroleum) are the sectors predominantly responsible.

Achieving the lower emissions path (B1) analyzed in this assessment would require substantial decarbonization of the global economy by the end of this century, implying a fundamental transformation of the global energy system. The principal types of national actions that could effect such changes include putting a price on emissions, setting regulations and standards for activities that cause emissions, changing subsidy programs, and direct federal expenditures. Market-based approaches include cap-and-trade programs that establish markets for trading emissions permits, analogous to the Clean Air Act provisions for sulfur dioxide reductions.

None of these price-based measures has been implemented at the national level in the U.S., though cap-and-trade systems are in place in California and in the Northeast's Regional Greenhouse Gas Initiative. A wide range of governmental actions are underway at federal, state, regional, and city levels using other measures, as are voluntary efforts, that can reduce the U.S. contribution to total global emissions. Many, if not most of these programs are motivated by other policy objectives – energy, transportation, and air pollution – but some are directed specifically at greenhouse gas emissions, including:

- **Energy Efficiency:** Reduction in $CO_2$ emissions from energy end-use and infrastructure through the adoption of energy-efficient components and systems – including buildings, vehicles, manufacturing processes, applicances, and electric grid systems;

- **Low-Carbon Energy Sources:** Reduction of $CO_2$ emissions from energy supply through the promotion of renewables (such as wind, solar, and bioenergy), nuclear energy, and coal and natural gas electric generation with carbon capture and storage; and



Programs underway that reduce carbon dioxide emissions include the promotion of solar, nuclear, and wind power, and efficient vehicles.

- **Non-$CO_2$ Emissions:** Reduction of emissions of non-$CO_2$ greenhouse gases and black carbon (soot); for example, by lowering methane emissions from energy and waste, transitioning to climate-friendly alternatives to HFCs, cutting methane and nitrous oxide emissions from agriculture, and improving combustion efficiency and means of particulate capture.

## Federal Actions

The Federal Government has implemented a number of measures that promote energy efficiency, clean technologies, and alternative fuels.[20] Sample federal measures are provided in Table 27.1 in the Mitigation chapter in the full report. These actions include greenhouse gas regulations, other rules and regulations with climate co-benefits, various standards and subsidies, research and development, and federal procurement practices.

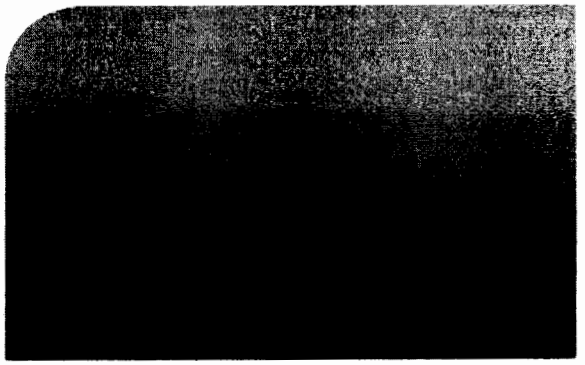
For example, the Environmental Protection Agency has the authority to regulate greenhouse gas emissions under the Clean Air Act. The Department of Energy provides most of the funding for energy research and development, and also regulates the efficiency of appliances.

The Administration's Climate Action Plan[21] builds on these activities with a broad range of mitigation, adaptation, and preparedness measures. The mitigation elements of the plan are in part a response to the commitment made during the 2010 Cancun Conference of the Parties of the United Nations Framework Convention on Climate Change to reduce U.S. emissions of greenhouse gases by about 17% below 2005 levels by 2020. Actions proposed in the Plan include:

- limiting carbon emissions from both new and existing power plants;
- continuing to increase the stringency of fuel economy standards for automobiles and trucks;
- continuing to improve energy efficiency in the buildings sector;
- reducing the emissions of non-$CO_2$ greenhouse gases through a variety of measures;
- increasing federal investments in cleaner, more efficient energy sources for both power and transportation; and
- identifying new approaches to protect and restore our forests and other critical landscapes, in the presence of a changing climate.

Actions to reduce greenhouse gas emissions can yield co-benefits for objectives apart from climate change, such as energy security, ecosystem services, and biodiversity.[22] In particular, there are health co-benefits from reductions in air pollution. Because greenhouse gases and other air pollutants share common sources, particularly from fossil fuel combustion, actions to reduce greenhouse gas emissions also reduce other air pollutants.

The human health benefits can be immediate and local, in contrast to the long-term and widespread effects of climate change.[23] These efforts have been found to be cost effective.[23,24] Methane reductions have also been shown to generate health benefits from reduced ground-level ozone.[25]



**Actions to reduce greenhouse gases can also reduce** other air pollutants, yielding human health benefits.

# Finding 12: RESPONSES

## City, State, and Regional Actions

Jurisdiction for greenhouse gases and energy policies is shared between the Federal government and states.[26] For example, states regulate the distribution of electricity and natural gas to consumers, while the Federal Energy Regulatory Commission regulates wholesale sales and transportation of natural gas and electricity. Many states have adopted climate initiatives as well as energy policies that reduce greenhouse gas emissions. For a survey of many of these state activities, see Table 27.2 in the full report. Many cities are taking similar actions.

The most ambitious state activity is California's Global Warming Solutions Act, with a goal of reducing greenhouse gas emissions to 1990 levels by 2020. The program caps emissions and uses a market-based system of trading in emissions credits, as well as a number of regulatory actions. The most well-known, multi-state effort has been the Regional Greenhouse Gas Initiative (RGGI), formed by 10 northeastern and Mid-Atlantic states (though New Jersey exited in 2011). RGGI is a cap-and-trade system in the power sector directing revenue from allowance auctions to investments in efficiency and renewable energy.

## Voluntary Actions

Corporations, individuals, and non-profit organizations have initiated a host of voluntary actions, including:

- The Carbon Disclosure Project enables companies to measure, disclose, manage, and share climate change and water-use information. Some 650 U.S. signatories include banks, pension funds, asset managers, insurance companies, and foundations.
- More than 1,055 municipalities from all 50 states have signed the U.S. Mayors Climate Protection Agreement,[27] and many of these communities are actively implementing strategies to reduce their emissions.
- Federal voluntary programs include Energy STAR, a labeling program that, among other things, identifies energy efficient products for use in residences and commercial and industrial buildings.

## Managing Land for Mitigation

Mitigation can involve increasing the uptake of carbon through various means of expanding carbon sinks on land through management of forests and soils.

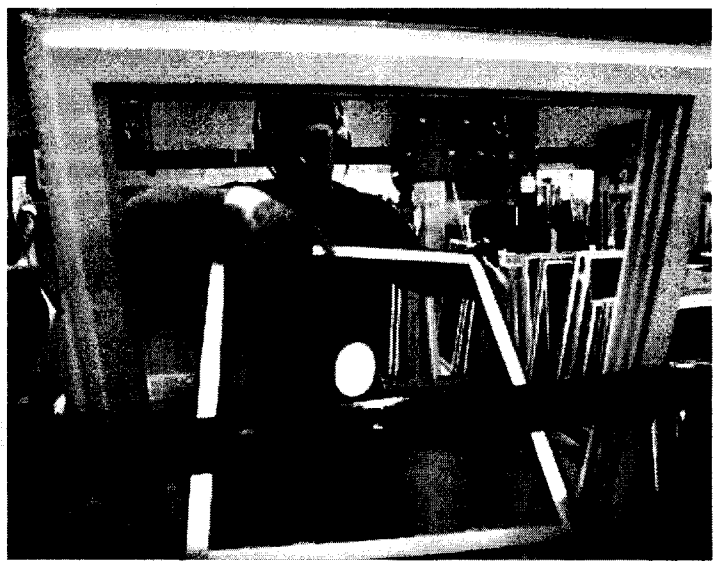
**Existing federal laws and regulations to reduce emissions include:**

**Emissions Standards for Vehicles and Engines**

- For light-duty vehicles, rules establishing standards for 2012-2016 model years and 2017-2025 model years.
- For heavy- and medium-duty trucks, a rule establishing standards for 2014-2018 model years.

**Appliance and Building Efficiency Standards**

- Energy efficiency standards and test procedures for residential, commercial, industrial, lighting, and plumbing products.
- Model residential and commercial building energy codes, and technical assistance to state and local governments, and non-governmental organizations.



Weatherization can include installing more efficient windows to save energy.

**Financial Incentives for Efficiency and Alternative Fuels and Technology**

- Weatherization assistance for low-income households, tax incentives for commercial and residential buildings and efficient appliances, and support for state and local efficiency programs.

## KEY MESSAGES: DECISION SUPPORT

**Decisions about how to address climate change can be complex, and responses will require a combination of adaptation and mitigation actions. Decision-makers – whether individuals, public officials, or others – may need help integrating scientific information into adaptation and mitigation decisions.**

**To be effective, decision support processes need to take account of the values and goals of the key stakeholders, evolving scientific information, and the perceptions of risk.**

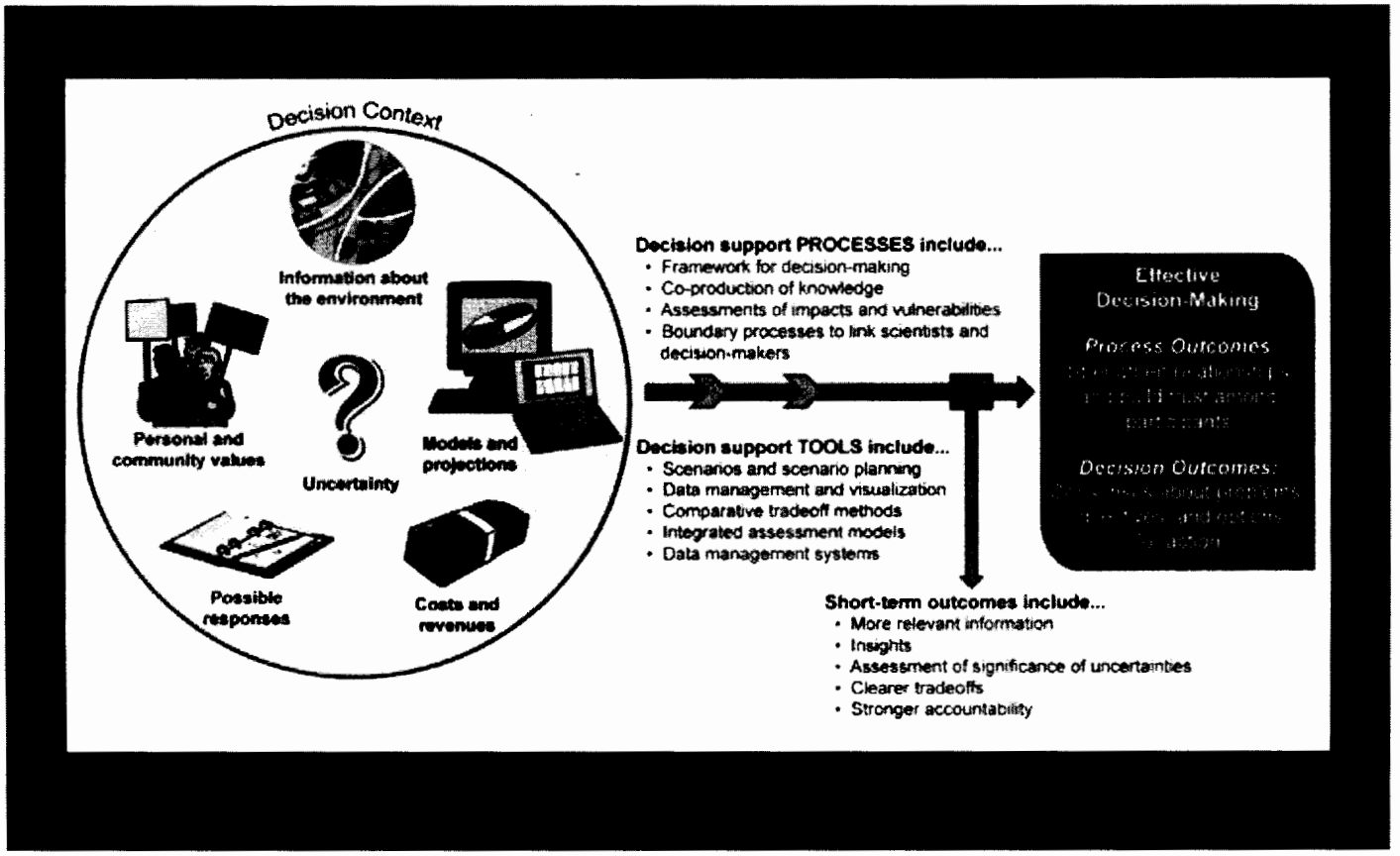
**Many decision support processes and tools are available. They can enable decision-makers to identify and assess response options, apply complex and uncertain information, clarify trade-offs, strengthen transparency, and generate information on the costs and benefits of different choices.**

**Ongoing assessment processes should incorporate evaluation of decision support tools, their accessibility to decision-makers, and their application in decision processes in different sectors and regions.**

**Steps to improve collaborative decision processes include developing new decision support tools and building human capacity to bridge science and decision-making.**

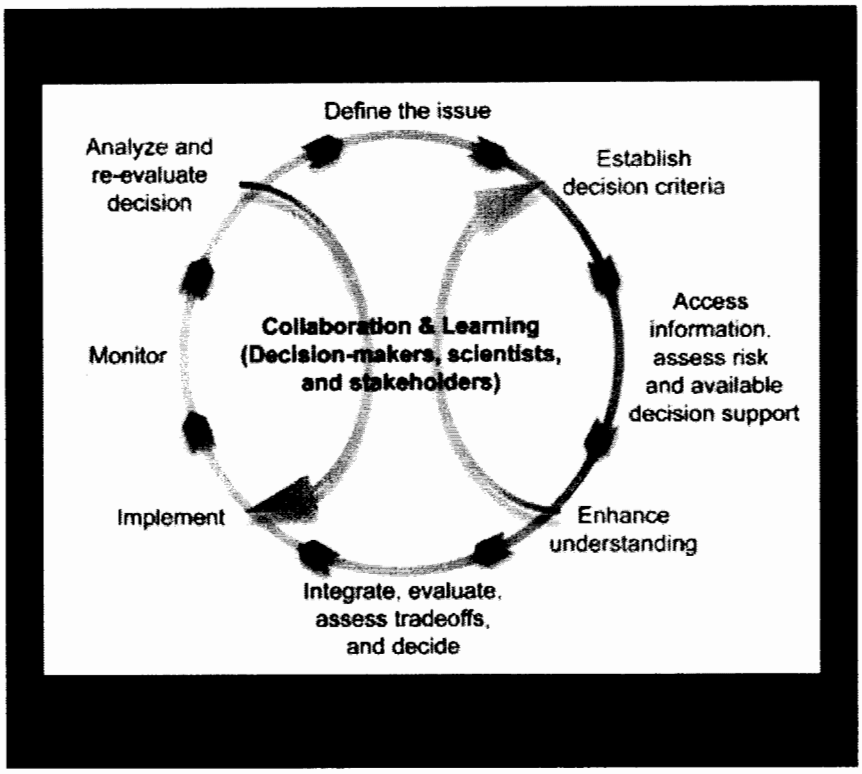
As a result of human-induced climate change, historically successful strategies for managing climate-sensitive resources and infrastructure will become less effective over time. Decision support processes and tools can help structure decision-making, organize and analyze information, and build consensus around options for action.

Although decision-makers routinely make complex decisions under uncertain conditions, decision-making in the context of climate change can be especially challenging. Reasons include the rapid pace of changes, long time lags between human activities and response of the climate system, the high economic and political stakes, the number and diversity of potentially affected stakeholders, the need to incorporate uncertain scientific information of varying confidence levels, and the values of stakeholders and decision-makers.[28,29] The social, economic, psychological, and political dimensions of these decisions underscore the need for ways to improve communication of scientific information and uncertainties and to help decision-makers assess risks and opportunities.



# Finding 12: RESPONSES

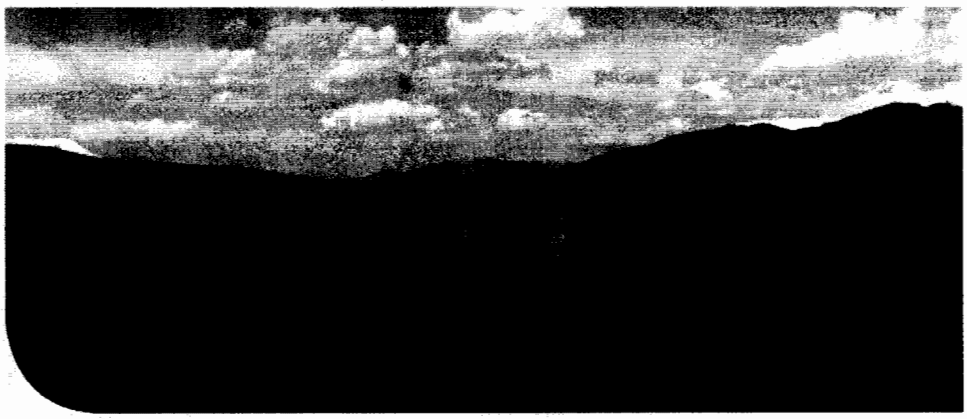
**Collaboration:** The importance of both scientific information and societal considerations suggests the need for the public, technical experts, and decision-makers to engage in mutual shared learning and shared production of relevant knowledge.[29,30]




**Uncertainty:** An "iterative adaptive risk management framework" is useful for decisions about adaptation and ways to reduce future climate change, especially given uncertainties and ongoing advances in scientific understanding.[31] An idealized iterative adaptive risk management process includes clearly defining the issue, establishing decision criteria, identifying and incorporating relevant information, evaluating options, and monitoring and revisiting effectiveness.

**Risk Management:** Making effective climate-related decisions requires balance among actions intended to manage, reduce, and transfer risk. Risks are threats to life, health and safety, the environment, economic well-being, and other things of value. Methods such as multiple criteria analysis, valuation of both risks and opportunities, and scenarios can help to combine experts' assessment of climate change risks with public perception of these risks.[32]

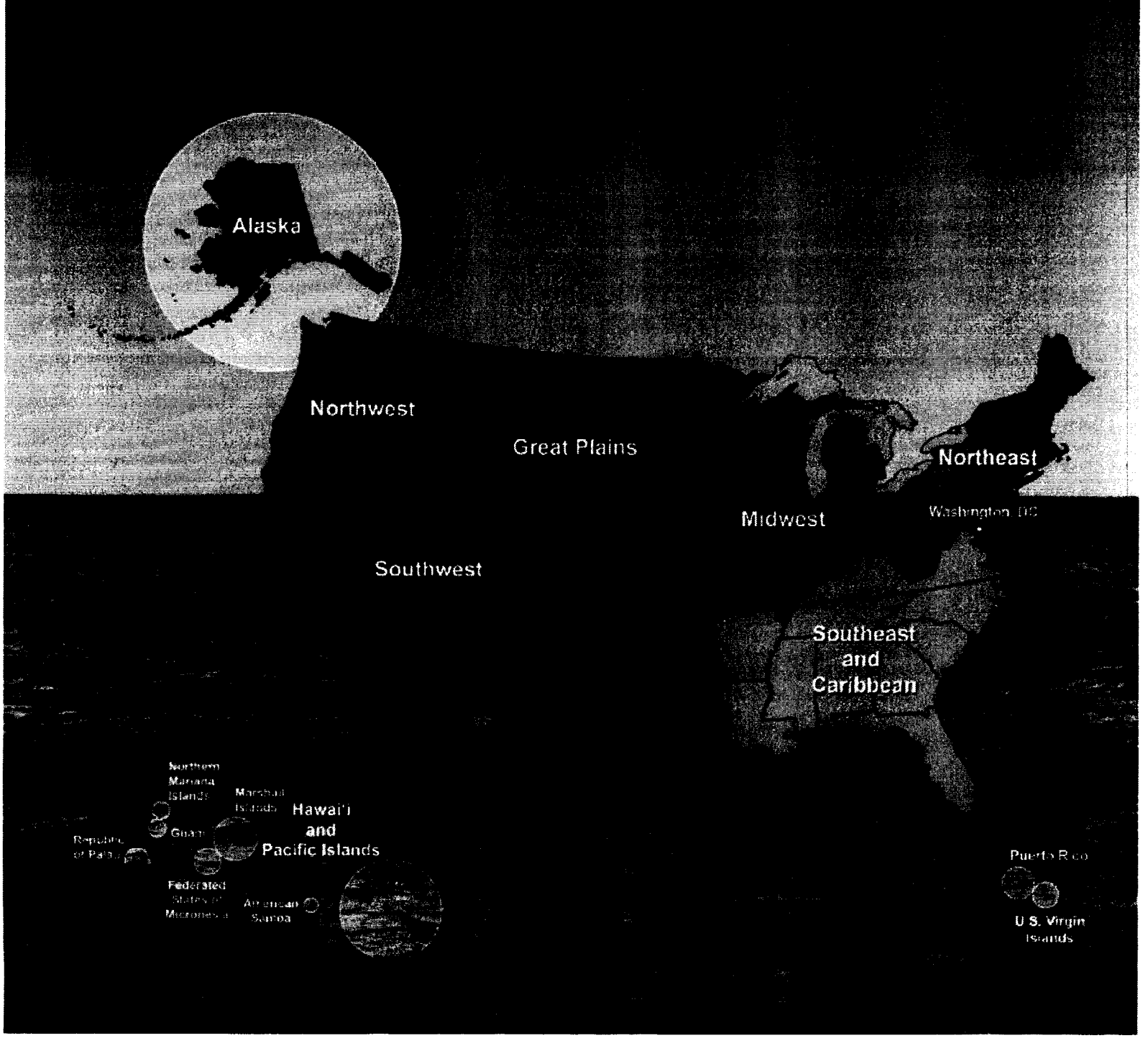
Climate change is one of the biggest challenges facing the Denver Water system. Due to recent and anticipated effects of climate variability and change on water availability, Denver Water faces the challenge of weighing alternative response strategies and is looking at developing options to help meet more challenging future conditions.



Denver Water is using scenario planning in its long-range planning process (looking out to 2050) to consider a range of plausible futures involving climate change, demographic and water use changes, and economic and regulatory changes. The strategy focuses on keeping as many future options open as possible while trying to ensure reliability of current supplies.

The next step for Denver Water is to explore a more technical approach to test their existing plan and identified options against multiple climate change scenarios. Following a modified robust decision-making approach,[33] Denver Water will test and hedge its plan and options until those options demonstrate that they can sufficiently handle a range of projected climate conditions.

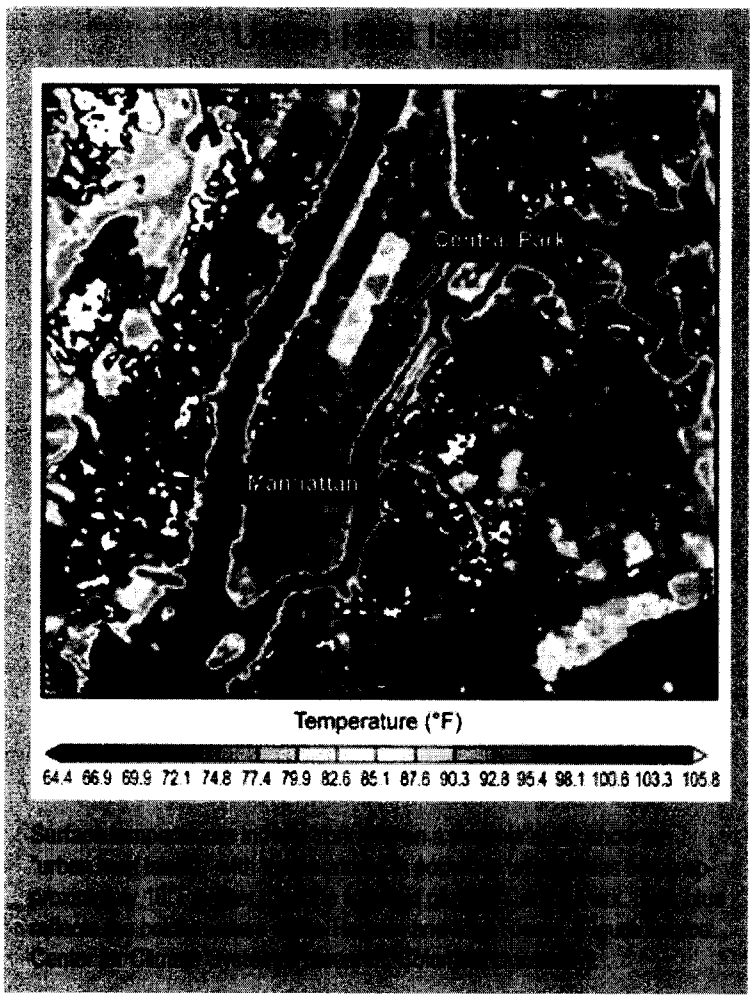
environment are closely linked to the changing climate, with increased flooding, greater incidence of heat



Heat waves, coastal flooding, and river flooding will pose a growing challenge to the region's envi

coastal flooding, and intense precipitation events.

Agriculture, fisheries, and ecosystems will be increasingly compromised over the next century by




Sixty-four million people are concentrated in the Northeast. The high-density urban coastal corridor from Washington, D.C., north to Boston is one of the most developed environments in the world. It contains a massive, complex, and long-standing network of supporting infrastructure. The Northeast also has a vital rural component, including large expanses of sparsely populated but ecologically and agriculturally important areas.

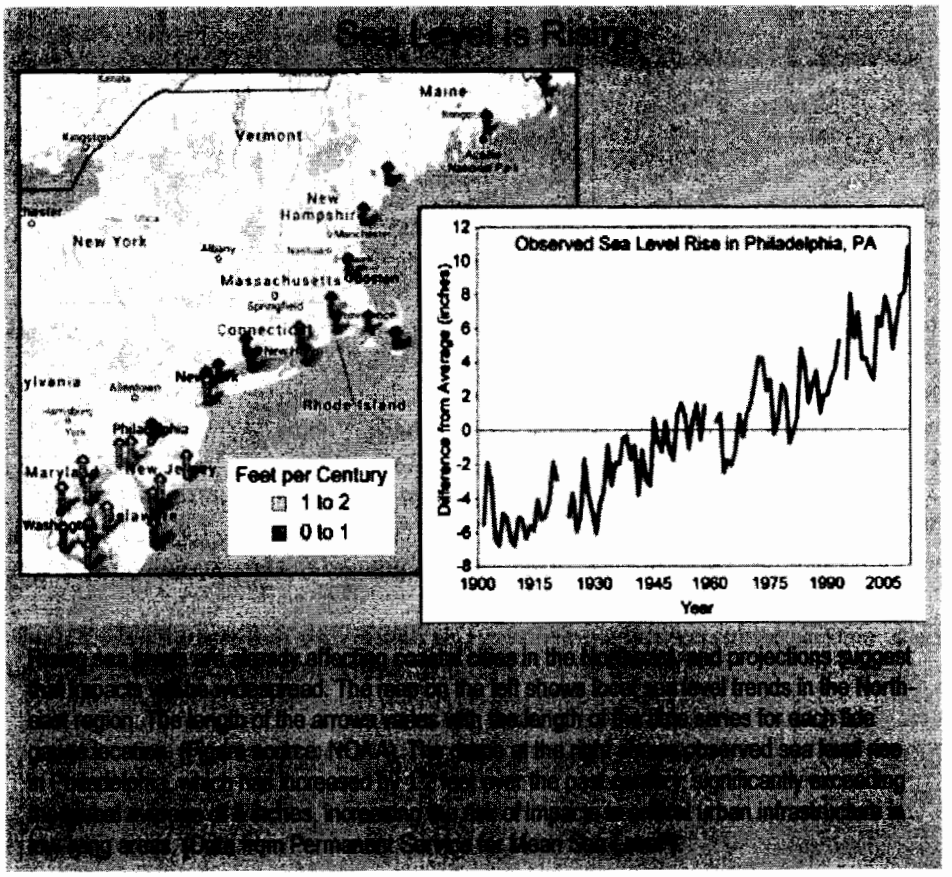
Although urban and rural regions in the Northeast are profoundly different, they both include populations that are highly vulnerable to climate hazards and other stresses. The region depends on aging infrastructure that has already been stressed by climate hazards including heat waves and heavy downpours. The Northeast has experienced a greater recent increase in extreme precipitation than any other region in the U.S.; between 1958 and 2010, the Northeast saw more than a 70% increase in the amount of precipitation falling in very heavy events (defined as the heaviest 1% of all daily events).[1] This increase, combined with coastal and riverine flooding due to sea level rise and storm surge, creates increased risks. For all of these reasons, public health, agriculture, transportation, communications, and energy systems in the Northeast all face climate-related challenges.

## Hurricane Vulnerability

Hurricanes Irene and Sandy demonstrated the region's vulnerability to extreme weather events and the potential for adaptation to reduce impacts. Hurricane Irene produced a broad swath of very heavy rain (greater than 5 inches in total and 2 to 3 inches per hour in some locations) from southern Maryland to northern Vermont from August 27 to 29, 2011. These heavy rains were part of a broader pattern of wet weather preceding the storm that exacerbated the flooding.

In anticipation of Irene, the New York City mass transit system was shut down, and 2.3 million coastal residents in Delaware, New Jersey, and New York faced mandatory evacuations. But inland impacts, especially in upstate New York and in central and southern Vermont, were most severe. Flash flooding washed out roads and bridges, undermined railroads, brought down trees and power lines, flooded homes and businesses, and damaged floodplain forests. Hazardous wastes were released in a number of areas, and 17 municipal wastewater treatment plants were breached by the floodwaters. Crops were flooded and many towns and villages were isolated for days.

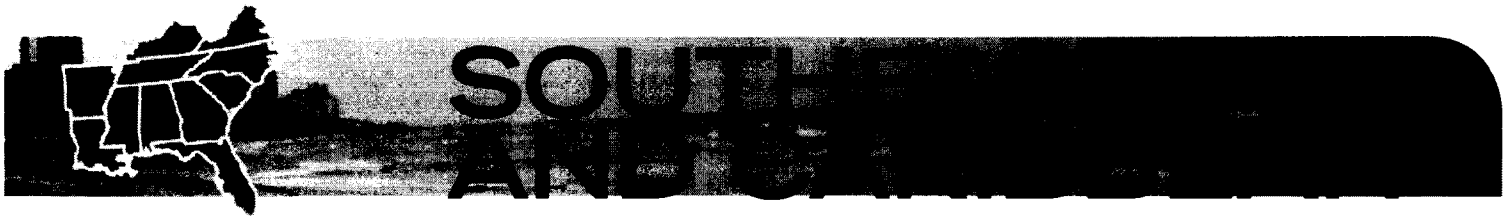
Hurricane Sandy, which hit the East Coast in October 2012, caused massive coastal damage from storm surge and flooding. Sandy was responsible for approximately 150 deaths, about half of those in the Northeast, and monetary impacts on coastal areas, especially in New Jersey, New York, and Connecticut estimated at $60 to $80 billion.[2,3] Floodwaters inundated subway tunnels in New York City, 8.5 million people were without power, and an estimated 650,000 homes were damaged or destroyed.[2]



This one-acre stormwater wetland was constructed in Philadelphia to treat stormwater runoff in an effort to improve drinking water quality while minimizing the impacts of storm-related flows on natural ecosystems.

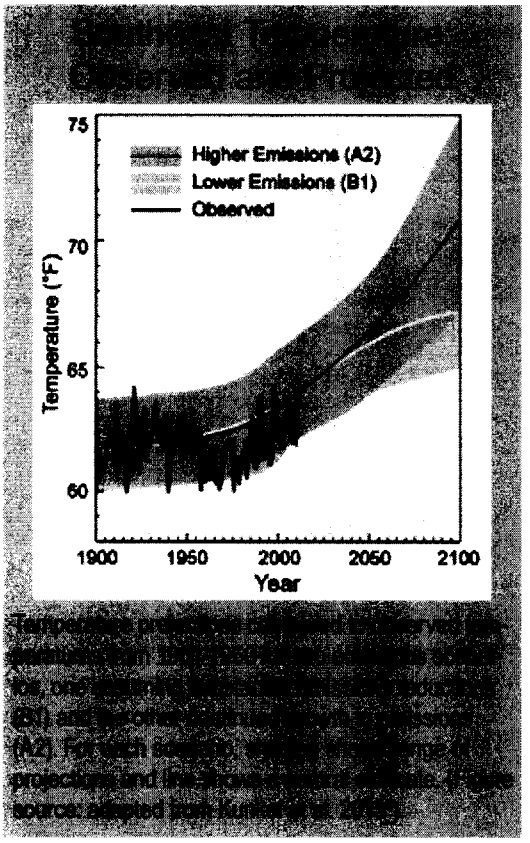
The City of Philadelphia is greening its combined sewer infrastructure to protect rivers, reduce greenhouse gas emissions, improve air quality, and enhance adaptation to a changing climate.[4]

Officials in coastal Maine are working with the statewide Sustainability Solutions Initiative to identify how culverts that carry stormwater can be maintained and improved, in order to increase resiliency to more frequent extreme precipitation events. This includes actions such as using larger culverts to carry water from major storms.[5]




The Southeast and Caribbean region is exceptionally vulnerable to sea level rise, extreme heat events, hurricanes, and decreased water availability. The geographic distribution of these impacts and vulnerabilities is uneven, since the region encompasses a wide range of environments, from the Appalachian Mountains to the coastal plains. The region is home to more than 80 million people and some of the fastest-growing metropolitan areas,[1] three of which are along the coast and vulnerable to sea level rise and storm surge. The Gulf and Atlantic coasts are major producers of seafood and home to seven major ports[2] that are also vulnerable. The Southeast is a major energy producer of coal, crude oil, and natural gas, and is the highest energy user of any of the National Climate Assessment regions.[2]

The Southeast warmed during the early part of last century, cooled for a few decades, and is now warming again. Temperatures across the region are expected to increase in the future. Major consequences include significant increases in the number of hot days (95°F or above) and decreases in freezing events. Higher temperatures contribute to the formation of harmful air pollutants and allergens.[3] Higher temperatures are also projected to reduce livestock and crop productivity.[4] Climate change is expected to increase harmful blooms of algae and several disease-causing agents in inland and coastal waters.[5] The number of Category 4 and 5 hurricanes in the North Atlantic and the amount of rain falling in very heavy precipitation events have increased over recent decades, and further increases are projected.



Global sea level rose about eight inches in the last century and is projected to rise another 1 to 4 feet in this century. Large numbers of southeastern cities, roads, railways, ports, airports, oil and gas facilities, and water supplies are vulnerable to the impacts of sea level rise. Major cities like New Orleans, with roughly half of its population below sea level,[8] Miami, Tampa, Charleston, and Virginia Beach are among those most at risk.[9]

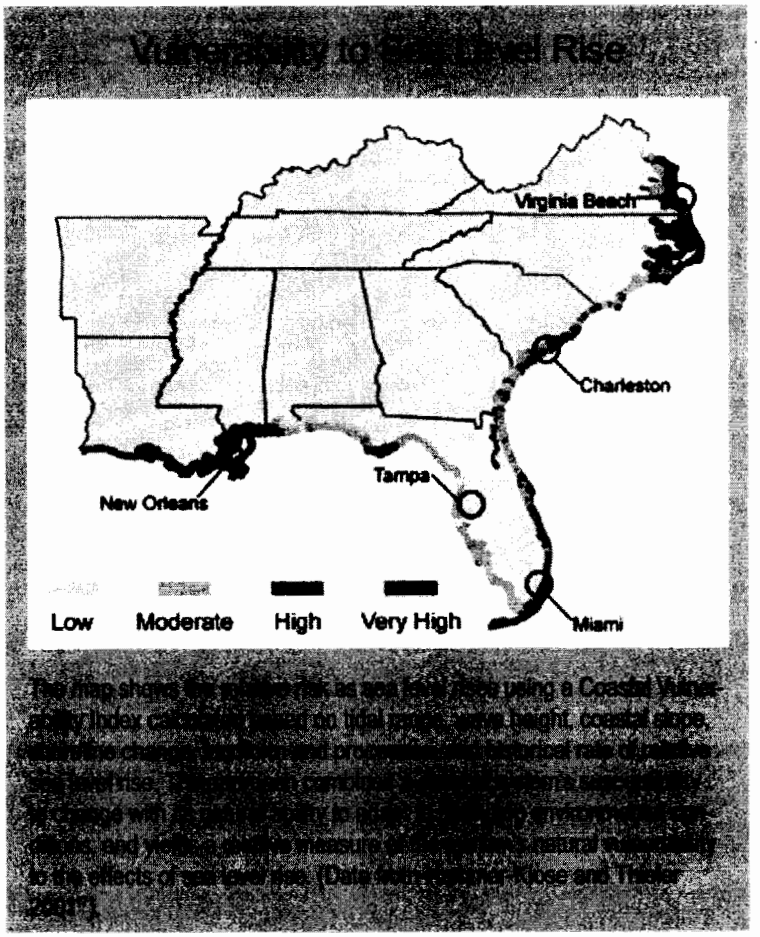
As a result of current sea level rise, the coastline of Puerto Rico around Rincòn is being eroded at a rate of 3.3 feet per year.[10] Puerto Rico has one of the highest population densities in the world, with 56% of the population living in coastal municipalities.[10]

Sea level rise and storm surge can have impacts far beyond the area directly affected. Sea level rise combines with other climate-related impacts and existing pressures such as land subsidence, causing significant economic and ecological implications. According to a recent study co-sponsored by a regional utility, coastal areas in Alabama, Mississippi, Louisiana, and Texas already face losses that annually average $14 billion from hurricane winds, land subsidence, and sea level rise. Losses for the 2030 timeframe could reach $23 billion assuming a nearly 3% increase in hurricane wind speed and just under 6 inches of sea level rise. About 50% of the increase in losses is related to climate change.[11]

Louisiana State Highway 1, heavily used for delivering critical oil and gas resources from Port Fourchon, is sinking, at the same time sea level is rising, resulting in more frequent and more severe flooding during high tides and storms.[12] A 90-day shutdown of this road would cost the nation an estimated $7.8 billion.[13]

Freshwater supplies from rivers, streams, and groundwater sources near the coast are at risk from accelerated saltwater intrusion due to higher sea levels. Porous aquifers in some areas make them particularly vulnerable to saltwater intrusion.[14] For example, officials in the city of Hallandale Beach, Florida, have already abandoned six of their eight drinking water wells.[15]

Continued urban development and increases in irrigated agriculture will increase water demand while higher temperatures will increase evaporative losses. All of these factors will combine to reduce the availability of water in the Southeast. Severe water stress is projected for many small Caribbean islands.[16]




Clayton County, Georgia's innovative water recycling project enabled it to maintain abundant water supplies, with reservoirs at or near capacity, during the 2007-2008 drought, while neighboring Lake Lanier, the water supply for Atlanta, was at record lows. The project involved a series of constructed wetlands (see photo) used as the final stage of a wastewater treatment process that recharges groundwater and supplies surface reservoirs. The county has also implemented water efficiency and leak detection programs.[18]

In other adaptation efforts, the North Carolina Department of Transportation is raising U.S. Highway 64 across the Albemarle-Pamlico Peninsula by four feet, which includes 18 inches to allow for higher future sea levels.[19]

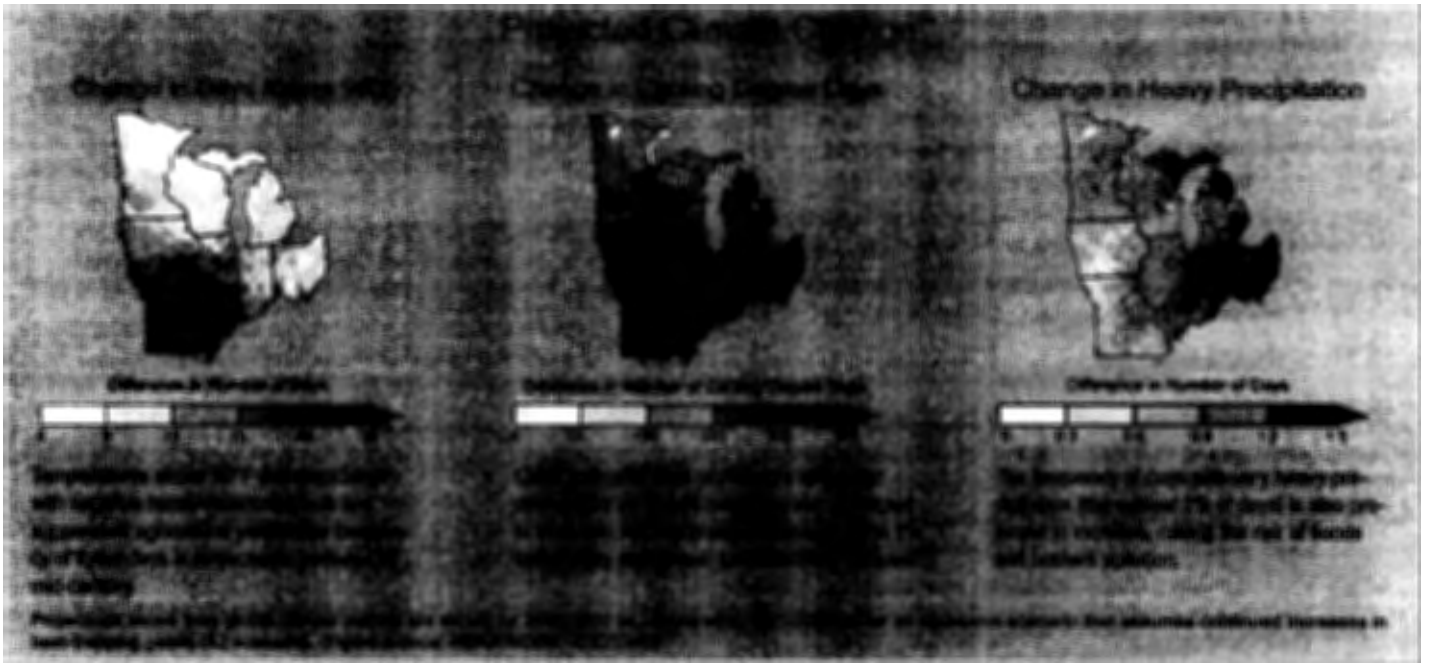
For another example, see page 63 for a description of the Southeast Florida Regional Compact's plans to reduce heat-trapping gas emissions and adapt to climate change impacts.

crops, though those benefits will be progressively offset by extreme weather events. Though adaptation options

Extreme rainfall events and flooding have increased during the last century, and these trends are expected to

bution of certain fish species, increased invasive species and harmful blooms of algae, and declining beach

The Midwest's agricultural lands, forests, Great Lakes, industrial activities, and cities are all vulnerable to climate variability and climate change. Climate change will tend to amplify existing risks climate poses to people, ecosystems, and infrastructure. Direct effects will include increased heat stress, flooding, drought, and late spring freezes. Climate change also alters pests and disease prevalence, competition from non-native or opportunistic native species, ecosystem disturbances, land-use change, landscape fragmentation, atmospheric and watershed pollutants, and economic shocks such as crop failures, reduced yields, or toxic blooms of algae due to extreme weather events. These added stresses, together with the



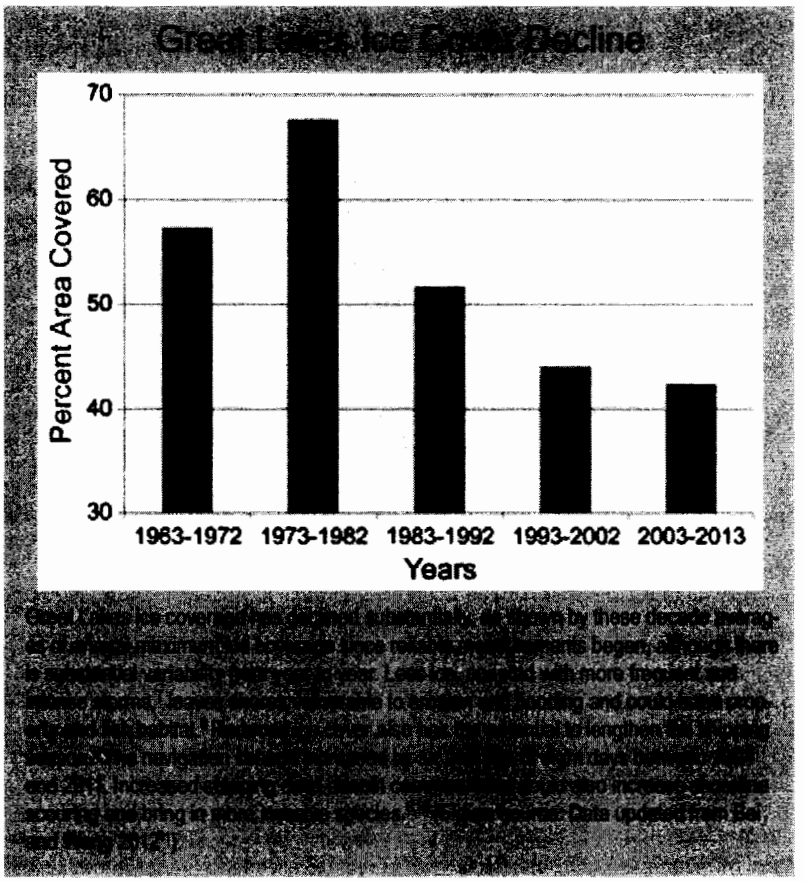
direct effects of climate change, are projected to alter ecosystem and socioeconomic patterns and processes in ways that most people in the region would consider detrimental.

Most of the Midwest's population lives in urban environments. Climate change may intensify other stresses on urban dwellers and vegetation, including increased atmospheric pollution, heat island effects, a highly variable water cycle, and frequent exposure to new pests and diseases. Further, many of the cities have aging infrastructure and are particularly vulnerable to climate change related flooding and life-threatening heat waves. The increase in heavy downpours has contributed to the discharge of untreated sewage due to excess water in combined sewage-overflow systems in a number of cities in the Midwest.[1]

Much of the region's fisheries, recreation, tourism, and commerce depend on the Great Lakes and expansive northern forests, which already face pollution and invasive species pressures – pressures exacerbated by climate change.

Extreme weather events will influence future crop yields more than changes in average temperature or annual precipitation. High temperatures during early spring, for example, can decimate fruit crop production[2] when early heat causes premature plant budding that exposes flowers to later cold injury, as happened in 2002, and again in 2012, to Michigan's $60 million tart cherry crop. Springtime cold air outbreaks are projected to continue to occur throughout this century.[3]

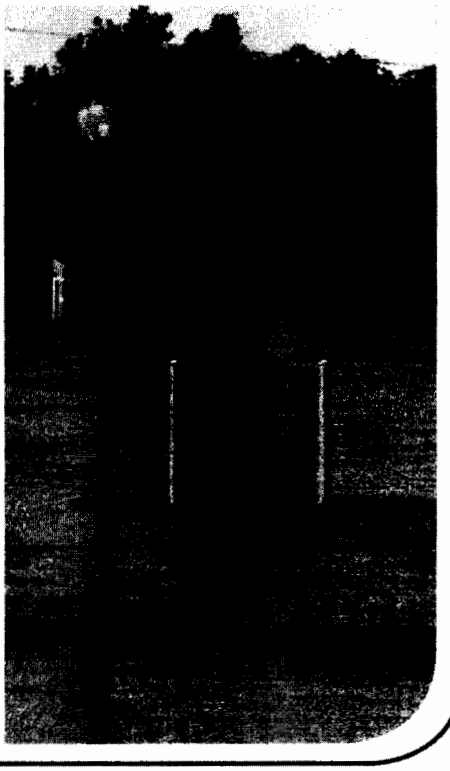
Any increased productivity of some crops due to higher temperatures, longer growing seasons, and elevated carbon dioxide concentrations could be offset by water limitations and other stressors.[4] Heat waves during pollination of field crops such as corn and soybean also reduce yields.[5] Wetter springs may reduce crop yields and profits,[6] especially if growers are forced to switch to late-planted, shorter-season varieties.




The city of Cedar Falls' new floodplain ordinance expands zoning restrictions from the 100-year floodplain to the 500-year floodplain to better reflect the flood risks experienced by this and other Midwest cities during the 2008 floods.[12]

Cedar Rapids has also taken significant steps to reduce future flood damage, with buyouts of more than 1,000 properties, and numerous buildings adapted with flood protection measures.

Some cities have begun to incorporate adaptation planning for a range of climate change impacts. Chicago was one of the first cities to officially integrate climate adaptation into a citywide plan. Since the Climate Adaptation Plan's release, a number of strategies have been implemented to help the city manage heat, protect forests, and enhance green design, using techniques such as green roofs.[13]



The Great Plains is a diverse region where climate is woven into the fabric of life. Daily, monthly, and yearly variations in the weather can be dramatic and challenging. The region experiences multiple climate and weather hazards, including floods, droughts, severe storms, tornadoes, hurricanes, and winter storms. In much of the Great Plains, too little precipitation falls to replace that needed by humans, plants, and animals. These variable conditions already stress communities and cause billions of dollars in damage. Climate change will add to both stress and costs.

The people of the Great Plains historically have adapted to this challenging climate. Although projections suggest more frequent and more intense droughts, heavy downpours, and heat waves, people can reduce vulnerabilities through the use of new technologies, community-driven policies, and the judicious use of resources. Efforts to reduce greenhouse gas emissions and adapt to climate change can be locally driven, cost effective, and beneficial for local economies and ecosystem services.

Even small shifts in timing of plant growth cycles caused by climate change can disrupt ecosystem functions like predator-prey relationships or food availability. While historic bison herds migrated to adapt to changing conditions, habitats are now fragmented by roads, agriculture, and structures, inhibiting similar large-scale migration.[1]

Increases in heavy downpours contribute to flooding.

The trend toward more dry days and higher temperatures across the Southern Plains will increase evaporation, decrease water supplies, reduce electricity transmission capacity, and increase cooling demands. These changes will add stress to limited water resources and affect management choices related to irrigation, municipal use, and energy generation.[2] Increased drought frequency and intensity can turn marginal lands into deserts.

Changing extremes in precipitation are projected across all seasons, including higher likelihoods of both increasing heavy rain and snow events[3] and more intense droughts.[4] Winter and spring precipitation and heavy downpours are both projected to increase in the

A Texas State Park police officer walks across a cracked lakebed in August 2011. This lake once spanned more than 5,400 acres.

north, leading to increased runoff and flooding that will reduce water quality and erode soils. Increased snowfall, rapid spring warming, and intense rainfall can combine to produce devastating floods, as is already common along the Red River of the North. More intense rains will also contribute to urban flooding.

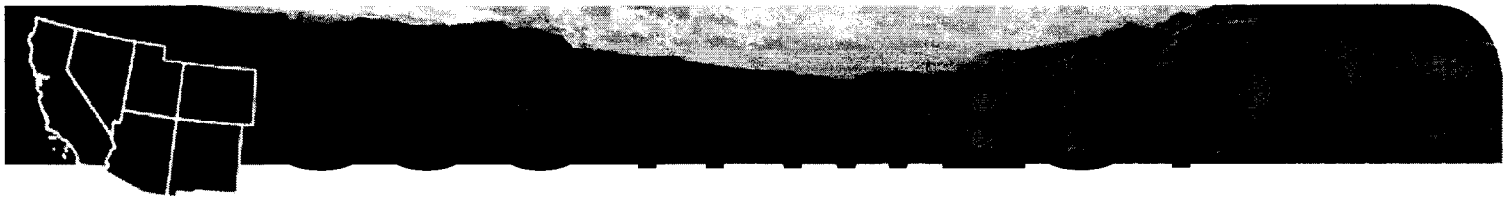
Expectations of more precipitation in the northern Great Plains and less in the southern Great Plains were strongly manifest in 2011, with exceptional drought and record-ing-setting temperatures in Texas and Oklahoma – and flooding in the northern Great Plains. Many locations in Texas and Oklahoma experienced more than 100 days over 100°F, with both states setting new high temperature records. Rates of water loss were double the long-term average, depleting water resources and contributing to more than $10 billion in direct losses to agriculture alone. In the future, average temperatures in this region are expected to increase and will continue to contribute to the intensity of heat waves.

By contrast, the Northern Plains were exceptionally wet, with Montana and Wyoming recording all-time wettest springs and the Dakotas and Nebraska not far behind. Record rainfall and snowmelt combined to push the Missouri River and its tributaries beyond their banks and leave much of the Crow Reservation in Montana underwater. The Souris River near Minot, North Dakota, crested at four feet above its previous record, causing losses estimated at $2 billion.

Projected climate change will have both positive and negative consequences for agricultural productivity in the Northern Plains, where increases in winter and spring precipitation will benefit productivity by increasing water availability through soil moisture reserves during the early growing season, but this can be offset by fields too wet to plant. Rising temperatures will lengthen the growing season, possibly allowing a second annual crop in some places and some years. However, warmer winters pose challenges.[5] Some pests and invasive weeds will be able to survive the warmer winters,[6] and winter crops that emerge from dormancy earlier are susceptible to spring freezes.[7]

In the Southern Plains, projected declines in precipitation in the south and greater evaporation everywhere due to higher temperatures will increase irrigation demand and exacerbate current stresses on agricultural productivity. Increased water withdrawals from the Ogallala and High Plains Aquifers would accelerate ongoing depletion in the southern parts of the aquifers and limit the ability to irrigate.[8] Holding other aspects of production constant, the climate impacts of shifting from irrigated to dryland agriculture would reduce crop yields by about a factor of two.[9]

The Oglala Lakota tribe in South Dakota is incorporating climate change adaptation and mitigation planning as they consider long-term sustainable development. Their Oyate Omniciye plan is a partnership built around six livability principles related to transportation, housing, economic competitiveness, existing communities, federal investments, and local values. Their vision incorporates plans to reduce and adapt to future climate change while protecting cultural resources.[10]



Snowpack and streamflow amounts are projected to decline in parts of the Southwest, decreasing

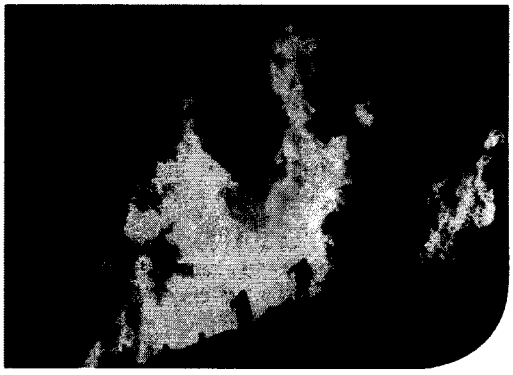
increased wildfires and impacts to people and ecosystems in the Southwest. Fire models project more wildfire and increased risks to communities across extensive areas.

Heat, drought, and competition for water supplies will increase in the Southwest with continued climate change.

The Southwest is the hottest and driest region in the U.S., where the availability of water has defined its landscapes, history of human settlement, and modern economy. Climate changes pose challenges for an already parched region that is expected to get hotter and, in its southern half, significantly drier.

Increased heat and changes to rain and snowpack will send ripple effects throughout the region, affecting 56 million people – a population expected to increase to 94 million by 2050[1] – and its critical agriculture sector. Severe and sustained drought will stress water sources, already over-utilized in many areas, forcing increasing competition among farmers, energy producers, urban dwellers, and ecosystems for the region's most precious resource.

The region's populous coastal cities face rising sea levels, extreme high tides, and storm surges, which pose particular risks to highways, bridges, power plants, and sewage treatment plants. Climate-related challenges also increase risks to critical port cities, which handle half of the nation's incoming shipping containers. The region's rich diversity of plant and animal species will be increasingly stressed. Widespread tree death and fires, which already have caused billions of dollars in economic losses, are projected to increase. Tourism and recreation also face climate change challenges, including reduced streamflow and a shorter snow season, influencing everything from the ski industry to lake and river recreation.

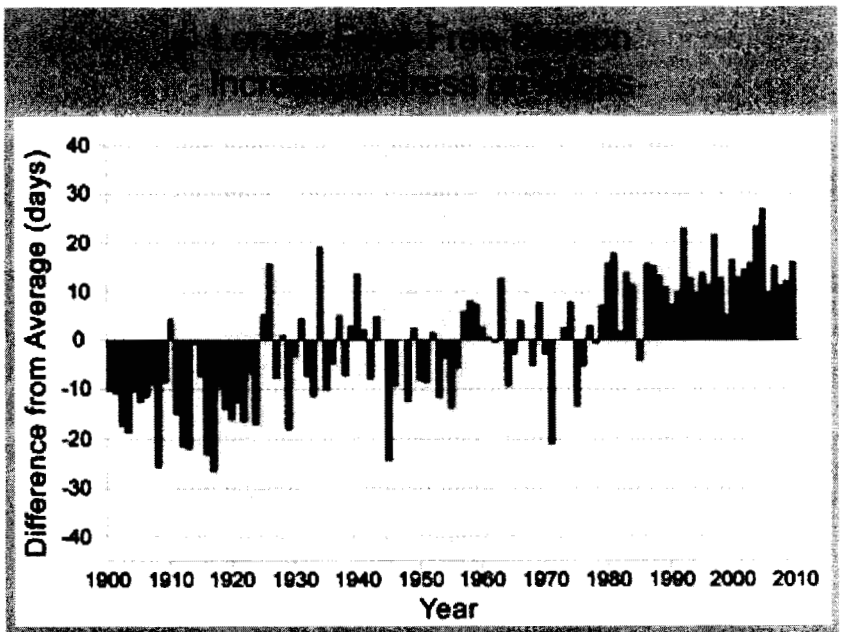


Climate change contributes to increasing fires.

More than half of the nation's high-value specialty crops, including certain fruits, nuts, and vegetables, come from the Southwest. A longer frost-free season, less frequent cold air outbreaks, and more frequent heat waves accelerate crop ripening and maturity, reduce yields of corn, tree fruit, and wine grapes, stress livestock, and increase agricultural water consumption.[2] These changes are projected to continue and intensify, possibly requiring a northward shift in crop production, displacing existing growers and affecting farming communities.[3]

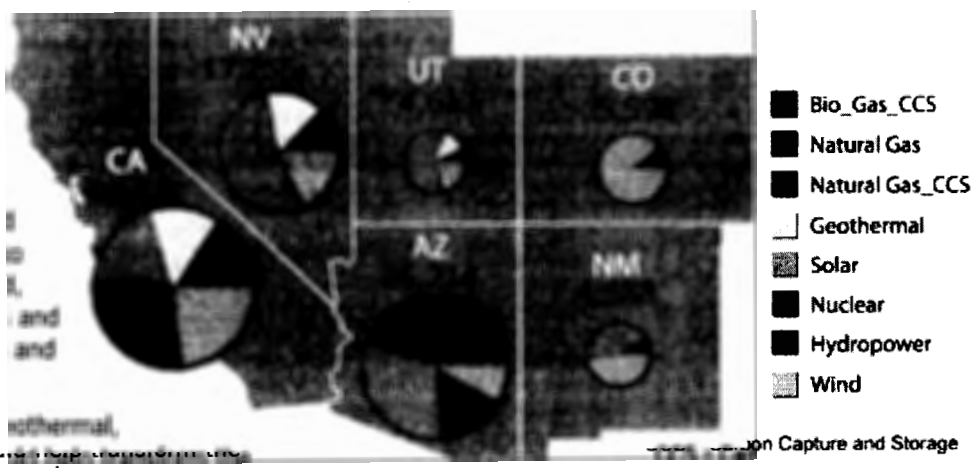
Winter chill periods are projected to fall below the duration necessary for many California trees to bear nuts and fruits, which will result in lower yields.[4]

Once temperatures increase beyond optimum growing thresholds, further increases, like those projected beyond 2050, can cause large decreases in crop yields and hurt the region's agricultural economy.




Climate change is exacerbating the major factors that lead to wildfire: heat, drought, and dead trees.[5,6] Between 1970 and 2003, warmer and drier conditions increased burned area in western U.S. mid-elevation conifer forests by 650%.[7] Climate outweighed other factors in determining burned area in the western U.S. from 1916 to 2003.[8] Winter warming due to climate change has exacerbated bark beetle outbreaks by allowing more beetles, which normally die in cold weather, to survive and reproduce.[9] More wildfire is projected as climate change continues,[6,10,11,12] including a doubling of burned area in the southern Rockies,[11] and up to 74% more fires in California.[12] For more on fire in the Southwest see pages 53-54.

Adaptation options that can reduce vulnerability to urban heat stress and/or reduce emissions include: using reflective white roofs, planting shade trees, using more efficient appliances anc adding solar power capacity t handle summer peak demanc and providing cooling centers programs to check on elderly at-risk residents.




The Southwest's abundant ge wind, and solar resources cou region's electric system into one that uses substantially more renewable energy and lead to large reductions in heat-trapping gas emissions. This would also reduce the need for power plant cooling water, which will be more scarce in a hotter, drier future. Shown is one scenario in which different energy combinations in each state could achieve an 80% reduction in emissions from 1990 levels by 2050 in the Southwest electricity sector. (Data from Wei et al. 2012, 2013[13]).

Changes in the timing of streamflow related to changing snowmelt are already observed and will

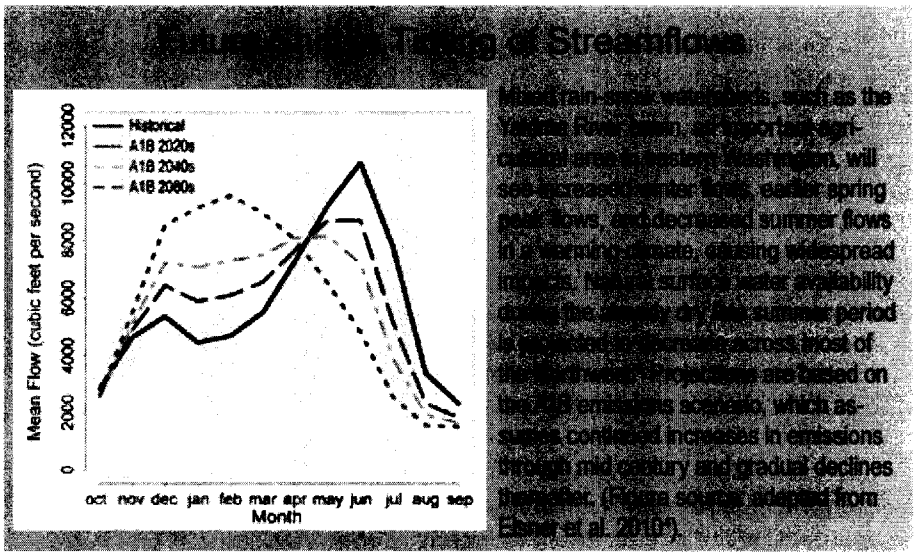
The combined impacts of increasing wildfire, insect outbreaks, and tree diseases are already

Rising summer temperatures and changing water flows threaten salmon and other fish species.

The Northwest's economy, infrastructure, natural systems, public health, and agriculture sectors all face important climate change related risks. Impacts on infrastructure, natural systems, human health, and economic sectors, combined with issues of social and ecological vulnerability, will unfold quite differently in largely natural areas, like the Cascade Range, than in urban areas like Seattle and Portland,[1] or among the region's many Native American tribes.[2]

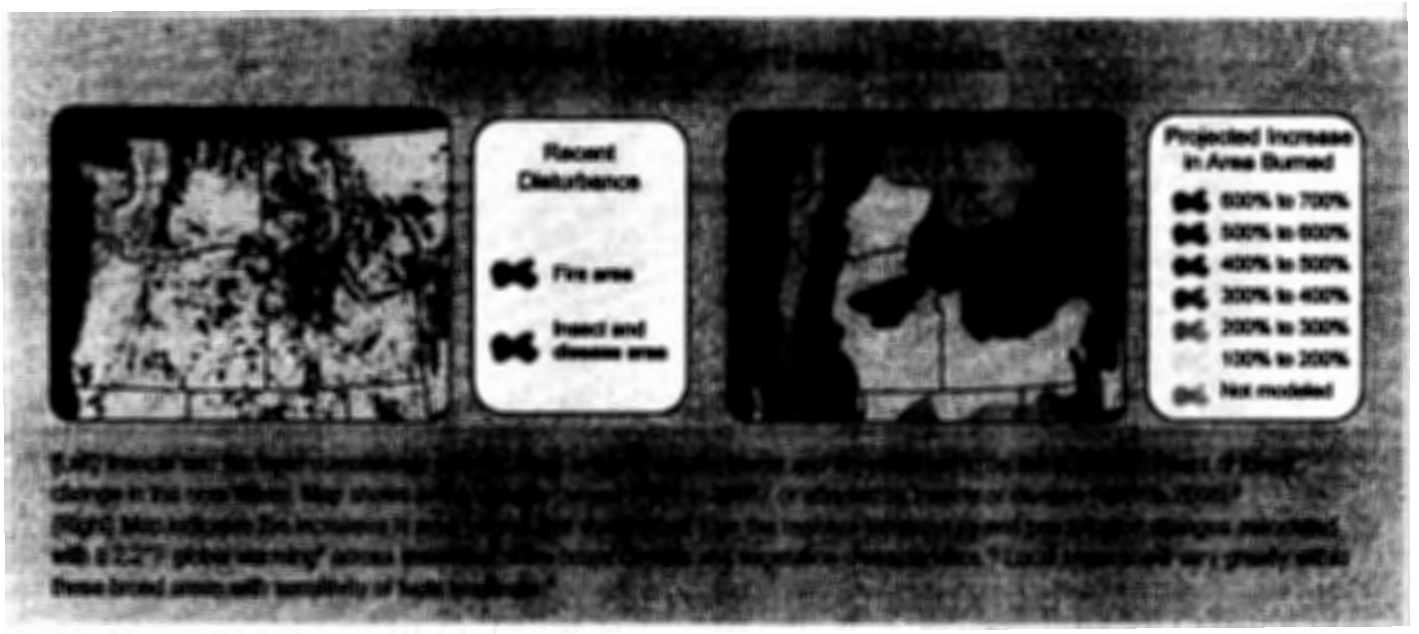
Seasonal water patterns shape the life cycles of the region's flora and fauna, including iconic salmon and steelhead, and forested ecosystems.[3] Adding to the human influences on climate, human activities have altered natural habitats, threatened species, and extracted so much water that there are already conflicts among multiple users in dry years. As conflicts and trade-offs increase, the region's population continues to grow. Particularly in the face of climate change, the need to seek solutions to these conflicts is becoming increasingly urgent.

Observed regional warming has been linked to changes in the timing and amount of water availability in basins with significant snowmelt contributions to streamflow. By 2050, snowmelt is projected to shift three to four weeks earlier than the last century's average, and summer flows are projected to be substantially lower, even for a scenario that assumes emissions reductions (B1).[4] These reduced flows will require trade-offs among reservoir system objectives,[5] especially with the added challenges of summer increases in electric power demand for cooling and additional water consumption by crops and forests.



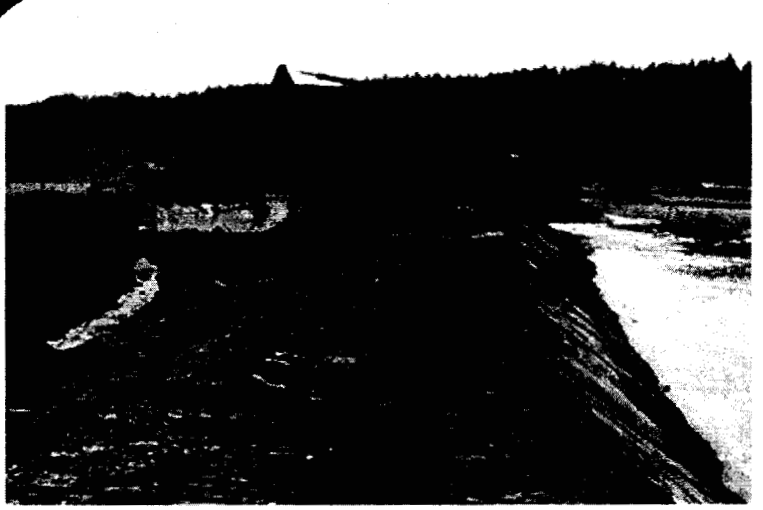

Future Shifts in Timing of Streamflows

Mountain-snow watersheds, such as the Yakima River basin, an important agricultural area in eastern Washington, will see increased winter flows, earlier spring peak flows, and decreased summer flows in a warming climate, causing widespread impacts, notably surface water availability during the driest, hottest summer period in most years. Shown across most of the region, projections are based on the A1B emissions scenario, which assumes continued increases in emissions through mid-century and gradual declines thereafter. (Figure source: adapted from Elsner et al. 2010[4]).

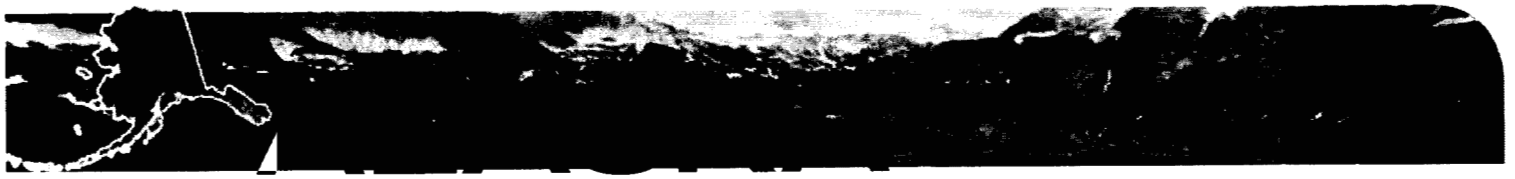



Climate change will alter Northwest forests by increasing wildfire risk, insect and disease outbreaks, and by forcing longer-term shifts in forest types and species. Many impacts will be driven by water deficits, which increase tree stress and mortality, tree vulnerability to insects, and fuel flammability. By the 2080s, the median annual area burned in the Northwest would quadruple relative to the 1916-2007 period to 2 million acres (range 0.2 to 9.8 million acres) under a scenario that assumes continued increases in emissions through mid century and gradual declines thereafter (A1B).[11]

Oyster harvest in Coos Bay, Oregon. Ocean acidification poses threats to the region's important shellfish industry.



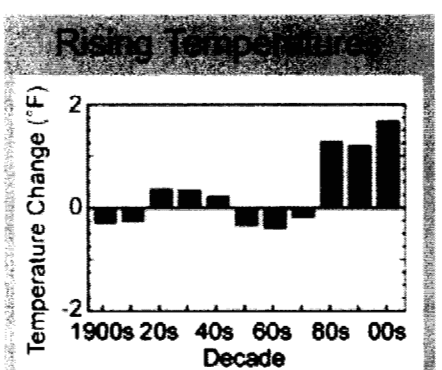
In Washington's Nisqually River Delta, large-scale estuary restoration to assist salmon and wildlife recovery provides an example of adaptation to climate change and sea level rise. After a century of isolation behind dikes, much of the Nisqually National Wildlife Refuge was reconnected with tidal flow in 2009 by removal of a major dike and restoration of 762 acres, with the assistance of Ducks Unlimited and the Nisqually Indian Tribe. This reconnected more than 21 miles of historical tidal channels and floodplains with Puget Sound.[12] A new exterior dike was constructed to protect freshwater wetland habitat for migratory birds from tidal inundation, future sea level rise, and increasing river floods.



continue and has implications for hydropower production, ocean circulation patterns, fisheries, and multiple vulnerabilities through drier landscapes, more wildfire, altered wildlife habitat, increased are expected to alter the distribution and productivity of Alaska's marine fisheries, which lead the

Over the past 60 years, Alaska has warmed more than twice as rapidly as the rest of the U.S., with average annual air temperature increasing by 3°F and average winter temperature by 6°F, with substantial year-to-year and regional variability.[1] Most of the warming occurred around 1976 during a shift in a long-lived climate pattern (the Pacific Decadal Oscillation) from a cooler pattern to a warmer one. The underlying long-term warming trend has moderated the effects of the more recent shift of the Pacific Decadal Oscillation to its cooler phase in the early 2000s.[2] Alaska's warming involves more extremely hot days and fewer extremely cold days.[1,3] Because of its cold-adapted features and rapid warming, climate change impacts on Alaska are already pronounced, including earlier spring snowmelt, reduced sea ice, widespread glacier retreat, warmer permafrost, drier landscapes, and more extensive insect outbreaks and wildfire.

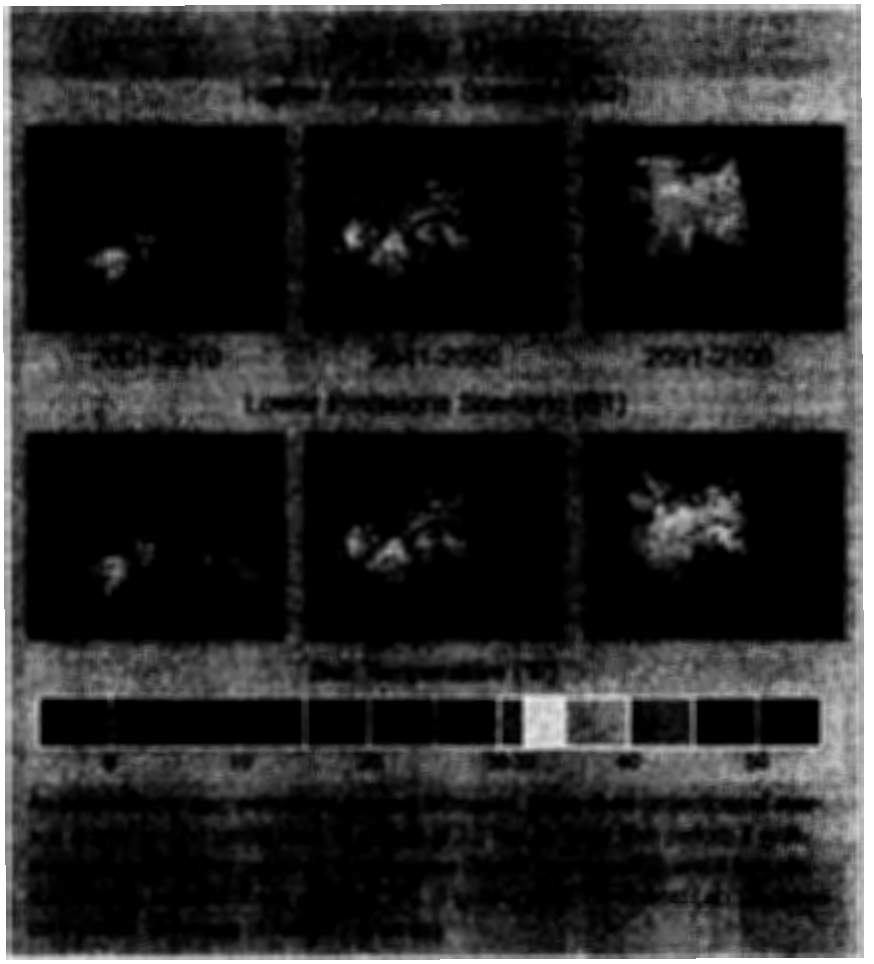
Inupiaq seal hunter on the Chukchi Sea. Reductions in sea ice alter food availability for many species from polar bear to walrus, and make hunting less safe for Alaska Native hunters.




Bars show Alaska [illegible] changes by decade for [illegible] to the [illegible] average. [illegible] (2000s decade) [illegible] (Figure source: NOAA NCDC/CICS-NC)

The state's largest industries, energy production, mining, and fishing, are all affected by climate change. Continuing pressure for oil, gas, and mineral development on land and offshore in ice-covered waters increases the demand for infrastructure, placing additional stresses on ecosystems. Land-based energy exploration will be affected by a shorter season when ice roads are viable, yet reduced sea ice extent may create more opportunity for offshore development.

Alaska is home to 40% of the federally recognized tribes in the United States.[4] The small number of jobs, high cost of living, and rapid social change make rural, predominantly Native, communities highly vulnerable to climate change through impacts on traditional hunting and fishing and cultural connection to the land and sea.



Arctic sea ice extent and thickness have declined substantially, especially in late summer (September), when there is now only about half as much sea ice as at the beginning of the satellite record in 1979.[5,6] The seven Septembers with the lowest ice extent all occurred in the past seven years. Sea ice has also become thinner, with less ice lasting over multiple years, and is therefore more vulnerable to further melting.[6] Models that best match historical trends project that northern waters will be virtually ice-free in late summer by the 2030s.[7]

Reductions in sea ice increase the amount of the sun's energy absorbed by the ocean. This melts more ice, leaving more dark open water that gains even more heat, leading to a self-reinforcing cycle that increases warming.

In Alaska, 80% of land is underlain by permafrost – frozen ground that restricts water drainage and therefore strongly influences landscape water balance and the design and maintenance of infrastructure. More than 70% of this area is vulnerable to subsidence (land sinking) upon thawing because of its ice content.[8] Permafrost near the Alaskan Arctic coast has warmed 6°F to 8°F at 3.3 foot depth since the mid-1980s.[9] Thawing is already occurring in interior and southern Alaska, where permafrost temperatures are near the thaw point.[10] Permafrost will continue to thaw,[11] and some models project that near-surface permafrost will be lost entirely from large parts of Alaska by the end of this century.[12]

Local governments and tribes throughout Alaska are planting native vegetation, moving inland or away from rivers, and building riprap walls, seawalls, or groins, which are shore-protection structures built perpendicular to the shoreline.[13] Top photo shows a Homer seawall battered by waves while still under construction.

Villages including Newtok, Shishmaref (bottom), and Kivalina are facing relocation because of sea level rise and coastal erosion. Storm surges that used to be buffered by ice are now causing more shoreline and infrastructure damage. Residents of these villages face thawing permafrost, tilting houses, and sinking boardwalks along with aging fuel tanks and other infrastructure. Newtok has worked for a generation to move to a safer location, but current federal legislation does not authorize federal or state agencies to assist communities in relocating, or the use of public funds to repair or upgrade storm-damaged infrastructure in flood-prone locations.[14] Shishmaref and Kivalina are also seeking to relocate but have been similarly unsuccessful.

reefs, as well as changed distribution patterns of tuna fisheries. Ocean acidification will reduce coral growth and health. Warming and acidification, combined with existing stresses, will strongly affect coral reef fish communities.

Increasing temperatures, and in some areas reduced rainfall, will stress native Pacific Island plants

coastal flooding and erosion, damaging coastal ecosystems, infrastructure, and agriculture, and

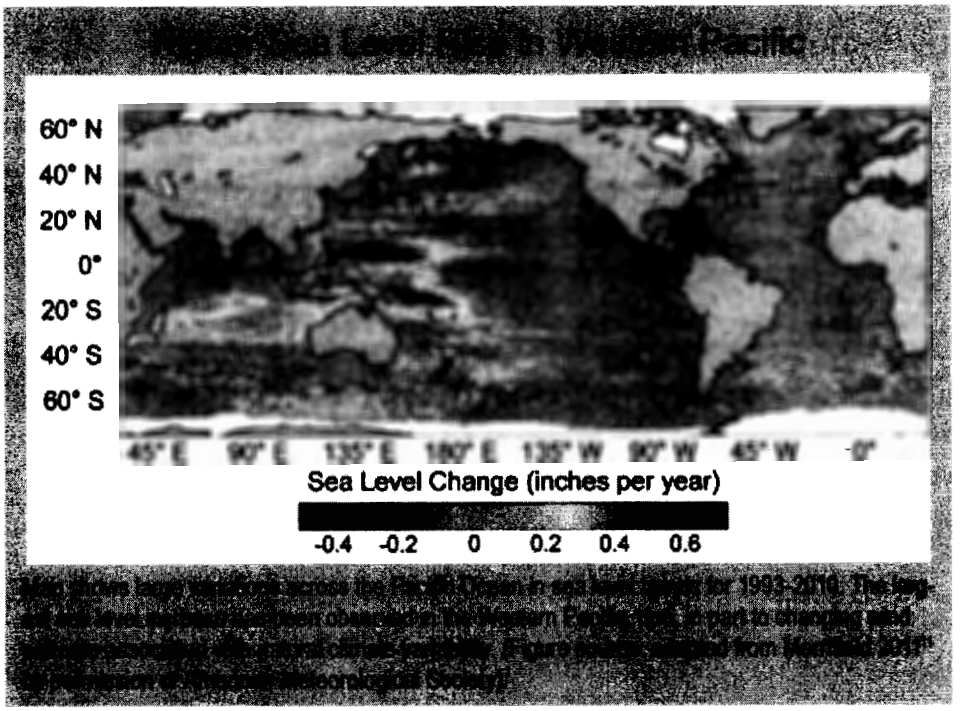
to increasing human migration, making it increasingly difficult for Pacific Islanders to sustain the

The U.S. Pacific Islands are at risk from climate changes that will affect nearly every aspect of life. The region includes more than 2,000 islands spanning millions of square miles of ocean. Rising air and ocean temperatures, shifting rainfall patterns, changing frequencies and intensities of storms and drought, decreasing streamflows, rising sea levels, and changing ocean chemistry will threaten the sustainability of globally important and diverse ecosystems on land and in the oceans, as well as local communities, livelihoods, and cultures.

On most islands, increased temperatures coupled with decreased rainfall and increased drought will reduce the amount of freshwater available for drinking and crop irrigation.[1] Climate change impacts on freshwater resources will vary with differing island size and topography, affecting water storage capability and susceptibility to coastal flooding. Low-lying islands will be particularly vulnerable due to their small land mass, geographic isolation, limited potable water sources, and limited agricultural resources.[2] Sea level rise will increase saltwater intrusion from the ocean during storms.[3,4]

Rising sea levels will escalate the threat to coastal structures and property, groundwater reservoirs, harbor operations, airports, wastewater systems, shallow coral reefs, sea grass beds, intertidal flats and mangrove forests, and other social, economic, and natural resources.

Coastal infrastructure and agricultural activity on low islands will be affected as sea level rise decreases the land area available for farming,[3] and periodic flooding increases the salinity of groundwater.

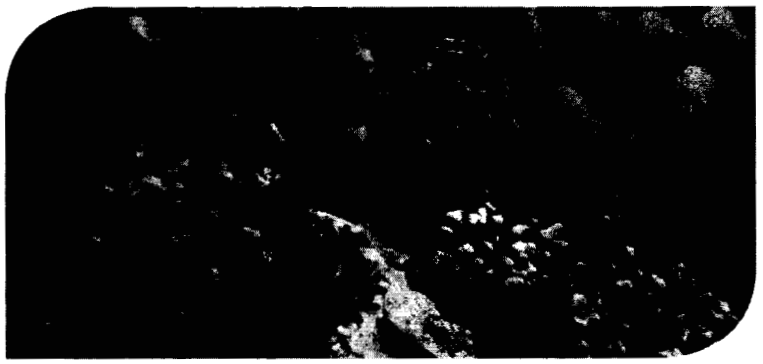



Many of Hawai'i's native birds, marvels of evolution largely limited to high-elevation forests, are increasingly vulnerable as rising temperatures allow mosquitoes carrying diseases like avian malaria to thrive at higher elevations.[5] Mangrove area in the region could decline 10% to 20% in this century due to sea level rise.[6] This would reduce the nursery areas, feeding grounds, and habitat for fish, crustaceans, and other species, as well as shoreline protection and wave dampening, and water filtration provided by mangroves.[7] Pacific seabirds that breed on low-lying atolls will lose large portions of their breeding populations[8] as their habitat is increasingly and more extensively covered by seawater.

Economic impacts from tourism loss will be greatest on islands with more developed infrastructure. In Hawai'i, for example, where tourism comprises 26% of the state's economy, damage to tourism infrastructure could have large economic impacts – the loss of Waikīkī Beach alone could lead to an annual loss of $2 billion in visitor expenditures.[9]

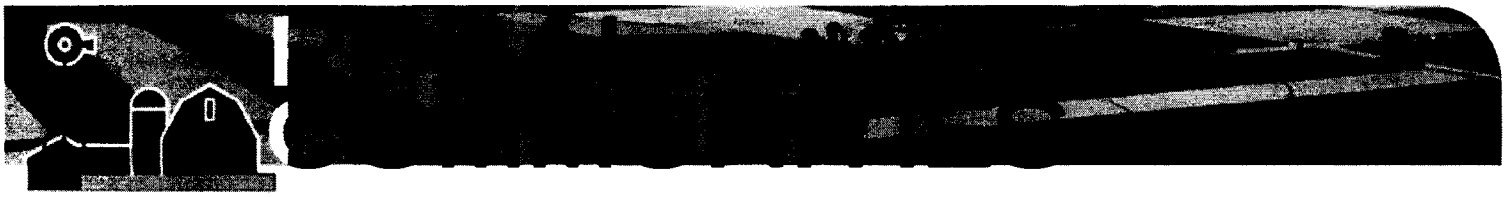
Because Pacific Islands are almost entirely dependent upon imported food, fuel, and material, the vulnerability of ports and airports to extreme events, sea level rise, and increasing wave heights is of great concern. Climate change is also expected to have serious effects on human health, for example by increasing the incidence of dengue fever.[10] In addition, sea level rise and flooding are expected to overwhelm sewer systems and threaten public sanitation.

The traditional lifestyles and cultures of Indigenous communities in all Pacific Islands will be seriously affected by climate change. Drought threatens traditional food sources such as taro and breadfruit, and coral death from warming-induced bleaching will threaten subsistence fisheries in island communities.[11] Climate change impacts, coupled with socioeconomic or political motivations, may be great enough to lead some people to relocate. Depending on the scale and distance of migration, a variety of challenges face migrants and the communities receiving them.



Increasing ocean temperature and acidity threaten coral reef ecosystems. By 2100, assuming ongoing increases in emissions of heat-trapping gases (A2 scenario), continued loss of coral reefs and the shelter they provide will result in extensive losses in numbers and species of reef fishes.[12] For more on ocean impacts, see pages 59-60.

The State of Hawai'i, in cooperation with university, private, state, and federal scientists and others, has drafted an adaptation plan,[13] one of the priorities of which is preserving water sources through conservation of the forests, as indicated in their "Rain Follows The Forest" report.[14]



Responding to additional challenges from climate change impacts will require significant adaptation

More than 95% of U.S. land area is classified as rural, but is home to just 19% of the population.[1] Rural areas provide natural resources that much of the rest of the U.S. depends on for food, energy, water, forests, recreation, national character, and quality of life.[2] Rural economic foundations and community cohesion are intricately linked to these natural systems, which are inherently vulnerable to climate change. Urban areas that depend on goods and services from rural areas will also be affected by climate change driven impacts across the countryside.

Warming, climate volatility, extreme weather events, and environmental change are already affecting the economies and cultures of rural areas. Many communities face considerable risk to their infrastructure, livelihoods, and quality of life from observed and projected climate shifts. These changes will progressively increase volatility in food commodity markets, shift locations where particular economic activities can thrive, alter the ranges of plant and animal species, and, depending on the region, increase water scarcity, exacerbate flooding and coastal erosion, and increase the intensity and frequency of wildfires across the rural landscape. Because many rural communities are less diverse than urban areas in their economic activities, changes in the viability of one traditional economic sector will place disproportionate stresses on community stability.

Rural America has already experienced impacts of climate change related weather effects, including crop and livestock loss from severe drought and flooding,[3] damage to levees and roads from extreme storms,[4] shifts in planting and harvesting times,[5] and large-scale losses from fires and other weather-related disasters.[6] These impacts have profound effects, often significantly affecting the health and well-being of rural residents and communities, and are amplified by the essential economic link between these communities and their natural resource base.

Hunting, fishing, bird watching, and other wildlife-related activities will be affected as wildlife habitats shift and relationships among species change.[8] Cold-weather recreation and tourism will be adversely affected by climate change. Snow accumulation in the West has decreased, and is expected to continue to decrease, as a result of observed and projected warming. Similar changes to snowpack are expected in the Northeast.[9] Adverse impacts on winter sports are projected to be more pronounced in the Northeast and Southwest.[10]

Flooded corn field and river flood waters illustrate threats rural areas face in a changing climate.

Coastal areas will be adversely affected by sea level rise and increased severity of storms.[11] Changing conditions, such as wetland loss and beach erosion in coastal areas,[12] and increased risk of natural hazards such as wildfire, flash flooding, storm surge, river flooding, drought, and extremely high temperatures can alter the character and attraction of rural areas as tourist destinations.

Changing demographics and economic activities influence the ability to respond to climate change. Rural areas are characterized by higher unemployment, more dependence on government transfer payments, less diversified economies, and fewer social and economic resources needed for resilience in the face of climate change.[10,13]

Climate variability and increases in temperature, extreme events (such as storms, floods, heat waves, and droughts), and sea level rise are expected to have widespread impacts on the provision of services from state, regional, local, and tribal governments. Emergency management, energy use and distribution systems, transportation and infrastructure planning, and public health will all be affected.

Rural governments often depend heavily on volunteers to meet community challenges like fire protection or flood response. Rural communities have limited locally available financial resources to cope with the effects of climate change. Small community size tends to make services expensive or available only by traveling some distance.

Adaptation efforts require planning, but local governance structures tend to de-emphasize planning capacity compared to urban areas. While 73% of metropolitan counties have land-use planners, only 29% of rural counties not adjacent to a metropolitan county had one or more planners. Moreover, rural communities are not equipped to deal with major infrastructure expenses.[14]

If rural communities are to respond adequately to future climate changes, they will likely need help assessing their risks and vulnerabilities, prioritizing and coordinating projects, funding and allocating financial and human resources, and deploying information-sharing and decision support tools.

Impacts due to climate change will cross community and regional lines, making solutions dependent upon meaningful participation of numerous stakeholders from federal, state, local, and tribal governments, science and academia, the private sector, non-profit organizations, and the general public. Effective adaptation measures are closely tied to specific local conditions and needs and take into account existing social networks.[15]

Decisions regarding adaptation responses for both urban and rural populations can occur at various scales (federal, state, local, tribal, private sector, and individual) but need to take interdependencies into account. Many decisions that significantly affect rural communities may not be under the control of local governments or rural residents.

Timing is a critical aspect of adaptation and mitigation, so engaging rural residents early in decision processes about investments in public infrastructure, protection of shorelines, changes in insurance provision, or new management initiatives can influence behavior and choices in ways that enhance positive outcomes of adaptation and mitigation.

creasingly vulnerable to higher sea levels and storm surges, inland flooding, erosion, and other

Nationally important assets, such as ports, tourism, and fishing sites, in already-vulnerable coastal

economic activity within coastal areas and the regions they serve and results in significant costs

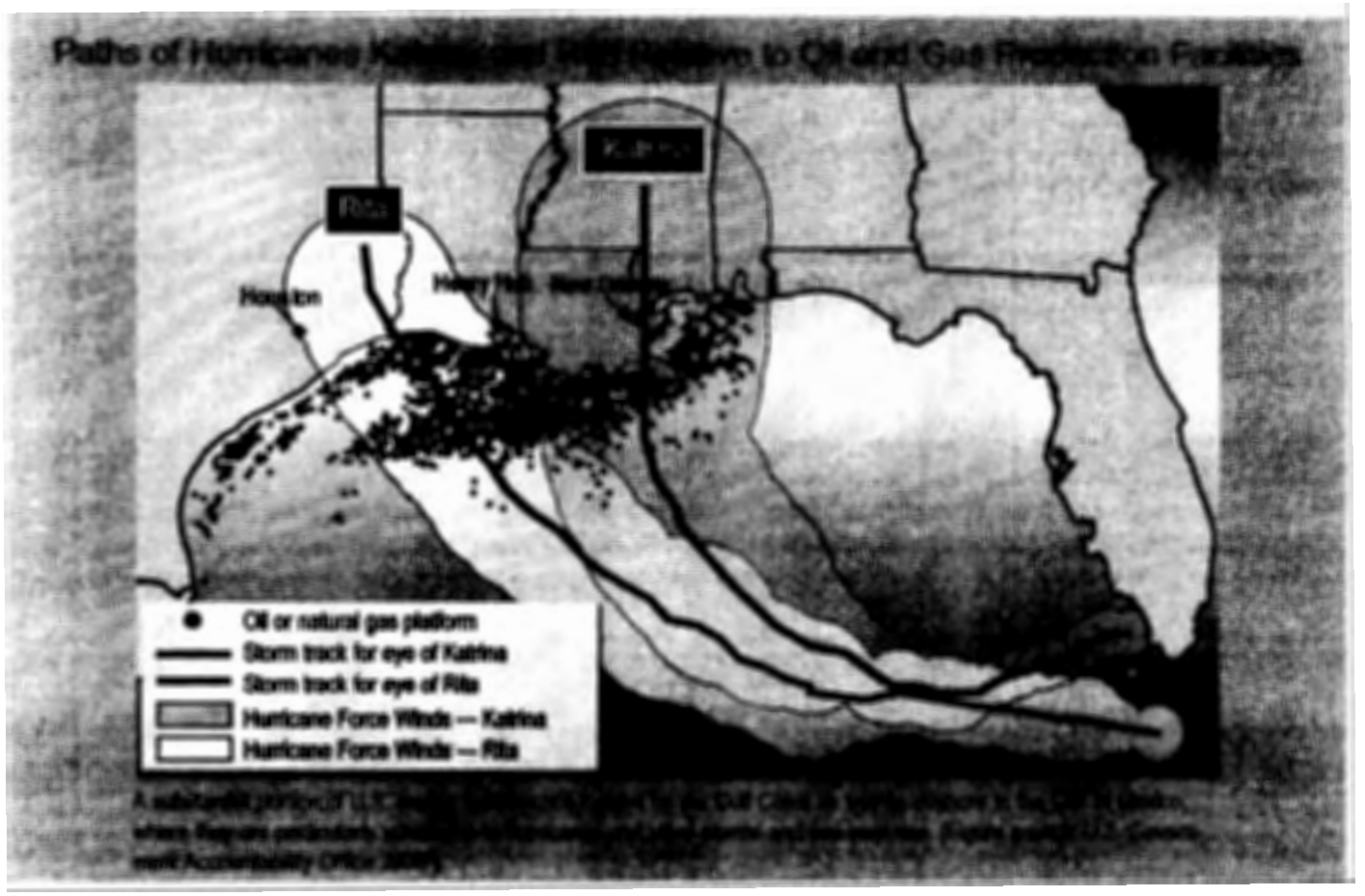
and environmental assets. Significant institutional, political, social, and economic obstacles to

More than 50% of Americans – 164 million people – live in coastal counties, with 1.2 million added each year. Residents, combined with the more than 180 million tourists that flock to the coasts each year,[1,2] place heavy demands on the unique natural systems and resources that make coastal areas so attractive and productive.[1,2]

No other region concentrates so many people and so much economic activity on so little land, while also being so relentlessly affected by the sometimes violent interactions of land, sea, and air. Humans have heavily altered the coastal environment through development, changes in land use, and overexploitation of resources.

Now, the changing climate is imposing additional stresses,[3] making life on the coast more challenging. The consequences will ripple through the entire nation.

Damage to coastal roads is already a problem along the shores of the U.S. and will worsen as sea level continues to rise.




## Lifelines at Risk

Key coastal vulnerabilities arise from complex interactions among climate change and other physical, human, and ecological factors. These vulnerabilities have the potential to fundamentally alter life at the coast and disrupt coast-dependent economic activities.

The more than 60,000 miles of coastal roads are essential for human activities. Already, many coastal roads are affected during storm events[5] and extreme high tides.[6] As coastal bridges, tunnels, and roads are built or redesigned, engineers must account for present and future climate change impacts.[7]

Wastewater management and drainage systems are also at risk. Systems will become overwhelmed with increased rainfall intensity over more impervious surfaces, such as asphalt and concrete.[8] Sea level rise will cause a variety of problems including salt water intrusion into coastal aquifers.[9] Together, climate change impacts increase the risks of urban flooding, combined sewer overflows, deteriorating coastal water quality, and human health impacts.[10]

The nation's energy infrastructure, such as power plants, oil and gas refineries, storage tanks, transformers, and electricity transmission lines, are often located directly in the coastal floodplain.[11] Roughly two-thirds of imported oil enters the U.S. through Gulf of Mexico ports,[12] and unless adaptive measures are taken, storm-related flooding, erosion, and permanent inundation from sea level rise will disrupt the supply of refined products to the rest of the nation.[13]

There are a variety of options to protect, replace, and redesign existing infrastructure, including flood proofing and flood protection through dikes, berms, pumps, integration of natural landscape features, elevation, more frequent upgrades, or relocation.[14] Such adaptation options are best assessed in a site-specific context, weighing social, economic, and ecological considerations.

Natural gas platform in the Gulf of Mexico illustrates some of the infrastructure at risk from coastal storms.

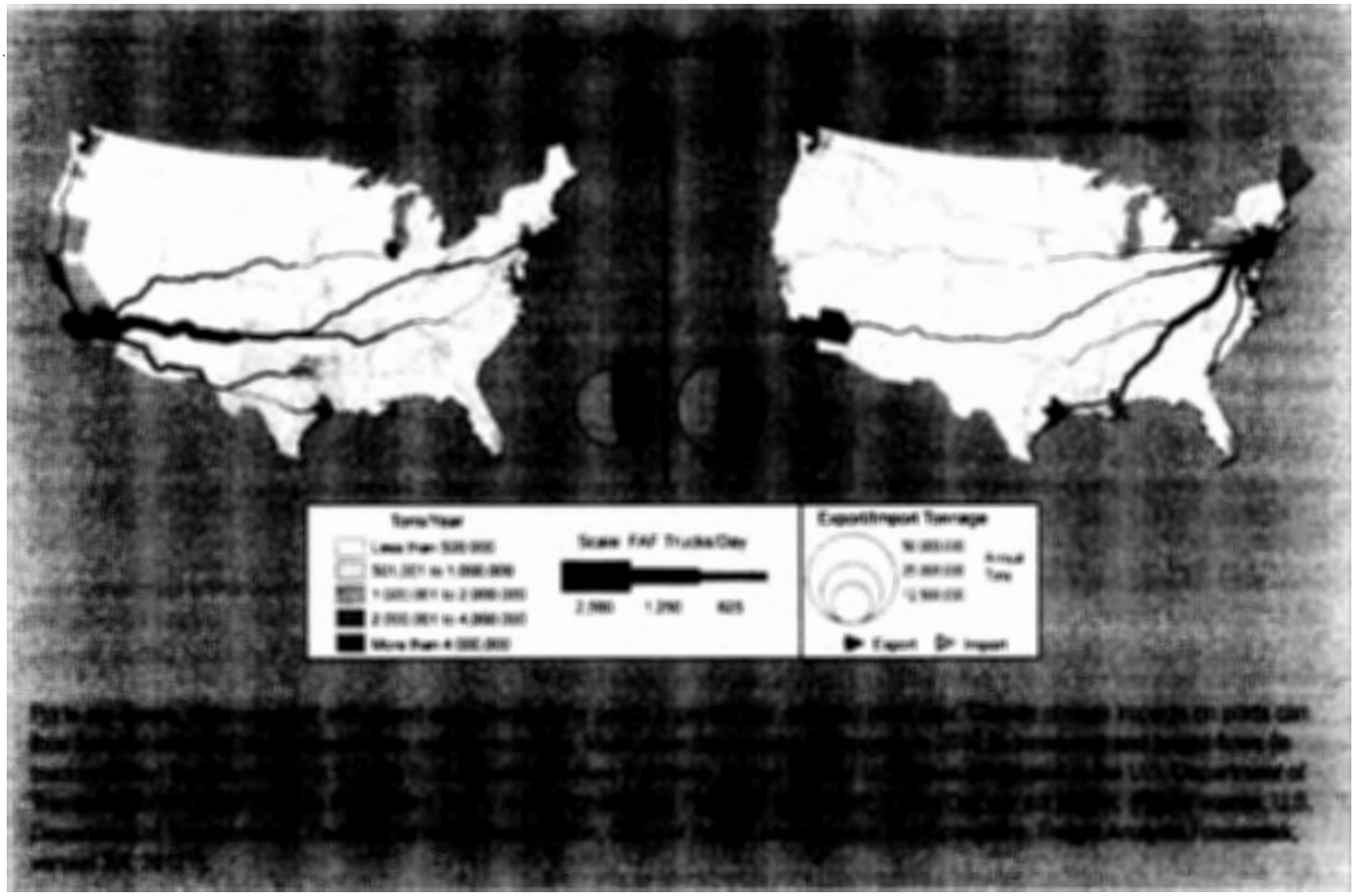
# Coasts

## Economic Disruption

More than 5,790 square miles and more than $1 trillion of property and structures are at risk of inundation from sea level rise of two feet above current sea level – which could be reached by 2050 under a high rate of sea level rise, by 2070 assuming a lower rate of rise, and sooner in areas of rapid land subsidence.[15,16,17] Roughly half of the vulnerable property value is located in Florida.[16,18]

Although comprehensive national estimates are not yet available, regional studies are indicative of the potential risk: the incremental annual damage of climate change to capital assets in the Gulf region alone could be $2.7 to $4.6 billion by 2030, and $8.3 to $13.2 billion by 2050; about 20% of these at-risk assets are in the oil and gas industry.[19] Investing approximately $50 billion for adaptation over the next 20 years could lead to approximately $135 billion in averted losses over the lifetime of adaptive measures.[19,20]

Coastal recreation and tourism comprises the largest and fastest-growing sector of the U.S. service industry, accounting for 85% of the $700 billion annual tourism-related revenues.[1,21] Hard shoreline protection against the encroaching sea (like building sea walls or riprap) generally aggravates erosion and beach loss, and causes negative effects on coastal ecosystems, undermining the attractiveness of beach tourism. Thus, "soft protection," such as beach replenishment or conservation and restoration of sand dunes and wetlands, is increasingly preferred to "hard protection" measures.



## Socioeconomic Disparities

There are large socioeconomic disparities in coastal areas,[23,24] and a full understanding of risk for coastal communities requires consideration of social vulnerability factors that limit people's ability to adapt. These factors include lower income, minority status, low educational achievement, advanced age, lower economic and social mobility, and much lower likelihood of being insured than wealthy property owners.[25] The most socially vulnerable populations also tend to have fewer adaptation options in their current locations, and thus may be at greater risk of dislocation.[24,26]

## Vulnerable Ecosystems

Coastal ecosystems provide a suite of valuable benefits (ecosystem services) on which humans depend, including reducing the impacts from floods, buffering from storm surge and waves, and providing nursery habitat for important fish and other species, water filtration, carbon storage, and opportunities for recreation and enjoyment.[27,28]

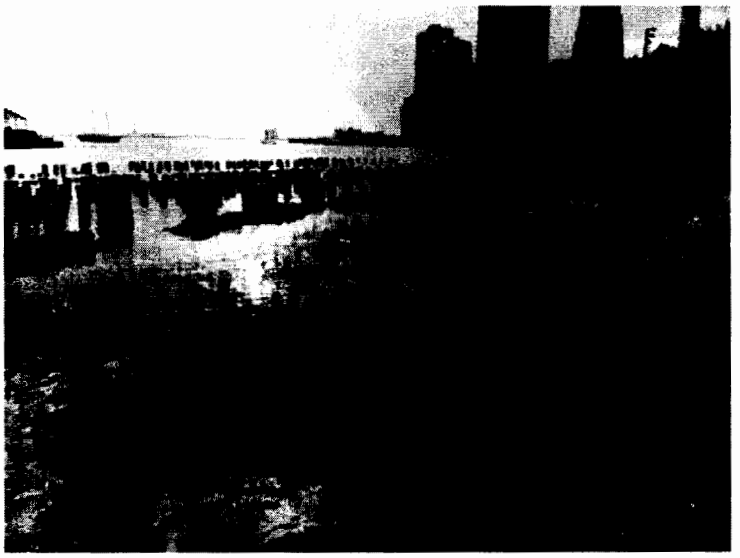
However, many of these ecosystems and the services they provide are rapidly being degraded by human impacts, including pollution, habitat destruction, and the spread of invasive species.

These existing stresses on coastal ecosystems will be exacerbated by climate change effects, such as increased ocean temperatures that lead to coral bleaching,[29] altered river flows affecting the health of estuaries,[30] and acidified waters threatening shellfish.[31] Of particular concern is the potential for coastal ecosystems to cross thresholds of rapid change ("tipping points"), beyond which they exist in a dramatically altered state or are lost entirely from the area. Some ecosystems are already near tipping points and in some cases the changes will be irreversible.[32]

Coastal leaders and populations are increasingly concerned about climate-related impacts and are developing adaptation plans,[33] but support for development restrictions or managed retreat is limited.[34]

Enacting measures that increase resilience in the face of current hazards, while reducing long-term risks due to climate change, continues to be challenging.[35]

A robust finding is that the cost of inaction is 4 to 10 times greater than the cost associated with preventive hazard mitigation.[16,36] Even so, prioritizing expenditures now whose benefits accrue far in the future is difficult.[37]



A coastal ecosystem restoration project in New York City integrates revegetation (a form of green infrastructure) with bulkheads and riprap (gray or built infrastructure). Investments in coastal ecosystem conservation and restoration can protect coastal waterfronts and infrastructure, while providing additional benefits, such as habitat for commercial and recreational fish, birds, and other animal and plant species, that are not offered by built infrastructure.

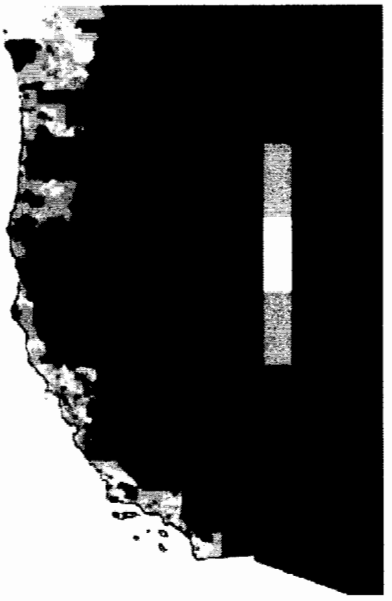
Cumulative costs to the economy of responding to sea level rise and flooding events alone could be as high as $325 billion by 2100 for 4 feet of sea level rise, with $130 billion expected to be incurred in Florida and $88 billion in the North Atlantic region.[17] The projected costs associated with one foot of sea level rise by 2100 are roughly $200 billion. These figures exclude losses of valuable ecosystem services, as well as indirect losses from business disruption, lost economic activity, impacts on economic growth, or other non-market losses.[17,38]

Property insurance can serve as an important mode of financial adaptation to climate risks,[39] but the full potential of leveraging insurance rates and availability has not yet been realized.[40,41] Federal fiscal exposure for the National Flood Insurance Program was estimated at nearly $1.3 trillion in 2012.[42] Reforms were enacted in 2012, though various challenges remain.[43]

Climate adaptation efforts that integrate hazard mitigation, natural resource conservation, and restoration of coastal ecosystems can enhance ecological resilience and reduce the exposure of property, infrastructure, and economic activities to climate change impacts.[28,44] Yet, the integration and translation of scientific understanding of the benefits provided by ecosystems into engineering design and hazard management remains challenging.[45] Adaptation efforts to date that have begun to connect these issues across jurisdictional and departmental boundaries and create innovative solutions are thus extremely encouraging.[46,48]

- Summer sea ice is receding rapidly, altering marine ecosystems, allowing for greater ship access and offshore development, and making Native communities highly susceptible to coastal erosion.
- Ice loss from melting Alaskan and Canadian glaciers currently contributes almost as much to sea level rise as does melting of the Greenland Ice Sheet.
- Current and projected increases in Alaska's ocean temperatures and changes in ocean chemistry are expected to alter the distribution and productivity of Alaska's marine fisheries.

- The substantial global sea level rise is regionally moderated by the continuing uplift of land, with few exceptions, such as the Seattle area and central Oregon.
- Commercial shellfish populations are at risk from ocean acidification.
- The region's relatively high economic dependence on commercial fisheries makes it sensitive to climate change impacts on marine species and ecosystems and related coastal ecosystems.
- Coastal storm surges are expected to be higher due to increases in sea level alone, and more intense persistent storm tracks (atmospheric river systems) will increase coastal flooding risks from inland runoff.



- Sea level has risen approximately 7 inches from 1900 to 2005, and is expected to rise at growing rates in this century.
- Higher temperatures; changes in precipitation, runoff, and water supplies; and saltwater intrusion into coastal aquifers will result in negative impacts on coastal water resources.
- Coastal storm surges are expected to be higher due to increases in sea level alone, and more intense persistent storm tracks (atmospheric river systems) will increase coastal flooding risks from inland runoff.
- Expensive coastal development, critical infrastructure, and valuable coastal wetlands are at growing risk from coastal erosion, temporary flooding, and permanent inundation.
- The San Francisco Bay and San Joaquin/Sacramento River Delta are particularly vulnerable to sea level rise and changes in salinity, temperature, and runoff; endangering one of the ecological "jewels" of the West Coast, as well as growing development, and crucial water infrastructure.

- Warmer and drier conditions will reduce freshwater supplies on many Pacific Islands, especially on low lying islands and atolls.
- Sea level rise will continue at accelerating rates, exacerbating coastal erosion, damaging infrastructure and agriculture, reducing critical habitat, and threatening shallow coral reef systems.
- Extreme water levels occur when high tides combine with interannual and interdecadal sea level variations (such as El Niño Southern Oscillation, Pacific Decadal Oscillation, mesoscale eddy events) and storm surge.
- Coral reef changes pose threats to communities, cultures, and ecosystems.

Boxes summarize coastal climate change threats for each region.
Map shows how social vulnerability varies around the coasts.[48]

- **Higher temperatures and longer growing seasons in the Great Lakes region favor production of blue-green and toxic algae that can harm fish, water quality, habitat, and aesthetics.**
- **Increased winter air temperatures will lead to decreased Great Lakes ice cover, making shorelines more susceptible to erosion and flooding.**
- **Current projections of lake level changes are uncertain.**

- **Highly built-up coastal corridor concentrates population and supporting infrastructure.**
- **Storm surges from nor'easters and hurricanes can cause significant damage.**
- **The historical rate of relative sea level rise varies across the region.**
- **Wetlands and estuaries are vulnerable to inundation from sea level rise; buildings and infrastructure are most vulnerable to higher storm surges as sea level rises.**

- **Rates of local sea level rise in the Chesapeake Bay are greater than the global average.**
- **Sea level rise and related flooding and erosion threaten coastal homes, infrastructure, and commercial development, including ports.**
- **Chesapeake Bay ecosystems are already heavily degraded, making them more vulnerable to climate-related impacts.**

- **Hurricanes, land subsidence, sea level rise, and erosion already pose great risks to Gulf Coast areas, placing homes, critical infrastructure, and people at risk, and causing permanent land loss.**
- **Coastal inland and water temperatures are expected to rise; coastal inland areas are expected to become drier.**
- **There is still uncertainty about future frequency and intensity of Gulf of Mexico hurricanes, but sea level rise will increase storm surges.**
- **The Florida Keys, South Florida, and coastal Louisiana are particularly vulnerable to additional sea level rise and saltwater intrusion.**

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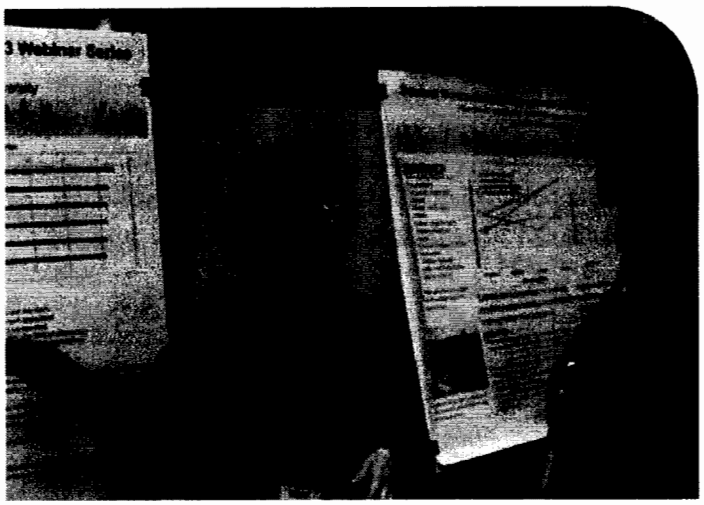
- **A large number of cities, critical infrastructure, and water supplies are at low elevations and exposed to sea level rise, in some places moderated by land uplift.**
- **Ecosystems of the Southeast are vulnerable to loss from relative sea level rise, especially tidal marshes and swamps.**
- **Sea level rise will affect coastal agriculture through higher storm surges, saltwater intrusion, and impacts on freshwater supplies.**
- **The number of land-falling tropical storms may decline, reducing important rainfall.**
- **The incidence of harmful algal blooms is expected to increase with climate change, as are health problems previously uncommon in the region.**

# NATIONAL CLIMATE ASSESSMENTS

## Sustained Assessment

Since 1990, Congress has required periodic updates on climate science and its implications. A primary goal of the National Climate Assessment (NCA) is to help the nation anticipate, mitigate, and adapt to impacts from climate change in the context of other national and global change factors.

As this third NCA was being prepared, a vision for a new approach to assessments took shape. This vision includes an ongoing process for understanding and evaluating the nation's vulnerabilities to climate change and its capacity to respond. A sustained assessment, in addition to producing quadrennial assessment reports as required by law, recognizes that the ability to understand, predict, assess, and respond to rapid changes in the global environment requires ongoing efforts to integrate new knowledge and experience.



A sustained assessment process would provide decision-makers with more timely and useful information.

A sustained assessment process would: 1) advance the science needed to improve the assessment process and its outcomes, building associated foundational knowledge and collecting relevant data; 2) develop targeted scientific reports and other products that respond directly to the needs of federal agencies, state and local governments, tribes, and other decision-makers; 3) create a framework for continued interactions between the assessment partners and stakeholders and the scientific community; and 4) support the capacity of those engaged in assessment activities to maintain such interactions.

To provide decision-makers with more timely, concise, and useful information, a sustained assessment process would include both ongoing, extensive engagement with public and private partners and targeted, scientifically rigorous reports that address concerns in a timely fashion. A growing body of assessment literature has guided and informed the development of this approach to a sustained assessment.[1] The envisioned sustained assessment process includes continuing and expanding engagement with scientists and other professionals from government, academia, business, and non-governmental organizations. These partnerships broaden the knowledge base from which conclusions can be drawn. In addition, sustained engagement with decision-makers and end users helps scientists understand what information society wants and needs, and provides mechanisms for researchers to receive ongoing feedback on the utility of the tools and data they provide.

An ongoing process that supports these forms of outreach and engagement allows for more comprehensive and insightful evaluation of climate changes across the nation, including how decision-makers and end users are responding to these changes. The most thoughtful and robust responses to climate change can be made only when these complex issues, including the underlying science and its many implications for the nation, are documented and communicated in a way that both scientists and non-scientists can understand. This sustained assessment process will lead to better outcomes by providing more relevant, comprehensible, and usable knowledge to guide decisions related to climate change at local, regional, and national scales. More information is available in the NCADAC special report "Preparing the Nation for Change: Building a Sustained National Climate Assessment."[2]

Ongoing monitoring and observations can help guide decision-making.

In addition to producing the quadrennial assessment reports required by the 1990 Global Change Research Act, a well-designed and executed sustained assessment process would produce many other important outcomes:

1. Increase the nation's capacity to measure and evaluate the impacts of and responses to further climate change in the U.S., locally, regionally, and nationally.
2. Improve the collection of assessment-related critical data, access to those data, and the capacity of users to work with datasets – including their use in decision support tools – relevant to their specific issues and interests. This includes periodically assessing how users are applying such data.
3. Support the creation of the first integrated suite of national indicators of climate-related trends across a variety of important climate drivers and responses.
4. Catalyze the production of targeted, in-depth reports on various topics that help inform choices about mitigation and adaptation. These reports would generate new insights about climate change, its impacts, and the effectiveness of societal responses. In addition, other reports could focus on improvements to aspects of the process (for example, scenarios and indicators) to reinforce the foundation for the quadrennial assessments.
5. Facilitate, support, and leverage a network of scientific, decision-maker, and user communities for extended dialog and engagement regarding climate change.
6. Provide a systematic way to identify gaps in knowledge and uncertainties faced by the scientific community and by U.S. domestic and international partners and to assist in setting priorities for their resolution.
7. Enhance integration with other assessment efforts such as the Intergovernmental Panel on Climate Change and modeling efforts such as the Coupled Model Intercomparison Project.
8. Develop and apply tools to evaluate progress and guide improvements in processes and products over time, supporting an iterative approach to managing risks and opportunities associated with changing conditions.

## Research Needs

Five priority research goals have been identified to advance future climate and global change assessments.

- Improve understanding of the climate system and its drivers.
- Improve understanding of climate impacts and vulnerability.
- Increase understanding of adaptation pathways.
- Identify the mitigation options that reduce the risk of longer-term climate change.
- Improve decision support and integrated assessment.

This assessment also identifies five cross-cutting foundational capabilities that are essential for advancing the ability to continue to conduct climate and global change assessments and for addressing the five research goals.

- Integrate natural and social science, engineering, and other disciplinary approaches.
- Ensure availability of observations, monitoring, and infrastructure for critical data collection and analysis.
- Build capacity for climate assessment through training, education, and workforce development.
- Enhance the development and use of scenarios.
- Promote international research and collaboration.

These are not intended to prescribe a specific research agenda but rather to summarize the research needs and gaps that emerged during development of this NCA that are relevant to the development of future research plans.

For example, several important topics could not be comprehensively covered in this assessment and could be considered in future reports. These include analyses of the economic costs of climate change impacts (and the associated benefits of mitigation and adaptation strategies); the considerations related to climate change for U.S. national security, as appropriate, as a topic integrated with other regional and sectoral discussions; and the interactions of adaptation and mitigation options, including consideration of the co-benefits and potential unintended consequences of particular decisions.

The following criteria should be considered in establishing research priorities that support assessments:

- Promote understanding of the fundamental behavior of the Earth's climate and environmental systems.
- Promote understanding of the socioeconomic impacts of a changing climate.
- Build capacity to assess risks and consequences.
- Support research that enables the infrastructure needed for analysis.
- Build decision support capacity.
- Support engagement of the private sector and investment communities.
- Leverage private sector, university, and international resources and partnerships.

As climate change and its impacts become more prevalent, Americans face choices. Although some additional climate change and related impacts are now unavoidable, the amount of future climate change and its consequences will still largely be determined by our choices, now and in the near future. There is still time to act to limit the amount of climate change and the extent of damaging impacts we will face.

> There is still time to act to limit the amount of climate change and the extent of damaging impacts.

This report offers an overview of some of the options and activities being implemented or planned around the country as governments, businesses, and individuals begin to respond to climate change. These include efforts to reduce heat-trapping emissions and adapt to changing conditions.

There are many pathways to significantly reduce heat-trapping gas emissions. In addition, actions to reduce emissions can yield benefits for objectives apart from managing climate change, such as increasing energy security and improving human health. Similarly, actions to prepare for and adapt to climate change impacts can also improve our resilience in other ways.

## Managing Heavy Rainfall

Municipalities across the country are increasingly implementing a range of adaptation options to manage the increase in heavy downpours, including using green roofs, rain gardens, roadside plantings, porous pavement, and rainwater harvesting. These techniques typically utilize soils and vegetation to absorb runoff close to where it falls, limiting flooding and sewer backups. In Maine, an initiative is underway to help towns adapt culverts to handle the heavier rainfalls already occurring and expected to increase further over the lifetime of the culverts. People are creating decision tools to map culvert locations, schedule maintenance, estimate needed culvert size, and analyze replacement needs and costs. There are complex, multi-jurisdictional challenges for even such seemingly simple actions as using larger culverts to carry water from major storms.

## Cities Mitigate and Adapt

Many cities are undertaking initiatives to reduce heat-trapping gas emissions. More than 1,055 municipalities from all 50 states have signed the U.S. Mayors Climate Protection Agreement, and many of these communities are actively implementing strategies to reduce their greenhouse gas footprint. By integrating climate-change considerations into daily operations, some cities are forestalling the need to develop new or isolated climate change specific policies or procedures. This strategy enables cities and other government agencies to take advantage of existing funding sources and programs and achieve co-benefits in areas such as sustainability, public health, economic development, disaster preparedness, and environmental justice. Pursuing low-cost, no-regrets options is a particularly attractive short-term strategy for many cities.

Achieving the lower emissions pathway used in this assessment would require substantial decarbonization of the global economy by the end of this century, implying a fundamental transformation of the global energy system.

Climate change presents us with both challenges and opportunities.

Many technologies are potentially available to accomplish emissions reduction. They include ways to increase the efficiency of energy use and facilitate a shift to low-carbon energy sources, improvements in the cost and performance of renewables (such as wind, solar, and bioenergy) and nuclear energy, ways to reduce the cost of carbon capture and storage, means to expand carbon sinks through management of forests and soils and increased agricultural productivity, and phasing down the use of other heat-trapping gases, like hydrofluorocarbons (HFCs), widely used for refrigeration.

The United States has declared a goal of reducing its greenhouse gas emissions about 17% below 2005 levels by 2020 through a range of actions, including limiting carbon emissions from power plants and continuing to increase the fuel economy of cars and trucks and the energy efficiency of buildings. The U.S. has also indicated that it will seek to exert leadership internationally.

Climate change presents us with both challenges and opportunities. The information contained in this report can help enable our society to effectively respond and prepare for our future.

## Northeast Takes Action

The most well-known, multi-state effort has been the Regional Greenhouse Gas Initiative (RGGI), formed by ten northeastern and Mid-Atlantic states (though New Jersey exited in 2011). RGGI is a cap-and-trade system applied to the power sector with revenue from allowance auctions directed to investments in efficiency and renewable energy.

## Southwest Ramps Up Renewables

The Southwest's abundant geothermal, wind, and solar power-generation resources could help transform the region's electric generating system into one that uses substantially more renewable energy. This transformation has already started, driven in part by renewable energy portfolio standards that require a certain amount of electricity to be generated with renewables. These standards have been adopted by five of six Southwest states, and also include renewable energy goals in Utah.

## California Acts to Reduce Emissions

California's Global Warming Solutions Act (AB 32) is an ambitious law that sets a state goal to reduce its greenhouse gas emissions to 1990 levels by 2020. The state program caps emissions and uses a market-based system of trading in emissions credits (cap-and-trade), limits imports of baseload electricity generation from coal and oil, and implements a number of other regulatory actions.

# Third NCA Author Teams

## 1. Overview and Report Findings

### Convening Lead Authors

Jerry Melillo, Marine Biological Laboratory
Terese (T.C.) Richmond, Van Ness Feldman, LLP
Gary Yohe, Wesleyan University

## 2. Our Changing Climate

### Convening Lead Authors

John Walsh, University of Alaska Fairbanks
Donald Wuebbles, University of Illinois

### Lead Authors

Katharine Hayhoe, Texas Tech University
James Kossin, NOAA National Climatic Data Center
Kenneth Kunkel, CICS-NC, North Carolina State Univ., NOAA National Climatic Data Center
Graeme Stephens, NASA Jet Propulsion Laboratory
Peter Thorne, Nansen Environmental and Remote Sensing Center
Russell Vose, NOAA National Climatic Data Center
Michael Wehner, Lawrence Berkeley National Laboratory
Josh Willis, NASA Jet Propulsion Laboratory

### Contributing Authors

David Anderson, NOAA National Climatic Data Center
Scott Doney, Woods Hole Oceanographic Institution
Richard Feely, NOAA Pacific Marine Environmental Laboratory
Paula Hennon, CICS-NC, North Carolina State Univ., NOAA National Climatic Data Center
Viatcheslav Kharin, Canadian Centre for Climate Modelling and Analysis, Environment Canada
Thomas Knutson, NOAA Geophysical Fluid Dynamics Laboratory
Felix Landerer, NASA Jet Propulsion Laboratory
Tim Lenton, Exeter University
John Kennedy, UK Meteorological Office
Richard Somerville, Scripps Institution of Oceanography, Univ. of California, San Diego

## 3. Water Resources

### Convening Lead Authors:

Aris Georgakakos, Georgia Institute of Technology
Paul Fleming, Seattle Public Utilities

### Lead Authors:

Michael Dettinger, U.S. Geological Survey
Christa Peters-Lidard, National Aeronautics and Space Administration
Terese (T.C.) Richmond, Van Ness Feldman, LLP
Ken Reckhow, Duke University
Kathleen White, U.S. Army Corps of Engineers
David Yates, University Corporation for Atmospheric Research

## 4. Energy Supply and Use

### Convening Lead Authors

Jan Dell, ConocoPhillips
Susan Tierney, Analysis Group Consultants

### Lead Authors

Guido Franco, California Energy Commission
Richard G. Newell, Duke University
Rich Richels, Electric Power Research Institute
John Weyant, Stanford University
Thomas J. Wilbanks, Oak Ridge National Laboratory

## 5. Transportation

### Convening Lead Authors

Henry G. Schwartz, HGS Consulting, LLC
Michael Meyer, Parsons Brinckerhoff

### Lead Authors

Cynthia J. Burbank, Parsons Brinckerhoff
Michael Kuby, Arizona State University
Clinton Oster, Indiana University
John Posey, East-West Gateway Council of Governments
Edmond J Russo, U.S. Army Corps of Engineers
Arthur Rypinski, U.S. Department of Transportation

## 6. Agriculture

### Convening Lead Authors

Jerry Hatfield, U.S. Department of Agriculture
Gene Takle, Iowa State University

### Lead Authors

Richard Grotjahn, University of California, Davis
Patrick Holden, Waterborne Environmental, Inc.
R. Cesar Izaurralde, Pacific Northwest National Laboratory
Terry Mader, University of Nebraska, Lincoln
Elizabeth Marshall, U.S. Department of Agriculture

### Contributing Authors

Diana Liverman, University of Arizona

## 7. Forests

### Convening Lead Authors

Linda A. Joyce, U.S. Forest Service
Steven W. Running, University of Montana

### Lead Authors

David D. Breshears, University of Arizona
Virginia H. Dale, Oak Ridge National Laboratory
Robert W. Malmsheimer, SUNY Environmental Science and Forestry
R. Neil Sampson, Vision Forestry, LLC
Brent Sohngen, Ohio State University
Christopher W. Woodall, U.S. Forest Service

## 8. Ecosystems, Biodiversity, and Ecosystem Services

### Convening Lead Authors

Peter M. Groffman, Cary Institute of Ecosystem Studies
Peter Kareiva, The Nature Conservancy

### Lead Authors

Shawn Carter, U.S. Geological Survey
Nancy B. Grimm, Arizona State University
Josh Lawler, University of Washington
Michelle Mack, University of Florida
Virginia Matzek, Santa Clara University
Heather Tallis, Stanford University

## 9. Human Health

### Convening Lead Authors

George Luber, Centers for Disease Control and Prevention
Kim Knowlton, Natural Resources Defense Council and Mailman School of Public Health, Columbia University

### Lead Authors

John Balbus, National Institutes of Health
Howard Frumkin, University of Washington
Mary Hayden, National Center for Atmospheric Research
Jeremy Hess, Emory University
Michael McGeehin, RTI International
Nicky Sheats, Thomas Edison State College

### Contributing Authors

Lorraine Backer, Centers for Disease Control and Prevention
C. Ben Beard, Centers for Disease Control and Prevention
Kristie L. Ebi, ClimAdapt, LLC
Edward Maibach, George Mason University
Richard S. Ostfeld, Cary Institute of Ecosystem Studies
Christine Wiedinmyer, National Center for Atmospheric Research
Emily Zielinski-Gutiérrez, Centers for Disease Control and Prevention
Lewis Ziska, U.S. Department of Agriculture

## 10. Energy, Water, and Land Use

### Convening Lead Authors

Kathy Hibbard, Pacific Northwest National Laboratory
Tom Wilson, Electric Power Research Institute

### Lead Authors

Kristen Averyt, University of Colorado Boulder
Robert Harriss, Environmental Defense Fund
Robin Newmark, National Renewable Energy Laboratory
Steven Rose, Electric Power Research Institute
Elena Shevliakova, Princeton University
Vincent Tidwell, Sandia National Laboratories

## 11. Urban Systems, Infrastructure, and Vulnerability

### Convening Lead Authors

Susan L. Cutter, University of South Carolina
William Solecki, City University of New York

### Lead Authors

Nancy Bragado, City of San Diego
JoAnn Carmin, Massachusetts Institute of Technology
Michail Fragkias, Boise State University
Matthias Ruth, Northeastern University
Thomas J. Wilbanks, Oak Ridge National Laboratory

## 12. Indigenous Peoples, Lands, and Resources

### Convening Lead Authors

T.M. Bull Bennett, Kiksapa Consulting, LLC
Nancy G. Maynard, National Aeronautics and Space Administration and University of Miami

### Lead Authors

Patricia Cochran, Alaska Native Science Commission
Robert Gough, Intertribal Council on Utility Policy
Kathy Lynn, University of Oregon
Julie Maldonado, American University, University Corporation for Atmospheric Research
Garrit Voggesser, National Wildlife Federation
Susan Wotkyns, Northern Arizona University

### Contributing Authors

Karen Cozzetto, University of Colorado at Boulder

## 13. Land Use and Land Cover Change

### Convening Lead Authors

Daniel G. Brown, University of Michigan
Colin Polsky, Clark University

### Lead Authors

Paul Bolstad, University of Minnesota
Samuel D. Brody, Texas A&M University at Galveston
David Hulse, University of Oregon
Roger Kroh, Mid-America Regional Council
Thomas R. Loveland, U.S. Geological Survey
Allison Thomson, Pacific Northwest National Laboratory

## 14. Rural Communities

### Convening Lead Authors

David Hales, Second Nature

William Hohenstein, U.S. Department of Agriculture

### Lead Authors

Marcie D. Bidwell, Mountain Studies Institute

Craig Landry, East Carolina University

David McGranahan, U.S. Department of Agriculture

Joseph Molnar, Auburn University

Lois Wright Morton, Iowa State University

Marcela Vasquez, University of Arizona

### Contributing Authors

Jenna Jadin, U.S. Department of Agriculture

## 15. Biogeochemical Cycles

### Convening Lead Authors

James N. Galloway, University of Virginia

William H. Schlesinger, Cary Institute of Ecosystem Studies

### Lead Authors

Christopher M. Clark, U.S. Environmental Protection Agency

Nancy B. Grimm, Arizona State University

Robert B. Jackson, Duke University

Beverly E. Law, Oregon State University

Peter E. Thornton, Oak Ridge National Laboratory

Alan R. Townsend, University of Colorado Boulder

### Contributing Author

Rebecca Martin, Washington State University Vancouver

## 16. Northeast

### Convening Lead Authors

Radley Horton, Columbia University

Gary Yohe, Wesleyan University

### Lead Authors

William Easterling, Pennsylvania State University

Robert Kates, University of Maine

Matthias Ruth, Northeastern University

Edna Sussman, Fordham University School of Law

Adam Whelchel, The Nature Conservancy

David Wolfe, Cornell University

### Contributing Author

Fredric Lipschultz, NASA and Bermuda Institute of Ocean Sciences

## 17. Southeast and Caribbean

### Convening Lead Authors

Lynne M. Carter, Louisiana State University

James W. Jones, University of Florida

### Lead Authors

Leonard Berry, Florida Atlantic University

Virginia Burkett, U.S. Geological Survey

James F. Murley, South Florida Regional Planning Council

Jayantha Obeysekera, South Florida Water Management District

Paul J. Schramm, Centers for Disease Control and Prevention

David Wear, U.S. Forest Service

## 18. Midwest

### Convening Lead Authors

Sara C. Pryor, Indiana University

Donald Scavia, University of Michigan

### Lead Authors

Charles Downer, U.S. Army Engineer Research and Development Center

Marc Gaden, Great Lakes Fishery Commission

Louis Iverson, U.S. Forest Service

Rolf Nordstrom, Great Plains Institute

Jonathan Patz, University of Wisconsin

G. Philip Robertson, Michigan State University

## 19. Great Plains

### Convening Lead Authors

Mark Shafer, Oklahoma Climatological Survey

Dennis Ojima, Colorado State University

### Lead Authors

John M. Antle, Oregon State University

Doug Kluck, National Oceanic and Atmospheric Administration

Renee A. McPherson, University of Oklahoma

Sascha Petersen, Adaptation International

Bridget Scanlon, University of Texas

Kathleen Sherman, Colorado State University

## 20. Southwest

### Convening Lead Authors

Gregg Garfin, University of Arizona

Guido Franco, California Energy Commission

### Lead Authors

Hilda Blanco, University of Southern California

Andrew Comrie, University of Arizona

Patrick Gonzalez, National Park Service

Thomas Piechota, University of Nevada, Las Vegas

Rebecca Smyth, National Oceanic and Atmospheric Administration

Reagan Waskom, Colorado State University

## 21. Northwest

### Convening Lead Authors

Philip Mote, Oregon State University
Amy K. Snover, University of Washington

### Lead Authors

Susan Capalbo, Oregon State University
Sanford D. Eigenbrode, University of Idaho
Patty Glick, National Wildlife Federation
Jeremy Littell, U.S. Geological Survey
Richard Raymondi, Idaho Department of Water Resources
Spencer Reeder, Cascadia Consulting Group

## 22. Alaska

### Convening Lead Authors

F. Stuart Chapin III, University of Alaska Fairbanks
Sarah F. Trainor, University of Alaska Fairbanks

### Lead Authors

Patricia Cochran, Alaska Native Science Commission
Henry Huntington, Huntington Consulting
Carl Markon, U.S. Geological Survey
Molly McCammon, Alaska Ocean Observing System
A. David McGuire, U.S. Geological Survey and University of Alaska Fairbanks
Mark Serreze, University of Colorado

## 23. Hawai'i and U.S. Affiliated Pacific Islands

### Convening Lead Authors

Jo-Ann Leong, University of Hawai'i
John J. Marra, National Oceanic and Atmospheric Administration

### Lead Authors

Melissa L. Finucane, East-West Center
Thomas Giambelluca, University of Hawai'i
Mark Merrifield, University of Hawai'i
Stephen E. Miller, U.S. Fish and Wildlife Service
Jeffrey Polovina, National Oceanic and Atmospheric Administration
Eileen Shea, National Oceanic and Atmospheric Administration

### Contributing Authors

Maxine Burkett, University of Hawai'i
John Campbell, University of Waikato
Penehuro Lefale, Meteorological Service of New Zealand Ltd.
Fredric Lipschultz, NASA and Bermuda Institute of Ocean Sciences
Lloyd Loope, U.S. Geological Survey
Deanna Spooner, Pacific Island Climate Change Cooperative
Bin Wang, University of Hawai'i

## 24. Oceans and Marine Resources

### Convening Lead Authors

Scott Doney, Woods Hole Oceanographic Institution
Andrew A. Rosenberg, Union of Concerned Scientists

### Lead Authors

Michael Alexander, National Oceanic and Atmospheric Administration
Francisco Chavez, Monterey Bay Aquarium Research Institute
C. Drew Harvell, Cornell University
Gretchen Hofmann, University of California Santa Barbara
Michael Orbach, Duke University
Mary Ruckelshaus, Natural Capital Project

## 25. Coastal Zone Development and Ecosystems

### Convening Lead Authors

Susanne C. Moser, Susanne Moser Research & Consulting and Stanford University
Margaret A. Davidson, National Oceanic and Atmospheric Administration

### Lead Authors

Paul Kirshen, University of New Hampshire
Peter Mulvaney, Skidmore, Owings & Merrill LLP
James F. Murley, South Florida Regional Planning Council
James E. Neumann, Industrial Economics, Inc.
Laura Petes, National Oceanic and Atmospheric Administration
Denise Reed, The Water Institute of the Gulf

## 26. Decision Support: Connecting Science, Risk Perception, and Decisions

### Convening Lead Authors

Richard Moss, Joint Global Change Research Institute, Pacific Northwest National Laboratory, University of Maryland
P. Lynn Scarlett, The Nature Conservancy

### Lead Authors

Melissa A. Kenney, University of Maryland
Howard Kunreuther, University of Pennsylvania
Robert Lempert, RAND Corporation
Jay Manning, Cascadia Law Group
B. Ken Williams, The Wildlife Society

### Contributing Authors

James W. Boyd, Resources for the Future
Emily T. Cloyd, University Corporation for Atmospheric Research
Lauma Kaatz, Denver Water
Lindene Patton, Zurich North America

## 27. Mitigation

### Convening Lead Authors

Henry D. Jacoby, Massachusetts Institute of Technology
Anthony C. Janetos, Boston University

### Lead Authors

Richard Birdsey, U.S. Forest Service
James Buizer, University of Arizona
Katherine Calvin, Pacific Northwest National Laboratory, University of Maryland
Francisco de la Chesnaye, Electric Power Research Institute
David Schimel, NASA Jet Propulsion Laboratory
Ian Sue Wing, Boston University

### Contributing Authors

Reid Detchon, United Nations Foundation
Jae Edmonds, Pacific Northwest National Laboratory, University of Maryland
Lynn Russell, Scripps Institution of Oceanography, University of California, San Diego
Jason West, University of North Carolina

## 28. Adaptation

### Convening Lead Authors

Rosina Bierbaum, University of Michigan
Arthur Lee, Chevron Corporation
Joel Smith, Stratus Consulting

### Lead Authors

Maria Blair, Independent
Lynne M. Carter, Louisiana State University
F. Stuart Chapin III, University of Alaska Fairbanks
Paul Fleming, Seattle Public Utilities
Susan Ruffo, The Nature Conservancy

### Contributing Authors

Shannon McNeeley, Colorado State University
Missy Stults, University of Michigan
Laura Verduzco, Chevron Corporation
Emily Seyller, University Corporation for Atmospheric Research

## 29. Research Needs for Climate and Global Change Assessments

### Convening Lead Authors

Robert W. Corell, Florida International University and the GETF Center for Energy and Climate Solutions
Diana Liverman, University of Arizona

### Lead Authors

Kirstin Dow, University of South Carolina
Kristie L. Ebi, ClimAdapt, LLC
Kenneth Kunkel, CICS-NC, North Carolina State Univ., NOAA National Climatic Data Center
Linda O. Mearns, National Center for Atmospheric Research
Jerry Melillo, Marine Biological Laboratory

## 30. Sustained Assessment: A New Vision for Future U.S. Assessments

### Convening Lead Authors

John A. Hall, U.S. Department of Defense
Maria Blair, Independent

### Lead Authors

James L. Buizer, University of Arizona
David I. Gustafson, Monsanto Company
Brian Holland, ICLEI – Local Governments for Sustainability
Susanne C. Moser, Susanne Moser Research & Consulting and Stanford University
Anne M. Waple, Second Nature and University Corporation for Atmospheric Research

## Appendix 3. Climate Science Supplement, and Appendix 4. Frequently Asked Questions

### Convening Lead Authors

John Walsh, University of Alaska Fairbanks
Donald Wuebbles, University of Illinois

### Lead Authors

Katharine Hayhoe, Texas Tech University
James Kossin, NOAA National Climatic Data Center
Kenneth Kunkel, CICS-NC, North Carolina State Univ., NOAA National Climatic Data Center
Graeme Stephens, NASA Jet Propulsion Laboratory
Peter Thorne, Nansen Environmental and Remote Sensing Center
Russell Vose, NOAA National Climatic Data Center
Michael Wehner, Lawrence Berkeley National Laboratory
Josh Willis, NASA Jet Propulsion Laboratory

### Contributing Authors

David Anderson, NOAA National Climatic Data Center
Viatcheslav Kharin, Canadian Centre for Climate Modelling and Analysis, Environment Canada
Thomas Knutson, NOAA Geophysical Fluid Dynamics Laboratory
Felix Landerer, NASA Jet Propulsion Laboratory
Tim Lenton, Exeter University
John Kennedy, UK Meteorological Office
Richard Somerville, Scripps Institution of Oceanography, Univ. of California, San Diego

# National Climate Assessment Staff

## USGCRP National Climate Assessment Coordination Office

Katharine Jacobs, Director, National Climate Assessment, White House Office of Science and Technology Policy (OSTP) (through December 2013) / University of Arizona

Fabien Laurier, Director, Third National Climate Assessment, White House OSTP (previously Deputy Director, USGCRP) (from December 2013)

Glynis Lough, NCA Chief of Staff, USGCRP / UCAR (from June 2012)

Sheila O'Brien, NCA Chief of Staff, USGCRP / UCAR (through May 2012)

Susan Aragon-Long, NCA Senior Scientist and Sector Coordinator, U.S. Geological Survey

Ralph Cantral, NCA Senior Scientist and Sector Coordinator, NOAA (through November 2012)

Tess Carter, Student Assistant, Brown University

Emily Therese Cloyd, NCA Public Participation and Engagement Coordinator, USGCRP / UCAR

Chelsea Combest-Friedman, NCA International Coordinator, Knauss Marine Policy Fellow, NOAA (February 2011-February 2012)

Alison Delgado, NCA Scientist and Sector Coordinator, Pacific Northwest National Laboratory, Joint Global Change Research Institute, University of Maryland (from October 2012)

William Emanuel, NCA Senior Scientist and Sector Coordinator, Pacific Northwest National Laboratory, Joint Global Change Research Institute, University of Maryland (June 2011-September 2012)

Matt Erickson, Student Assistant, Washington State University (July-October 2012)

Ilya Fischhoff, NCA Program Coordinator, USGCRP / UCAR

Elizabeth Fly, NCA Coastal Coordinator, Knauss Marine Policy Fellow, NOAA (February 2013-January 2014)

Chelcy Ford, NCA Sector Coordinator, USFS (August-November 2011)

Wyatt Freeman, Student Assistant, George Mason University / UCAR (May-September 2012)

Bryce Golden-Chen, NCA Program Coordinator, USGCRP / UCAR

Nancy Grimm, NCA Senior Scientist and Sector Coordinator, NSF / Arizona State University (July 2011-September 2012)

Tess Hart, NCA Communications Assistant, USGCRP / UCAR (June-July 2011)

Melissa Kenney, NCA Indicators Coordinator, NOAA / University of Maryland

Fredric Lipschultz, NCA Senior Scientist and Regional Coordinator, NASA / Bermuda Institute of Ocean Sciences

Stuart Luther, Student Assistant, Arizona State University / UCAR (June-August 2011)

Julie Maldonado, NCA Engagement Assistant and Tribal Coordinator, USGCRP / UCAR

Krista Mantsch, Student Assistant, Indiana University / UCAR (May-September 2013)

Rebecca Martin, Student Assistant, Washington State University (June-August 2012)

Paul Schramm, NCA Sector Coordinator, Centers for Disease Control and Prevention (June-November 2010)

## Technical Support Unit, National Climatic Data Center, NOAA/NESDIS

David Easterling, NCA Technical Support Unit Director, NOAA National Climatic Data Center (from March 2013)

Anne Waple, NCA Technical Support Unit Director, NOAA NCDC / UCAR (through February 2013)

Susan Joy Hassol, Senior Science Writer, Climate Communication, LLC / Cooperative Institute for Climate and Satellites, North Carolina State University (CICS-NC)

Paula Ann Hennon, NCA Technical Support Unit Deputy Director, CICS-NC

Kenneth Kunkel, Chief Scientist, CICS-NC

Sara W. Veasey, Creative Director, NOAA NCDC

Andrew Buddenberg, Software Engineer/Scientific Programmer, CICS-NC

Fred Burnett, Administrative Assistant, Jamison Professional Services, Inc.

Sarah Champion, Scientific Data Curator and Process Analyst, CICS-NC

Doreen DiCarlo, Program Coordinator, CICS-NC (August 2011-April 2012)

Daniel Glick, Editor, CICS-NC

Jessicca Griffin, Lead Graphic Designer, CICS-NC

John Keck, Web Consultant, LMI, Inc. (August 2010 - September 2011)

Angel Li, Web Developer, CICS-NC

Clark Lind, Administrative Assistant, The Baldwin Group, Inc. (January-September 2012)

Liz Love-Brotak, Graphic Designer, NOAA NCDC

Tom Maycock, Technical Editor, CICS-NC

Janice Mills, Business Manager, CICS-NC

Deb Misch, Graphic Designer, Jamison Professional Services, Inc.

Julie Moore, Administrative Assistant, The Baldwin Group, Inc. (June 2010-January 2012)

Ana Pinheiro-Privette, Data Coordinator, CICS-NC (January 2012-July 2013)

Deborah B. Riddle, Graphic Designer, NOAA NCDC

April Sides, Web Developer, ERT, Inc.

Laura E. Stevens, Research Scientist, CICS-NC

Scott Stevens, Support Scientist, CICS-NC

Brooke Stewart, Science Editor/Production Coordinator, CICS-NC

Liqiang Sun, Research Scientist/Modeling Support, CICS-NC

Robert Taylor, Student Assistant, UNC Asheville, CICS-NC

Devin Thomas, Metadata Specialist, ERT, Inc.

Teresa Young, Print Specialist, Team ERT/STG, Inc.

## Review Editors

Joseph Arvai, University of Calgary

Peter Backlund, University Corporation for Atmospheric Research

Lawrence Band, University of North Carolina

Jill S. Baron, U.S. Geological Survey / Colorado State University

Michelle L. Bell, Yale University

Donald Boesch, University of Maryland

Joel R. Brown, New Mexico State University

Ingrid C. (Indy) Burke, University of Wyoming

Gina Campoli, Vermont Agency of Transportation

Mary Anne Carroll, University of Michigan

Scott L. Collins, University of New Mexico

John Daigle, University of Maine
Ruth DeFries, Columbia University
Lisa Dilling, University of Colorado
Otto C. Doering III, Purdue University
Hadi Dowlatabadi, University of British Columbia
Charles T. Driscoll, Syracuse University
Hallie C. Eakin, Arizona State University
John Farrington, Woods Hole Oceanographic Institution
Chris E. Forest, Pennsylvania State University
Efi Foufoula-Georgiou, University of Minnesota
Adam Freed, The Nature Conservancy
Robert Fri, Resources for the Future
Stephen T. Gray, U.S. Geological Survey
Jay Gulledge, Oak Ridge National Laboratory
Terrie Klinger, University of Washington
Ian Kraucunas, Pacific Northwest National Laboratory
Larissa Larsen, University of Michigan
William J. Massman, U.S. Forest Service
Michael D. Mastrandrea, Stanford University
Pamela Matson, Stanford University
Ronald G. Prinn, Massachusetts Institute of Technology
J.C. Randolph, Indiana University
G. Philip Robertson, Michigan State University
David Robinson, Rutgers University
Dork Sahagian, Lehigh University
Christopher A. Scott, University of Arizona
Peter Vitousek, Stanford University
Andrew C. Wood, NOAA

## United States Global Change Research Program

Thomas Armstrong (OSTP), Executive Director, USGCRP
Chris Weaver (OSTP / EPA), Deputy Executive Director, USGCRP

## Subcommittee on Global Change Research

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Thomas Karl, U.S. Department of Commerce

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Gerald Geernaert, U.S. Department of Energy, Vice Chair, Integrated Modeling
Mike Freilich, National Aeronautics and Space Administration, Vice Chair, Integrated Observations
Roger Wakimoto, National Science Foundation, Vice-Chair

### Principals

John Balbus, U.S. Department of Health and Human Services
Katharine Batten, U.S. Agency for International Development
Joel Clement, U.S. Department of the Interior
Robert Detrick, U.S. Department of Commerce
Scott L. Harper, U.S. Department of Defense
Leonard Hirsch, Smithsonian Institution
William Hohenstein, U.S. Department of Agriculture
Jack Kaye, National Aeronautics and Space Administration
Michael Kuperberg, U.S. Department of Energy
C. Andrew Miller, U.S. Environmental Protection Agency
Arthur Rypinski, U.S. Department of Transportation
Joann Roskoski, National Science Foundation
Trigg Talley, U.S. Department of State

## Interagency National Climate Assessment Working Group

### Chair

Katharine Jacobs, White House Office of Science and Technology Policy (through December 2013)
Fabien Laurier, White House Office of Science and Technology Policy (from December 2013)

### Vice-Chair

Virginia Burkett, U.S. Department of the Interior – U.S. Geological Survey (from March 2013)
Anne Waple, NOAA NCDC / UCAR (through February 2013)

## National Aeronautics and Space Administration

Allison Leidner, Earth Science Division / Universities Space Research Association

## National Science Foundation

Anjuli Bamzai, Directorate for Geosciences (through May 2011)
Eve Gruntfest, Directorate for Geosciences (January-November 2013)
Rita Teutonico, Directorate for Social, Behavioral, and Economic Sciences (through January 2011)

## Smithsonian Institution

Leonard Hirsch, Office of the Undersecretary for Science

## U.S. Department of Agriculture

Linda Langner, U.S. Forest Service (through January 2011)
Carolyn Olson, Office of the Chief Economist
Toral Patel-Weynand, U.S. Forest Service
Louie Tupas, National Institute of Food and Agriculture
Margaret Walsh, Office of the Chief Economist

## U.S. Department of Commerce

Ko Barrett, National Oceanic and Atmospheric Administration (from February 2013)
David Easterling, National Oceanic and Atmospheric Administration – National Climatic Data Center (from March 2013)
Nancy McNabb, National Institute of Standards and Technology (from February 2013)
Adam Parris, National Oceanic and Atmospheric Administration
Anne Waple, NOAA NCDC / UCAR (through February 2013)

### U.S. Department of Defense

William Goran, U.S. Army Corps of Engineers
John Hall, Office of the Secretary of Defense
Katherine Nixon, Navy Task Force Climate Change (from May 2013)
Courtney St. John, Navy Task Force Climate Change (through August 2012)

### U.S. Department of Energy

Robert Vallario, Office of Science

### U.S. Department of Health and Human Services

John Balbus, National Institutes of Health
Paul Schramm, Centers for Disease Control and Prevention (through July 2011)

### U.S. Department of Homeland Security

Mike Kangior, Office of Policy (from November 2011)
John Laws, National Protection and Programs Directorate (from May 2013)

### U.S. Department of the Interior

Susan Aragon-Long, U.S. Geological Survey
Virginia Burkett, U.S. Geological Survey
Leigh Welling, National Park Service (through May 2011)

### U.S. Department of State

David Reidmiller, Bureau of Oceans and International Environmental & Scientific Affairs
Kenli Kim, Bureau of Oceans and International Environmental & Scientific Affairs (from February 2013)

### U.S. Department of Transportation

Arthur Rypinski, Office of the Secretary
Mike Savonis, Federal Highway Administration (through March 2011)
AJ Singletary, Office of the Secretary (through August 2010)

### U.S. Environmental Protection Agency

Rona Birnbaum, Office of Air and Radiation
Anne Grambsch, Office of Research and Development
Lesley Jantarasami, Office of Air and Radiation

### White House Council on Environmental Quality

Jeff Peterson (through July 2013)
Jamie Pool (from February 2013)

### White House Office of Management and Budget

Stuart Levenbach (through May 2012)

### White House Office of Science and Technology Policy

Katharine Jacobs, Environment and Energy Division (through December 2013)
Fabien Laurier, Environment and Energy Division (from December 2013)

With special thanks to former NOAA Administrator, Jane Lubchenco and former Associate Director of the Office of Science and Technology Policy, Shere Abbott

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The information presented in this *Highlights* report is derived directly from *Climate Change Impacts in the United States* - the full version of the Third National Climate Assessment. Thus the primary sources for *Highlights* are the relevant chapters of the full report and the external sources cited therein. In many cases, material selected for *Highlights* included direct references to external sources, and those references are provided below.

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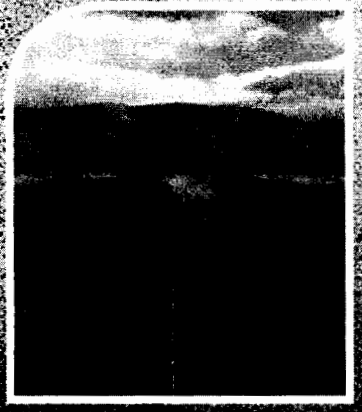
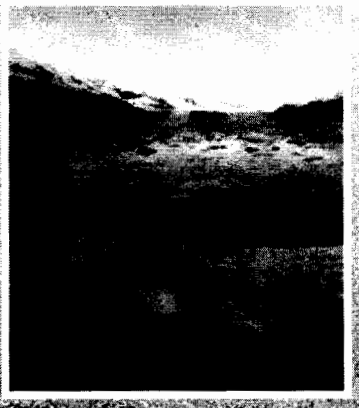
U.S. Global Change Research Program
1717 Pennsylvania Avenue, NW • Suite 250 • Washington, DC 20006 USA
http://www.globalchange.gov





REID RIBBLE
8TH DISTRICT, WISCONSIN

333 WEST COLLEGE AVENUE
APPLETON, WI 54911
920-380-0067
WWW.RIBBLE.HOUSE.GOV

Congress of the United States
Washington, DC 20515

1513 LONGWORTH BUILDING
WASHINGTON, DC 20515
202-225-5665

September 12, 2016

The Honorable Gina McCarthy
Administrator
Environmental Protection Agency
1200 Pennsylvania Avenue N.W.
Washington, DC 20460

Dear Administrator McCarthy:

I respectfully request that in developing an interim final rule implementing the Water Infrastructure Financing and Innovation Act (WIFIA) program that you consider including provisions clarifying that the Miller Act, 40 U.S.C. §§ 3131-3134 and its associated performance and payment bonding requirements or equivalent bonding requirements apply to any public-private partnerships (P3) projects funded or financed by the federal government. The federal government long has recognized the importance of surety bonding requirements for its direct public works procurements. The federal Miller Act, which was enacted in 1935, and related regulations, require that a payment and performance bond be in place on any federal construction contract in excess of $150,000. The performance bond assures the public entity and taxpayers that the construction contract will be performed fully according to its terms and conditions. The payment bond provides invaluable protection to parties furnishing labor or material on federal construction projects. Subcontractors and suppliers rely on the payment bond in case the prime contractor does not or cannot pay them.

However, there is concern that such bonding requirements may not apply to public works projects funded by the federal government if they are carried out by a private entity under a P3 agreement such as those authorized by Section 5014 of the Water Resources Reform and Development Act of 2014 (P.L. 113-121). In addition, there are similar concerns that bonding requirements may not apply to public works projects *financed* by the federal government, such as those authorized by Subtitle C of (P.L. 113-121) through the WIFIA program.

Regardless of whether funded through direct federal expenditures or by utilizing federal funding through P3 agreements, bonding should be required to protect taxpayer investments and to provide payment assurances to the many small businesses furnishing labor, materials, and equipment on construction projects. Subsequently, I believe it is critical to assure that bonding is a required protection for the design-build or construction portion of P3s receiving financing

through WIFIA. By requiring payment bonds to be furnished on WIFIA-financed P3 arrangements, EPA will ensure that certain subcontractors and suppliers on these projects will have payment remedies in the event of nonpayment, ensuring the continued viability of these often local small businesses.

My office looks forward to working with you on this important issue.

Respectfully submitted for consideration,

Reid J. Ribble

Member of Congress.

AL-17-000-5244
Incoming

# United States Senate

WASHINGTON, DC 20510

February 27, 2017

The Honorable Scott Pruitt
Administrator
Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

Dear Administrator Pruitt:

On January 25, 2017, President Trump issued an Executive Order directing Administration officials to identify "sanctuary jurisdictions" and cut off all federal grants to those jurisdictions.[1] Despite lawsuits challenging the legality of the Order, the Trump Administration appears to be accelerating its efforts to put the Order into effect. Last week, Department of Homeland Security (DHS) Secretary John Kelly issued a memorandum instructing his agency on how to implement the Order,[2] and the White House Press Secretary said that the Administration would "do everything we can to respect taxpayers and ensure that your states follow the law."[3] Because the Order is unconstitutional and the Administration is not pausing to give the courts time to weigh in, we write to better understand your views and your intentions regarding immediate enforcement against Massachusetts.

Massachusetts is a huge contributor to the federal treasury. We are among the nation's top three states in terms of per capita federal taxes paid, and Massachusetts is also one of only eleven states whose residents actually subsidize the federal government by paying more in federal taxes than we get back.[4] Federal funding that actually returns to Massachusetts is vitally important. For example, federal support accounts for nearly $11 billion of our state's annual budget.[5] These funds go to support health insurance for children, affordable housing for

[1] "Executive Order: Enhancing Public Safety in the Interior of the United States" (Jan. 25, 2017), at https://www.whitehouse.gov/the-press-office/2017/01/25/presidential-executive-order-enhancing-public-safety-interior-united.

[2] Memorandum from DHS Secretary John Kelly on Enforcement of the Immigration Laws to Serve the National Interest (Feb. 20, 2017), at https://www.dhs.gov/sites/default/files/publications/17_0220_S1_Enforcement-of-the-Immigration-Laws-to-Serve-the-National-Interest.pdf.

[3] White House Press Briefing, Feb. 23, 2017.

[4] Dave Gilson, *Unlike Trump, California Pays Its Taxes*, Mother Jones (Fed. 6, 2017), at http://www.motherjones.com/politics/2017/02/california-federal-taxes-spending-trump

[5] Massachusetts Budget & Policy Center, *Partnership in Peril: Federal Funding at Risk for State Programs Relied Upon by Massachusetts Residents* (Feb. 16, 2017), at http://www.massbudget.org/report_window.php?loc=Partnership-in-Peril-Federal-Funding-at-Risk.html.

families, nursing care for veterans, and countless other critical programs.[6] By its terms, the President's Executive Order threatens that vital support.

Section 9(a) of the Order directs the Attorney General and DHS Secretary to exercise "discretion" to "ensure that jurisdictions that willfully refuse to comply with 8 U.S.C. [§] 1373 (sanctuary jurisdictions) are not eligible to receive federal grants, except as deemed necessary for enforcement purposes by the Attorney General or the Secretary."[7] In turn, 8 U.S.C. § 1373 states that "a Federal, State, or local government entity or official may not prohibit, or in any way restrict, any government entity or official from sending to, or receiving from, the Immigration and Naturalization Service information regarding the citizenship or immigration status, lawful or unlawful, of any individual." The Order also gives the DHS Secretary "the authority to designate, in his discretion and to the extent consistent with law, a jurisdiction as a sanctuary jurisdiction."[8] That sweeping provision gives the DHS Secretary unilateral authority to arbitrarily jeopardize federal grants to numerous jurisdictions, despite the clear unconstitutionality of such an action.

In recent days, states and localities have begun to grapple with how they will respond to this directive. Some have already begun changing their own laws to avoid risking the loss of vital funding.[9] Despite these threats, however, local leaders in Massachusetts have indicated that they do not intend to be browbeaten into changing their own laws to suit the whims of the President on matters over which he has no legal authority or control.[10] Several jurisdictions, including the Massachusetts cities of Chelsea and Lawrence,[11] have sued the Administration to prevent the implementation of this unconstitutional directive.

Evidently, the purpose of this Order is to punish local jurisdictions that make local law enforcement decisions that the President disagrees with. The President himself has described the Order as a "weapon" against certain cities,[12] while the White House Press Secretary said that the Order "directs the [DHS] secretary to look at . . . funding streams that are going to these cities . . . and figure out how we can defund those streams."[13]

The President has no constitutional authority to direct your agency to withhold grants on these arbitrary terms. First, as the Supreme Court reiterated in its seminal case on the Affordable Care Act in 2012, it is unconstitutional to use the threat of cutting off significant, pre-existing

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[6] Id.

[7] "Executive Order: Enhancing Public Safety in the Interior of the United States" (Jan. 25, 2017), § 9(a), at https://www.whitehouse.gov/the-press-office/2017/01/25/presidential-executive-order-enhancing-public-safety-interior-united.

[8] Id. § 9(a).

[9] Alan Gomez, *First 'Sanctuary City' caves to Trump demands*, USA Today (Jan. 26, 2017), at http://www.usatoday.com/story/news/2017/01/26/first-sanctuary-city-caves-donald-trump-demands/97111048/.

[10] *See, e.g.*, Meghan E. Irons & Cristela Guerra, *Walsh rails against Trump, calls immigration actions 'direct attack'*, Boston Globe (Jan. 25, 2017), at https://www.bostonglobe.com/metro/2017/01/25/walsh-says-boston-will-use-city-hall-itself-last-resort/UtZrLHENkQvEC1fTjgs7bP/story.html.

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[12] Fox News, O'Reilly Factor (Feb. 5, 2017).

[13] Daily Press Briefing (Jan. 25, 2017).

funding to "coerce" a state into adopting a federal policy directive.[14] Where a President openly brags of his desire to use the loss of unrelated funding as a "weapon" against states and localities, the intent to exert such unconstitutional coercion is obvious.

Second, the Supreme Court has long established that conditions on federal grants must be related "to the federal interest in particular national projects or programs" funded by the grants.[15] The Order contains no such limitation, instead referring explicitly to "all Federal grant money that currently is received by any sanctuary jurisdiction."[16] The Order is unconstitutional because it would condition federal grants on compliance with certain federal immigration laws even when those grants are completely unrelated to those areas.

Third, the Supreme Court has also long established that "if Congress intends to impose a condition on the grant of federal moneys, it must do so unambiguously. By insisting that Congress speak with a clear voice, we enable the States to exercise their choice knowingly, cognizant of the consequences of their participation."[17] Under this precedent, the Order cannot constitutionally be applied to any grant programs at your agency unless Congress – not the President – has expressly and unambiguously conditioned grants under those programs on compliance in the immigration-related areas discussed in the Order.[18] To the best of our knowledge, few, if any, such conditional grants exist.

Finally, the Order is unconstitutional because it ties federal funds to compliance with 8 U.S.C. § 1373 – which is itself an unconstitutional provision. The Supreme Court has ruled that the federal government cannot "commandeer" state officials by directing them to enforce federal law.[19] Consistent with the federalism principles that animate our system of government and our Constitution, this anti-commandeering principle aims to maintain the "[p]reservation of the States as independent and autonomous political entities."[20] Section 1373 prohibits states and localities from telling their own government employees how to do their jobs – one of the most basic aspects of state and local sovereignty – and is therefore unconstitutional.[21]

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[14] *National Federation of Independent Businesses v. Sebelius*, 567 U.S. __ (2012).
[15] *South Dakota v. Dole*, 483 U.S. 203, 212 (1987) (internal quotations omitted).
[16] "Executive Order: Enhancing Public Safety in the Interior of the United States" (Jan. 25, 2017), § 9(c), at https://www.whitehouse.gov/the-press-office/2017/01/25/presidential-executive-order-enhancing-public-safety-interior-united.
[17] *Pennhurst State Sc. & Hosp. v. Halderman*, 451 U.S. 1, 17 (1981) (internal citations omitted).
[18] *See, e.g.*, Erwin Chemerinsky, Annie Lai, and Seth Davis, *Trump Can't Force "Sanctuary Cities" to Enforce His Deportation Plans*, Washington Post (Dec. 22, 2016), at https://www.washingtonpost.com/opinions/trump-cant-force-sanctuary-cities-to-enforce-his-deportation-plans/2016/12/22/421174d4-c7a4-11e6-85b5-76616a33048d_story.html?utm_term=.91e9fbb7a0ca; Ilya Somin, *Why Trump's Executive Order on Sanctuary Cities in Unconstitutional*, Washington Post (Jan. 26, 2017), at https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/01/26/constitutional-problems-with-trumps-executive-order-on-sanctuary-cities/?utm_term=.b2d635bbe605.
[19] *Printz v. United States*, 521 U.S. 898 (1997).
[20] Id. at 919.
[21] *See, e.g.*, Ilya Somin, *Why Trump's Executive Order on Sanctuary Cities in Unconstitutional*, Washington Post (Jan. 26, 2017), at https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/01/26/constitutional-problems-with-trumps-executive-order-on-sanctuary-cities/?utm_term=.b2d635bbe605 ("The anti-commandeering issue raised by Section 1373 has not yet been directly addressed by the Supreme Court (though the law was upheld in a badly flawed lower court decision back in 1999). We cannot be certain what will happen when and if the

If the Administration continues to press ahead with this blatantly unconstitutional order, it will lose in court. In the meantime, however, chaos and confusion will reign, as funding for countless vital programs in Massachusetts and other jurisdictions that refuse to be bullied is thrown into question. Every agency head takes an oath to "support and defend the Constitution of the United States against all enemies, foreign and domestic" and "bear true faith and allegiance to the same."[22] It is your responsibility to act in accordance with that oath.

You and your counsel are no doubt familiar with each of these Constitutional precepts. It is our responsibility to do what we can to make certain that the Constitutional protections of the people in our home state are protected. Therefore, we ask that you answer the following questions:

1. Do you plan to support the President's January 25, 2017 Executive Order?

2. Section 9(a) of the Order authorizes the Attorney General and/or the DHS Secretary to cut off any federal grants disbursed by your agency to a jurisdiction if that jurisdiction is found to be a "sanctuary jurisdiction" under the Order. Please indicate which grants administered by your agency you believe are covered by this order, and your basis for determining that Section 9(a) applies to those grants.

3. Do any of the laws that direct your agency to provide federal grants to state and local jurisdictions explicitly condition those grants on compliance with 8 U.S.C. § 1373? If so, please indicate which grants and provide the relevant corroborating statutory citations. If not, please provide the constitutional rationale for denying such grants disbursed by your agency to any jurisdiction not in compliance with 8 U.S.C. § 1373.

4. Do any of the laws that direct your agency to provide federal grants to state and local jurisdictions expressly condition those grants on whether or not such jurisdictions have been designated as a "sanctuary jurisdiction" under the Order? If so, please indicate which grants and provide the relevant corroborating statutory citations. If not, please provide the constitutional rationale for denying such grants disbursed by your agency to any jurisdiction designated as a "sanctuary jurisdiction" under the Order.

5. If you plan to deny access to pre-existing grants and grant programs disbursed by your agency under the Order, please explain how such action is not unconstitutionally coercive by the standards established in *National Federation of Independent Businesses v. Sebelius*, 567 U.S. __ (2012), particularly in light of the President's explicit direction that the Order is intended to be used as a "weapon" against local jurisdictions that do not affirmatively enforce his federal policy preferences.

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justices take up this issue. But the principles underlying the Court's anti-commandeering cases should lead it to strike down this law.").

[22] 5 U.S.C. § 3331.

6. If the Attorney General and/or the DHS Secretary determine under Section 9(a) of the Executive Order that certain "sanctuary jurisdictions" are ineligible to receive federal grants, will you cut off or otherwise approve cutting off of grants to those jurisdictions? If not, please indicate what actions you intend to take to ensure that those jurisdictions still receive those grants.

Given the importance of these issues, we respectfully request that you respond to these questions as soon as possible.

Sincerely,

Senator Elizabeth Warren

Senator Edward J. Markey

AL-17-DOO-6012
incoming

JASON CHAFFETZ, UTAH
CHAIRMAN

ONE HUNDRED FIFTEENTH CONGRESS

ELIJAH E. CUMMINGS, MARYLAND
RANKING MINORITY MEMBER

# Congress of the United States

## House of Representatives

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM
2157 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6143
MAJORITY (202) 225–5074
MINORITY (202) 225–5051
http://oversight.house.gov

March 8, 2017

The Honorable Scott Pruitt
Administrator
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Mr. Pruitt:

Federal recordkeeping and government transparency laws such as the Federal Records Act and the Freedom of Information Act (FOIA) ensure the official business of the government is properly preserved and accessible to the American public.[1] As the Committee with legislative jurisdiction over these laws, we have a longstanding interest in ensuring compliance with their provisions.[2] Over the past decade, our oversight has included monitoring trends in federal employees' use of technology in order to ensure the statutory requirements of these laws keeps pace with their original purpose. The Committee has authored several updates to these laws, such as the Presidential and Federal Records Act Amendments of 2014 and the FOIA Improvement Act of 2016.[3] We plan to pursue additional efforts to update these laws.

Federal Records Act challenges have spanned across administrations. A 2013 report by the Inspector General for the Commodities Futures Trading Commission found that former Chairman Gary Gensler used his personal email consistently.[4] Documents produced as part of the Committee's investigation into the Department of Energy's disbursement of funds under the Recovery Act showed that the former Executive Director of the Loan Program Office Jonathan Silver often used his personal email account to conduct official business.[5]

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[1] Pub. L. No. 81-754 (1950); Pub. L. No. 89-487 (1967).

[2] *See, e.g.*, letter from Hon. Henry Waxman, Chairman, Comm. on Oversight & Gov't Reform, to Hon. Michael Astrue, Comm'r, U.S. Soc. Sec. Admin., *et.al.* (Apr. 12, 2007); letter from Hon. Darrell Issa, Chairman, Comm. on Oversight & Gov't Reform, to Hon. Jeffrey Zients, Acting Dir. for Mgmt., Office of Mgmt. & Budget, *et al.* (Dec. 13, 2012); MAJORITY STAFF OF H. COMM. ON OVERSIGHT & GOV'T REFORM, 114TH CONG., FOIA IS BROKEN: A REPORT (2016).

[3] Pub. L. No. 113-187 (2014); Pub. L. No. 114-185 (2016).

[4] OFFICE OF INSPECTOR GEN., COMMODITY FUTURES TRADING COMM'N, REVIEW OF THE COMMODITY FUTURES TRADING COMMISSION'S OVERSIGHT AND REGULATION OF MF GLOBAL, INC. (May 16, 2013).

[5] *See* Carol D. Leonnig and Joe Stephens, *Energy Department loan program staffers were warned not to use personal e-mail*, WASH. POST, Aug. 14, 2012, http://articles.washingtonpost.com/2012-08-14/politics/35490043_1_personal-e-mail-e-mails-email.

JASON CHAFFETZ, UTAH
CHAIRMAN

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Where a federal employee conducts any business related to the work of the government from a non-governmental email account, such as a personal email account, the Federal Records Act requires that the employee copy their official account or forward the record to their government email account within 20 days.[6] Official business must be conducted in such a way as to preserve the official record of actions taken by the federal government and its employees.

Recent news reports suggest federal employees may increasingly be turning to new forms of electronic communication, including encrypted messaging applications like Signal, Confide, and WhatsApp, that could result in the creation of federal records that would be unlikely or impossible to preserve.[7] The security of such applications is unclear.[8] Generally, strong encryption is the best defense against cyber breaches by outside actors, and can preserve the integrity of decision-making communications. The need for data security, however, does not justify circumventing requirements established by federal recordkeeping and transparency laws.

To assist the Committee in better understanding your agency's policies on these issues, please provide the following information as soon as possible, but by no later than March 22, 2017:

1. Identify any senior agency officials who have used an alias email account to conduct official business since January 1, 2016. Include the name of the official, the alias account, and other email accounts used by the official to conduct official business.

2. Identify all agency policies referring or relating to the use of non-official electronic messaging accounts, including email, text message, messaging applications, and social media platforms to conduct official business, including but not limited to archiving and recordkeeping procedures.

3. Identify all agency policies referring or relating to the use of official text message or other messaging or communications applications, and social media platforms to conduct official business, including but not limited to archiving and recordkeeping procedures.

4. Identify agency policies and procedures currently in place to ensure all communications related to the creation or transmission of federal records on official electronic messaging accounts other than email, including social networking platforms, internal agency instant messaging systems and other communications applications, are properly captured and preserved as federal records.

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[6] 44 U.S.C. § 2911 (2017).

[7] Andrew Restuccia, Marianne Levine, and Nahal Toosi, *Federal workers turn to encryption to thwart Trump*, POLITICO, Feb. 2, 2017, http://www.politico.com/story/2017/02/federal-workers-signal-app-234510; Jonathan Swan and David McCabe, *Confide: The app for paranoid Republicans*, AXIOS, Feb. 8, 2017, https://www.axios.com/confide-the-new-app-for-paranoid-republicans-2246297664.html.

[8] Sheera Frenkel, *White House Staff Are Using A "Secure" App That's Not Really So Secure*, BUZZFEED NEWS, Feb. 16, 2017, https://www.buzzfeed.com/sheerafrenkel/white-house-staff-are-using-a-secure-app-thats-really-not-so.

5. Explain how your agency complies with FOIA requests that may require searching and production of documents stored on non-official email accounts, social networking platforms, or other messaging or communications.

6. Provide the status of compliance by the agency with the Managing Government Records Directive issued by the Office of Management and Budget on August 24, 2012.[9]

When producing documents to the Committee, please deliver production sets to the Majority Staff in Room 2157 of the Rayburn House Office Building and the Minority Staff in Room 2471 of the Rayburn House Office Building. The Committee prefers, if possible, to receive all documents in electronic format. An attachment to this letter provides additional information about responding to the Committee's request. Please note that Committee Rule 16(b) requires counsel representing an individual or entity before the Committee or any of its subcommittees, whether in connection with a request, subpoena, or testimony, promptly submit the attached notice of appearance to the Committee.

The Committee on Oversight and Government Reform is the principal oversight committee of the House of Representatives and may at "any time" investigate "any matter" as set forth in House Rule X.

For any questions about this request, please have your staff contact Jeff Post of the Majority staff at (202) 225-5074 or Krista Boyd of the Minority staff at (202) 225-9493. Thank you for your attention to this matter.

Sincerely,

Jason Chaffetz
Chairman

Elijah E. Cummings
Ranking Member

Enclosures

[9] Jeffrey D. Zients, Acting Director, Office of Management and Budget and David S. Ferriero, Archivist of the United States, National Archives and Records Administration, *Managing Government Records Directive* (Aug. 24, 2012) (M-12-18).

## Responding to Committee Document Requests

1. In complying with this request, you are required to produce all responsive documents that are in your possession, custody, or control, whether held by you or your past or present agents, employees, and representatives acting on your behalf. You should also produce documents that you have a legal right to obtain, that you have a right to copy or to which you have access, as well as documents that you have placed in the temporary possession, custody, or control of any third party. Requested records, documents, data or information should not be destroyed, modified, removed, transferred or otherwise made inaccessible to the Committee.

2. In the event that any entity, organization or individual denoted in this request has been, or is also known by any other name than that herein denoted, the request shall be read also to include that alternative identification.

3. The Committee's preference is to receive documents in electronic form (i.e., CD, memory stick, or thumb drive) in lieu of paper productions.

4. Documents produced in electronic format should also be organized, identified, and indexed electronically.

5. Electronic document productions should be prepared according to the following standards:

   (a) The production should consist of single page Tagged Image File ("TIF"), files accompanied by a Concordance-format load file, an Opticon reference file, and a file defining the fields and character lengths of the load file.

   (b) Document numbers in the load file should match document Bates numbers and TIF file names.

   (c) If the production is completed through a series of multiple partial productions, field names and file order in all load files should match.

   (d) All electronic documents produced to the Committee should include the following fields of metadata specific to each document;

   BEGDOC, ENDDOC, TEXT, BEGATTACH, ENDATTACH, PAGECOUNT,CUSTODIAN, RECORDTYPE, DATE, TIME, SENTDATE, SENTTIME, BEGINDATE, BEGINTIME, ENDDATE, ENDTIME, AUTHOR, FROM, CC, TO, BCC, SUBJECT, TITLE, FILENAME, FILEEXT, FILESIZE, DATECREATED, TIMECREATED, DATELASTMOD, TIMELASTMOD, INTMSGID, INTMSGHEADER, NATIVELINK, INTFILPATH, EXCEPTION, BEGATTACH.

6. Documents produced to the Committee should include an index describing the contents of the production. To the extent more than one CD, hard drive, memory stick, thumb drive, box or folder is produced, each CD, hard drive, memory stick, thumb drive, box or folder should contain an index describing its contents.

7. Documents produced in response to this request shall be produced together with copies of file labels, dividers or identifying markers with which they were associated when the request was served.

8. When you produce documents, you should identify the paragraph in the Committee's schedule to which the documents respond.

9. It shall not be a basis for refusal to produce documents that any other person or entity also possesses non-identical or identical copies of the same documents.

10. If any of the requested information is only reasonably available in machine-readable form (such as on a computer server, hard drive, or computer backup tape), you should consult with the Committee staff to determine the appropriate format in which to produce the information.

11. If compliance with the request cannot be made in full by the specified return date, compliance shall be made to the extent possible by that date. An explanation of why full compliance is not possible shall be provided along with any partial production.

12. In the event that a document is withheld on the basis of privilege, provide a privilege log containing the following information concerning any such document: (a) the privilege asserted; (b) the type of document; (c) the general subject matter; (d) the date, author and addressee; and (e) the relationship of the author and addressee to each other.

13. If any document responsive to this request was, but no longer is, in your possession, custody, or control, identify the document (stating its date, author, subject and recipients) and explain the circumstances under which the document ceased to be in your possession, custody, or control.

14. If a date or other descriptive detail set forth in this request referring to a document is inaccurate, but the actual date or other descriptive detail is known to you or is otherwise apparent from the context of the request, you are required to produce all documents which would be responsive as if the date or other descriptive detail were correct.

15. Unless otherwise specified, the time period covered by this request is from January 1, 2009 to the present.

16. This request is continuing in nature and applies to any newly-discovered information. Any record, document, compilation of data or information, not produced because it has not been located or discovered by the return date, shall be produced immediately upon subsequent location or discovery.

17. All documents shall be Bates-stamped sequentially and produced sequentially.

18. Two sets of documents shall be delivered, one set to the Majority Staff and one set to the Minority Staff. When documents are produced to the Committee, production sets shall be delivered to the Majority Staff in Room 2157 of the Rayburn House Office Building and the Minority Staff in Room 2471 of the Rayburn House Office Building.

19. Upon completion of the document production, you should submit a written certification, signed by you or your counsel, stating that: (1) a diligent search has been completed of all documents in your possession, custody, or control which reasonably could contain responsive documents; and (2) all documents located during the search that are responsive have been produced to the Committee.

## Definitions

1. The term "document" means any written, recorded, or graphic matter of any nature whatsoever, regardless of how recorded, and whether original or copy, including, but not limited to, the following: memoranda, reports, expense reports, books, manuals, instructions, financial reports, working papers, records, notes, letters, notices, confirmations, telegrams, receipts, appraisals, pamphlets, magazines, newspapers, prospectuses, inter-office and intra-office communications, electronic mail (e-mail), contracts, cables, notations of any type of conversation, telephone call, meeting or other communication, bulletins, printed matter, computer printouts, teletypes, invoices, transcripts, diaries, analyses, returns, summaries, minutes, bills, accounts, estimates, projections, comparisons, messages, correspondence, press releases, circulars, financial statements, reviews, opinions, offers, studies and investigations, questionnaires and surveys, and work sheets (and all drafts, preliminary versions, alterations, modifications, revisions, changes, and amendments of any of the foregoing, as well as any attachments or appendices thereto), and graphic or oral records or representations of any kind (including without limitation, photographs, charts, graphs, microfiche, microfilm, videotape, recordings and motion pictures), and electronic, mechanical, and electric records or representations of any kind (including, without limitation, tapes, cassettes, disks, and recordings) and other written, printed, typed, or other graphic or recorded matter of any kind or nature, however produced or reproduced, and whether preserved in writing, film, tape, disk, videotape or otherwise. A document bearing any notation not a part of the original text is to be considered a separate document. A draft or non-identical copy is a separate document within the meaning of this term.

2. The term "communication" means each manner or means of disclosure or exchange of information, regardless of means utilized, whether oral, electronic, by document or otherwise, and whether in a meeting, by telephone, facsimile, email (desktop or mobile device), text message, instant message, MMS or SMS message, regular mail, telexes, releases, or otherwise.

3. The terms "and" and "or" shall be construed broadly and either conjunctively or disjunctively to bring within the scope of this request any information which might otherwise be construed to be outside its scope. The singular includes plural number, and vice versa. The masculine includes the feminine and neuter genders.

4. The terms "person" or "persons" mean natural persons, firms, partnerships, associations, corporations, subsidiaries, divisions, departments, joint ventures, proprietorships, syndicates, or other legal, business or government entities, and all subsidiaries, affiliates, divisions, departments, branches, or other units thereof.

5. The term "identify," when used in a question about individuals, means to provide the following information: (a) the individual's complete name and title; and (b) the individual's business address and phone number.

6. The term "referring or relating," with respect to any given subject, means anything that constitutes, contains, embodies, reflects, identifies, states, refers to, deals with or is pertinent to that subject in any manner whatsoever.

7. The term "employee" means agent, borrowed employee, casual employee, consultant, contractor, de facto employee, independent contractor, joint adventurer, loaned employee, part-time employee, permanent employee, provisional employee, subcontractor, or any other type of service provider.

**COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM**
**U.S. HOUSE OF REPRESENTATIVES**
**115TH CONGRESS**

**NOTICE OF APPEARANCE OF COUNSEL**

**Counsel submitting:** _____

**Bar number:** _____ **State/District of admission:** _____

**Attorney for:** _____

**Address:** _____

**Telephone:** ( _____ ) _____ - _____

**Pursuant to Rule 16 of the Committee Rules, notice is hereby given of the entry of the undersigned as counsel for** _____ **in (select one):**

- ◉ **All matters before the Committee**
- ○ **The following matters (describe the scope of representation):**

_____

_____

**All further notice and copies of papers and other material relevant to this action should be directed to and served upon:**

**Attorney's name:** _____

**Attorney's email address:** _____

**Firm name (where applicable):** _____

**Complete Mailing Address:** _____

_____

**I agree to notify the Committee within 1 business day of any change in representation.**

_____ _____

**Signature of Attorney** **Date**

AL-17-000-5818
incoming

JASON CHAFFETZ, UTAH
CHAIRMAN

ONE HUNDRED FIFTEENTH CONGRESS

ELIJAH E. CUMMINGS, MARYLAND
RANKING MINORITY MEMBER

# Congress of the United States

## House of Representatives

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM
2157 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6143
MAJORITY (202) 225–5074
MINORITY (202) 225–5051
http://oversight.house.gov

March 7, 2017

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, D.C. 20460

Dear Mr. Pruitt:

The Committee is investigating policies implemented by the Environmental Protection Agency (EPA) under President Obama, including the social cost of carbon[1] and the "endangerment findings" for greenhouse gases.[2] Attached are documents published by EPA under the Freedom of Information Act (FOIA) relevant to the Committee's work. Please provide copies of the attached documents in their original and un-redacted forms to the Committee no later than 5:00 p.m. on March 21, 2017.

When producing documents to the Committee, please deliver production sets to the Majority staff in Room 2157 of the Rayburn House Office Building. The Committee prefers, if possible, to receive all documents in electronic format. An attachment to this letter provides additional information about responding to the Committee's request. Please note that Committee Rule 16(b) requires counsel representing an individual or entity before the Committee or any of its subcommittees, whether in connection with a request, subpoena, or testimony, promptly submit the attached notice of appearance to the Committee.

The Committee on Oversight and Government Reform is the principal oversight committee of the House of Representatives and has broad authority to investigate "any matter" at "any time" under House Rule X.

Please contact Drew Feeley of the Committee staff at (202) 225-5074 with and questions about this request. Thank you for your prompt attention to this important matter.

Sincerely,

Jason Chaffetz
Chairman

Enclosure

cc: The Honorable Elijah E. Cummings, Ranking Minority Member

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[1] U.S. ENVT'L PROTECTION AGENCY, *The Social Cost of Carbon*, https://www.epa.gov/climatechange/social-cost-carbon (last visited Mar. 2, 2017).

[2] U.S. ENVT'L PROTECTION AGENCY, *Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act*, https://www.epa.gov/climatechange/social-cost-carbon (last visited Mar. 2, 2017).

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8. When you produce documents, you should identify the paragraph in the Committee's schedule to which the documents respond.

9. It shall not be a basis for refusal to produce documents that any other person or entity also possesses non-identical or identical copies of the same documents.

10. If any of the requested information is only reasonably available in machine-readable form (such as on a computer server, hard drive, or computer backup tape), you should consult with the Committee staff to determine the appropriate format in which to produce the information.

11. If compliance with the request cannot be made in full by the specified return date, compliance shall be made to the extent possible by that date. An explanation of why full compliance is not possible shall be provided along with any partial production.

12. In the event that a document is withheld on the basis of privilege, provide a privilege log containing the following information concerning any such document: (a) the privilege asserted; (b) the type of document; (c) the general subject matter; (d) the date, author and addressee; and (e) the relationship of the author and addressee to each other.

13. If any document responsive to this request was, but no longer is, in your possession, custody, or control, identify the document (stating its date, author, subject and recipients) and explain the circumstances under which the document ceased to be in your possession, custody, or control.

14. If a date or other descriptive detail set forth in this request referring to a document is inaccurate, but the actual date or other descriptive detail is known to you or is otherwise apparent from the context of the request, you are required to produce all documents which would be responsive as if the date or other descriptive detail were correct.

15. Unless otherwise specified, the time period covered by this request is from January 1, 2009 to the present.

16. This request is continuing in nature and applies to any newly-discovered information. Any record, document, compilation of data or information, not produced because it has not been located or discovered by the return date, shall be produced immediately upon subsequent location or discovery.

17. All documents shall be Bates-stamped sequentially and produced sequentially.

18. Two sets of documents shall be delivered, one set to the Majority Staff and one set to the Minority Staff. When documents are produced to the Committee, production sets shall be delivered to the Majority Staff in Room 2157 of the Rayburn House Office Building and the Minority Staff in Room 2471 of the Rayburn House Office Building.

19. Upon completion of the document production, you should submit a written certification, signed by you or your counsel, stating that: (1) a diligent search has been completed of all documents in your possession, custody, or control which reasonably could contain responsive documents; and (2) all documents located during the search that are responsive have been produced to the Committee.

**Definitions**

1. The term "document" means any written, recorded, or graphic matter of any nature whatsoever, regardless of how recorded, and whether original or copy, including, but not limited to, the following: memoranda, reports, expense reports, books, manuals, instructions, financial reports, working papers, records, notes, letters, notices, confirmations, telegrams, receipts, appraisals, pamphlets, magazines, newspapers, prospectuses, inter-office and intra-office communications, electronic mail (e-mail), contracts, cables, notations of any type of conversation, telephone call, meeting or other communication, bulletins, printed matter, computer printouts, teletypes, invoices, transcripts, diaries, analyses, returns, summaries, minutes, bills, accounts, estimates, projections, comparisons, messages, correspondence, press releases, circulars, financial statements, reviews, opinions, offers, studies and investigations, questionnaires and surveys, and work sheets (and all drafts, preliminary versions, alterations, modifications, revisions, changes, and amendments of any of the foregoing, as well as any attachments or appendices thereto), and graphic or oral records or representations of any kind (including without limitation, photographs, charts, graphs, microfiche, microfilm, videotape, recordings and motion pictures), and electronic, mechanical, and electric records or representations of any kind (including, without limitation, tapes, cassettes, disks, and recordings) and other written, printed, typed, or other graphic or recorded matter of any kind or nature, however produced or reproduced, and whether preserved in writing, film, tape, disk, videotape or otherwise. A document bearing any notation not a part of the original text is to be considered a separate document. A draft or non-identical copy is a separate document within the meaning of this term.

2. The term "communication" means each manner or means of disclosure or exchange of information, regardless of means utilized, whether oral, electronic, by document or otherwise, and whether in a meeting, by telephone, facsimile, email (desktop or mobile device), text message, instant message, MMS or SMS message, regular mail, telexes, releases, or otherwise.

3. The terms "and" and "or" shall be construed broadly and either conjunctively or disjunctively to bring within the scope of this request any information which might otherwise be construed to be outside its scope. The singular includes plural number, and vice versa. The masculine includes the feminine and neuter genders.

4. The terms "person" or "persons" mean natural persons, firms, partnerships, associations, corporations, subsidiaries, divisions, departments, joint ventures, proprietorships, syndicates, or other legal, business or government entities, and all subsidiaries, affiliates, divisions, departments, branches, or other units thereof.

5. The term "identify," when used in a question about individuals, means to provide the following information: (a) the individual's complete name and title; and (b) the individual's business address and phone number.

6. The term "referring or relating," with respect to any given subject, means anything that constitutes, contains, embodies, reflects, identifies, states, refers to, deals with or is pertinent to that subject in any manner whatsoever.

7. The term "employee" means agent, borrowed employee, casual employee, consultant, contractor, de facto employee, independent contractor, joint adventurer, loaned employee, part-time employee, permanent employee, provisional employee, subcontractor, or any other type of service provider.

**COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM**
**U.S. HOUSE OF REPRESENTATIVES**
**115TH CONGRESS**

**NOTICE OF APPEARANCE OF COUNSEL**

**Counsel submitting:** _____

**Bar number:** _____ **State/District of admission:** _____

**Attorney for:** _____

**Address:** _____

**Telephone:** ( _____ ) _____ - _____

**Pursuant to Rule 16 of the Committee Rules, notice is hereby given of the entry of the undersigned as counsel for** _____ **in (select one):**

- ◉ **All matters before the Committee**
- ○ **The following matters (describe the scope of representation):**

_____

_____

**All further notice and copies of papers and other material relevant to this action should be directed to and served upon:**

**Attorney's name:** _____

**Attorney's email address:** _____

**Firm name (where applicable):** _____

**Complete Mailing Address:** _____

_____

**I agree to notify the Committee within 1 business day of any change in representation.**

_____ _____

**Signature of Attorney** **Date**

AL-17-000-5818
FR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

MAY 17 2017

OFFICE OF
CONGRESSIONAL AND
INTERGOVERNMENTAL
RELATIONS

The Honorable Jason Chaffetz
Chairman
Committee on Oversight and Government Reform
United States House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

I am writing today to supplement the U.S. Environmental Protection Agency's responses of March 22, April 5, and May 2, 2017, to your letter of March 7, 2017, requesting copies of certain documents the Agency has previously released through the Freedom of Information Act (FOIA).

Enclosed with this letter is another set of responsive documents.

Please note that portions of the responsive documents contain internal deliberations, attorney-client communications, or attorney work product of an Executive Branch agency, the EPA, and, as such, raise a confidentiality interest. In order to identify specific documents in which the EPA has a confidentiality interest, we have added a watermark to these documents that reads "Deliberative or Privileged Document of the U.S. EPA; Disclosure Authorized Only to Congress for Oversight Purposes." Each document contains a footnote stating that privilege in this context may include, but is not limited to, attorney-client privileged or work-product privileged information. Through this accommodation, the EPA does not waive any confidentiality interests in these documents or similar documents in other circumstances. The EPA respectfully requests that the Committee and staff protect the documents and the information contained in them from further dissemination. Should the Committee determine that its legislative mandate requires further distribution of this confidential information outside the Committee, we request that such need first be discussed with the agency to help ensure the Executive Branch's confidentiality interests are protected to the fullest extent possible.

You will also notice that some of the documents contain redactions of personal privacy information. We redacted this information in a manner that does not obscure the identity of any individuals involved in the relevant communications. We removed all other FOIA redactions.

As communicated to your staff, we will provide additional responsive documents on a rolling basis as we are able to locate and process them.

Again, thank you for your letter. If you have any further questions, you may contact me or your staff may contact Kyle Aarons in the EPA's Office of Congressional and Intergovernmental Relations at Aarons.Kyle@epa.gov or (202) 564-7351.

Sincerely,

Troy M. Lyons
Associate Administrator

Enclosures

cc: The Honorable Elijah J. Cummings
Ranking Member

AL-17-000-5818
FR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 02 2017

OFFICE OF
CONGRESSIONAL AND
INTERGOVERNMENTAL
RELATIONS

The Honorable Jason Chaffetz
Chairman
Committee on Oversight and Government Reform
United States House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

I am writing today to supplement the U.S. Environmental Protection Agency's responses of March 22 and April 5, 2017, to your letter of March 7, 2017, requesting unredacted copies of certain documents the Agency has previously released through the Freedom of Information Act (FOIA).

As discussed with your staff, the next set of responsive documents will be available for review *in camera*. My staff will be in touch to arrange a time for members of your staff to come to the EPA headquarters to view these documents.

Please note that portions of the responsive documents contain internal deliberations, attorney-client communications, or attorney work product of an Executive Branch agency, the EPA, and, as such, raise a confidentiality interest. In order to identify specific documents in which the EPA has a confidentiality interest, we have added a watermark to these documents that reads "Deliberative or Privileged Document of the U.S. EPA; Disclosure Authorized Only to Congress for Oversight Purposes." Each document contains a footnote stating that privilege in this context may include, but is not limited to, attorney-client privileged or work-product privileged information. Through this accommodation, the EPA does not waive any confidentiality interests in these documents or similar documents in other circumstances. The EPA respectfully requests that the Committee and staff protect the documents and the information contained in them from further dissemination. Should the Committee determine that its legislative mandate requires further distribution of this confidential information outside the Committee, we request that such need first be discussed with the agency to help ensure the Executive Branch's confidentiality interests are protected to the fullest extent possible.

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Sincerely,

Troy M. Lyons
Associate Administrator

Enclosures

cc: The Honorable Elijah J. Cummings
Ranking Member

AL-17-000-5818
ER

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 05 2017

OFFICE OF
CONGRESSIONAL AND
INTERGOVERNMENTAL
RELATIONS

The Honorable Jason Chaffetz
Chairman
Committee on Oversight and Government Reform
United States House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

I am writing today to supplement the U.S. Environmental Protection Agency's response of March 22, 2017, to your letter of March 7, 2017, requesting copies of certain documents the Agency has previously released through the Freedom of Information Act (FOIA).

Enclosed with this letter is another set of responsive documents.

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Again, thank you for your letter. If you have any further questions, you may contact me or your staff may contact Kyle Aarons in the EPA's Office of Congressional and Intergovernmental Relations at Aarons.Kyle@epa.gov or (202) 564-7351.

Sincerely,

Troy M. Lyons
Associate Administrator

Enclosures

cc: The Honorable Elijah J. Cummings
Ranking Member

AL-17-000-6319
Incoming

# Congress of the United States

Washington, DC 20515

March 13, 2017

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Mr. Pruitt:

In 2015, for the first time, the U.S. Government Accountability Office (GAO) designated Improving the Management of Information Technology (IT) Acquisitions and Operations "high risk" in order to call attention to the challenges the government faces in delivering new IT systems.[1] GAO continued the high-risk designation in 2017.[2] One of GAO's key findings leading to the high risk designation was that the government spends less on modernization of IT and more on operations and maintenance (O&M) costs for legacy IT, making the government increasingly reliant on antiquated and expensive-to-maintain systems.

The federal government annually spends over $80 billion on IT, but over 75 percent of this spending is for legacy IT.[3] In fact, since FY 2010, agencies have increased spending on legacy IT, thereby crowding out spending on development, modernization, and enhancement activities.[4]

The Committees are continuing their oversight in the area of legacy IT that began during the 114th Congress. To assist and inform our work, we request information from your agency regarding the use of legacy IT that follows up on the Committees' requests in December 2015 and February 2016, and your agency's response to the Committees in 2016. The Committees are prepared to adequately safeguard any responsive information that your agency deems to be sensitive. Please provide the requested information below no later than April 3, 2017:

1. In the Committee's prior request, your agency was asked to identify the top three mission-critical IT systems in need of modernization. Please restate and update the information your agency provided in 2016:

    a. If a planned date for modernization was provided, please confirm whether the agency is on track to meet this date. If not, explain why.

    b. For each system, provide the amount your agency spent on operations and maintenance costs for the last three fiscal years.

---

[1] Gov't Accountability Office, *High Risk Series* (Feb. 2015) (GAO-15-290).
[2] Gov't Accountability Office, *High Risk Series* (Feb. 2017) (GAO-17-317).
[3] Gov't Accountability Office, *Federal Agencies Need to Address Legacy Systems* (May 2016) (GAO-16-468).
[4] *Id at 13.*

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c. If any of these systems have been modernized or replaced, please estimate annual cost savings over the next three fiscal years that can be attributed to the modernization or replacement.

2. What are the oldest programming languages in use today at your agency (in particular, ASP, COBOL, FORTRAN, C, Assembly Language Code, and Visual Basic)? Please submit an update on previously provided information:

   a. Restate and update the number of lines of codes your agency maintains as identified in your agency's response in early 2016.

   b. How many staff are dedicated to maintaining these programming languages?

      i. How many of these staff are contractors? If you are unable to provide an estimate of contractors, please provide an explanation as to why you are unable to provide this information.

   c. How much was obligated to contracts supporting these programming languages over the last three fiscal years?

3. Please identify the top five oldest hardware and infrastructure components, by manufacturer, model number, year of production, and type of component (e.g., server, router, switch, etc.) at your agency today.

   a. For each, provide a date for when you plan to replace or upgrade it and specify if there is not a specific date for modernization or replacement.

   b. Identify which of these legacy hardware components house critical mission systems.

   c. Identify which of these legacy hardware components house personally identifiable information.

   d. Restate and update your response to this question from 2016 with the details requested above.

4. Does your agency use any software or operating systems no longer supported by the vendor?

   a. Please provide the name and version of the software and the last date of support by the vendor. For example, Windows XP (released in 2001) was no longer supported by Microsoft as of April 2014.

   b. If the software or operating systems are no longer supported by the vendor, how does the agency support this software?

c. Please restate your agency's planned date to upgrade unsupported software and confirm whether this action was completed by the planned date. If not, explain why.

5. Please address the number of IT staff at your agency as follows:

   a. What is the total number of federal IT employees at your agency? (Do not include contract IT full-time employees (FTE)).

   b. What is the total number of contract IT FTE at your agency?

   c. For agency staff, what is the average age of IT staff?

   d. For agency staff, what is the turnover rate for the last three fiscal years?

   e. When hiring federal employee IT staff, what education, training, and outside certifications are required?

   f. When evaluating contracts for IT services, what education, training, and outside certifications are required for contractor IT staff?

6. Does your agency have any active IT contracts providing services for enterprise upgrades of unsupported hardware or software? If yes, please provide the following information for each contract:

   a. Contract number and a short description of the project.

   b. Total contract value (base year and any option years).

   c. Total funding expensed toward contract as of January 31, 2017.

7. Does your agency have any active contracts for replacement legacy IT hardware and software systems? If yes, please provide the following information for each contract:

   a. Contract number and a short description of the project.

   b. Total contract value (base year and any option years).

   c. Total funding expensed toward contract as of January 31, 2017.

8. Did your agency submit to OMB an Enterprise Roadmap for 2016, as stated in OMB's draft *IT Modernization Initiative* memo?[5] If so, provide a copy of this Roadmap.

---

[5] *OMB Draft Memorandum "Information Technology Modernization Initiative"*. https://policy.cio.gov/it-modernization/approach/ (last visited February 23, 2017).

The House Committee on Oversight and Government Reform is the principal investigative committee in the U.S. House of Representatives. Pursuant to House Rule X, the Committee has authority to investigate "any matter" at "any time."

The Senate Committee on Homeland Security and Governmental Affairs is authorized by Rule XXV of the Standing Rules of the Senate to investigate "the efficiency, economy, and effectiveness of all agencies and departments of the Government." Additionally, S. Res. 62 (115th Congress) authorizes the Committee to examine "the efficiency and economy of all branches of the Government, including the possible existence of fraud, misfeasance, malfeasance, collusion, mismanagement, incompetence, corruption, or unethical practices."

Sincerely,

Jason Chaffetz
Chairman
Committee on Oversight and Government Reform
U.S. House of Representatives

Elijah E. Cummings
Ranking Member
Committee on Oversight and Government Reform
U.S. House of Representatives

Mark Meadows
Chairman
Subcommittee on Government Operations
U.S. House of Representatives

Gerald E. Connolly
Ranking Member
Subcommittee on Government Operations
U. S. House of Representatives

Will Hurd
Chairman
Subcommittee on Information Technology
U.S. House of Representatives

Robin L. Kelly
Ranking Member
Subcommittee on Information Technology
U.S. House of Representatives

Ron Johnson
Chairman
Committee on Homeland Security and Governmental Affairs
United States Senate

Claire McCaskill
Ranking Member
Committee on Homeland Security and Governmental Affairs
United States Senate

Tom Udall
United States Senate

Jerry Moran
United States Senate

AL-17-000-6319
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**WASHINGTON, D.C. 20460**

APR 20 2017

The Honorable Jason Chaffetz
Chairman
Committee on Oversight and Government Reform
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for your letter of March 13, 2017, to U.S. Environmental Protection Agency Administrator Scott Pruitt regarding Information Technology (IT) Legacy Systems.

Your letter addresses the 2015 finding by the U.S. Government Accountability Office that the government is spending less on IT modernization and more on operations and maintenance of legacy IT systems. In follow-up to that report, and at your request, the EPA provided detailed information about our use of legacy IT. As requested in your March 13, 2017 letter, that information has been updated in the enclosed table with notes about assumptions and what is included as appropriate.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Christina Moody in EPA's Office of Congressional and Intergovernmental Relations at moody.christina@epa.gov or (202) 564-0260.

Sincerely,

Steve Fine

Steven Fine
Acting Chief Information Officer

Enclosures

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**Environmental Protection Agency**

**Legacy Systems**

The information below is the Environmental Protection Agency's response to the request from the Committee on Oversight and Government Reform and the Committee on Homeland Security and Governmental Affairs regarding legacy Information Technology (IT) systems.

1. Agency top three mission-critical IT systems in need of modernization.

The information listed below is an update to the information EPA provided in 2016.

| Name and acronym of mission-critical legacy system | Date planned to modernize or replace | Are you on target? If no, explain why not | FY-14 O&M Spent ($K) | FY-15 O&M Spent ($K) | FY-16 O&M Spent ($K) |
|---|---|---|---|---|---|
| 1. Air Quality System (AQS) | Modernization efforts began in 2016 and are expected to be completed by June 2020. | Yes | 386 | 405 | 425 |
| 2. Safe Drinking Water Information System (SDWIS) | Modernization efforts began in FY 2013. Legacy SDWIS planned to be decommissioned in FY 2020. | Yes | 600 | 1,300 | 1,300 |
| 3. Integrated Grants Management System (IGMS) | FY 2018 | Yes | 1,590 | 1,590 | 1,897 |

2. Oldest programming languages in use at the agency.

The programming languages listed below are the oldest at the agency. They are used to a very limited extent for a handful of minor applications and models.

| Name of programming language | Year organization started using it | # of lines of code | # federal FTE maintaining code | FY-14 Contract Obligations ($K) | FY-15 Contract Obligations ($K) | FY-16 Contract Obligations ($K) |
|---|---|---|---|---|---|---|
| FORTRAN | 1995 | 29,000 | 0.0 | 2 | 2 | 2 |
| Visual Basic | 1999 | 295,0000 | 0.7 | 25 | 25 | 25 |
| Pascal | Late 70s | 122,000 | 0.1 | 0 | 0 | 0 |

3. Top five oldest hardware and infrastructure components in use at the agency.

Below is an update to the information provided in 2016 regarding top five oldest components.

| Name of five oldest IT hardware and infrastructure in use | Date when you plan to modernize or replace (or state that there is no such date planned) | Does it house mission-critical system? | Does it house PII? |
|---|---|---|---|
| 1. DEC MicroVAX 3100-80 (1 workstation) | Replaced in 2017 | | |
| 2. Sun Ultra Enterprise (1 workstations) | 2018 | N | N |
| 3. IBM X350 server | 2017 | N | N |
| 4. IBM X360 server | 2017 | N | N |
| 5. Sun V440 (2 workstations) | 2018 | N | N |

4. Software or operating systems no longer supported by the vendor

Below is an update of the list of software or operating systems in use at the agency that are no longer supported by the vendor. Software or operating systems that were provided in last year's response that are no longer used have been removed from this list.

| Name of Software | Version | Last date of support by the vendor | How does your organization support this software? | Plans for upgrading / replacing |
|---|---|---|---|---|
| Internet Explorer | 9 | January 2016 | In house support / needed to run some internal and external applications that only run on IE 9 | No plans at this time |
| Windows Server | 2003 | 2015 | In house support | No plans at this time, used minimally |
| Windows | XP | 2014 | In house support / isolated networks | Much of it has been upgraded / replaced across the agency. Some organizations are waiting for new versions of analytical software to become available before they can upgrade / replace. |
| SQL Server | 2000 | 2013 | Contractor support | 2017 |
| Oracle DB | 9i | 2010 | Contractor support | Plan to upgrade / replace in 2017. Government proprietary lab / analytics software integration causing delays. |

| | | | | |
|---|---|---|---|---|
| Oracle Forms | 6.0 | 2008 | Contractor support | Expected to be upgraded / replaced in 2018 |
| Visual Basic | 6.0 | 2008 | Contractor support | Expected to be upgraded / replaced in 2017 |
| Windows | 98 / NT / 95 | 2006 / 2003 / 2001 | Contract support / isolated network | Lab equipment / no plans at this time |
| Novell Netware | 4.11 | 2001 | Contract support / isolated network | 2017 |

5. IT staff at the agency

The information below relates to IT staff at the agency.

| Federal IT Staff | | | | | Number of Contractor IT FTE* |
|---|---|---|---|---|---|
| Number of Federal IT FTE (2210 series) | Average Age | Turnover Rate | | | |
| | | FY 2014 | FY 2015 | FY 2-16 | |
| 612 | 50.6 | 7.3% | 6.4% | 5.9% | 1,905 |

** The number of contractors is very difficult to estimate accurately depending on the type of contracts and whether the contract employees are on site. The number provided is based on an estimate made by each Program Office or Region.*

When hiring federal IT staff, the agency uses OPM qualification standards to qualify candidates for employment for the 2210 series (Information Technology Management). The current OPM qualification standards do not mandate industry recognized certifications for IT personnel. A candidate may qualify with either education or experience. The specific experience factors and specialized experience are published by OPM in the General Schedule Qualification Standards.

The requirements for contract staff for IT services are dependent on the specific technical requirements and provisions identified in the contract solicitation.

6. Active IT contracts providing services for enterprise upgrades of unsupported hardware or software.

The agency does not currently have any active IT contracts providing services for enterprise upgrades of unsupported hardware or software.

7. Active contracts for replacement legacy IT hardware and software systems

Below is a list of active contracts that the agency is using to replace legacy IT hardware and software systems.

| **Contract Number** | **Short Description of the Project** | **Total Contract Value (base year and option years) ($M)** | **Total Funding Expensed Toward Contract as of 1/31/17 ($M)** |
|---|---|---|---|
| GS-06F-0535Z | Acquisition of network switches via the ITI Support Services contract | 4.297 | 4.297 |

| | | | |
|---|---|---|---|
| GS-35F-0085K | This contract is to provide the design, development, engineering/reengineering, enhancement and support for the GAP Online information system, as well as other systems for the Office of International and Tribal affairs. | 0.979 | 0.723 |
| GS-35F-0276W | Implementation of AutoAudit for Windows; replacement system for AutoAudit for Notes | 0.396 | 0.254 |
| EP-17-H-000078 | OpenText – eDM 10 Upgrade | 0.040 | 0.040 |
| EP-G15H-01127 | OGD IT Systems Support Contract. Includes O&M and Development Activities for all OGD systems (IGMS, CADS, etc) | 7.345 | 3.511 |
| GS-35F-0590T / EP-G14H-008800 | OAM LAN Technical Network Infrastructure Support Services (currently in option year 2 of 4 years) | 5.088 | 2.832 |
| GS-35F-0151L | Budget system O&M, replacement of legacy budget system | 14.700 | 13.800 |
| GSF1007Z/1295 | Scorpios Modernization/Oil Module | 3.524 | 0.676 |
| NIH, NITAAC GWAC CIO-SP3 Small Business | Contract is supporting the SDWIS modernization referenced under the first question (note that contract's scope is broader than just SDWIS) | 57.000 | ~17.000 |

8. Agency's Enterprise Roadmap for 2016 submitted to OMB

The agency's roadmap is attached. The data on the attachment was entered into OMB's MAX page as part of the Integrated Data Collection (IDC) requirements due September 2016.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**WASHINGTON, D.C. 20460**

APR 20 2017

The Honorable Elijah E. Cummings
Ranking Member
Committee on Oversight and Government Reform
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Cummings:

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Sincerely,

Steve Fine

Steven Fine
Acting Chief Information Officer

Enclosures

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Recycled Paper (40% Postconsumer)

**Environmental Protection Agency**

**Legacy Systems**

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**WASHINGTON, D.C. 20460**

APR 20 2017

The Honorable Mark Meadows
Chairman
Subcommittee on Government Operations
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for your letter of March 13, 2017, to U.S. Environmental Protection Agency Administrator Scott Pruitt regarding Information Technology (IT) Legacy Systems.

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Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Christina Moody in EPA's Office of Congressional and Intergovernmental Relations at moody.christina@epa.gov or (202) 564-0260.

Sincerely,

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Acting Chief Information Officer

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**Environmental Protection Agency**

**Legacy Systems**

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
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**APR 2 0 2017**

The Honorable Gerald E. Connolly
Ranking Member
Subcommittee on Government Operations
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Washington, D.C. 20515

Dear Congressman Connolly:

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Enclosures

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**WASHINGTON, D.C. 20460**

**APR 20 2017**

The Honorable Ron Johnson
Chairman
Committee on Homeland Security and
Governmental Affairs
United States Senate
Washington, D.C. 20510

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**Environmental Protection Agency**

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

APR 2 0 2017

The Honorable Claire McCaskill
Ranking Member
Committee on Homeland Security and
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United States Senate
Washington, D.C. 20510

Dear Senator McCaskill:

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Your letter addresses the 2015 finding by the U.S. Government Accountability Office that the government is spending less on IT modernization and more on operations and maintenance of legacy IT systems. In follow-up to that report, and at your request, the EPA provided detailed information about our use of legacy IT. As requested in your March 13, 2017 letter, that information has been updated in the enclosed table with notes about assumptions and what is included as appropriate.

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| NIH, NITAAC GWAC CIO-SP3 Small Business | Contract is supporting the SDWIS modernization referenced under the first question (note that contract's scope is broader than just SDWIS) | 57.000 | ~17.000 |

8. Agency's Enterprise Roadmap for 2016 submitted to OMB

The agency's roadmap is attached. The data on the attachment was entered into OMB's MAX page as part of the Integrated Data Collection (IDC) requirements due September 2016.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**WASHINGTON, D.C. 20460**

**APR 2 0 2017**

The Honorable Jerry Moran
United States Senate
Washington, D.C. 20510

Dear Senator Moran:

Thank you for your letter of March 13, 2017, to U.S. Environmental Protection Agency Administrator Scott Pruitt regarding Information Technology (IT) Legacy Systems.

Your letter addresses the 2015 finding by the U.S. Government Accountability Office that the government is spending less on IT modernization and more on operations and maintenance of legacy IT systems. In follow-up to that report, and at your request, the EPA provided detailed information about our use of legacy IT. As requested in your March 13, 2017 letter, that information has been updated in the enclosed table with notes about assumptions and what is included as appropriate.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Christina Moody in EPA's Office of Congressional and Intergovernmental Relations at moody.christina@epa.gov or (202) 564-0260.

Sincerely,

Steven Fine

Steven Fine
Acting Chief Information Officer

Enclosures

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**Environmental Protection Agency**

**Legacy Systems**

The information below is the Environmental Protection Agency's response to the request from the Committee on Oversight and Government Reform and the Committee on Homeland Security and Governmental Affairs regarding legacy Information Technology (IT) systems.

1. Agency top three mission-critical IT systems in need of modernization.

The information listed below is an update to the information EPA provided in 2016.

| Name and acronym of mission-critical legacy system | Date planned to modernize or replace | Are you on target? If no, explain why not | FY-14 O&M Spent ($K) | FY-15 O&M Spent ($K) | FY-16 O&M Spent ($K) |
|---|---|---|---|---|---|
| 1. Air Quality System (AQS) | Modernization efforts began in 2016 and are expected to be completed by June 2020. | Yes | 386 | 405 | 425 |
| 2. Safe Drinking Water Information System (SDWIS) | Modernization efforts began in FY 2013. Legacy SDWIS planned to be decommissioned in FY 2020. | Yes | 600 | 1,300 | 1,300 |
| 3. Integrated Grants Management System (IGMS) | FY 2018 | Yes | 1,590 | 1,590 | 1,897 |

2. Oldest programming languages in use at the agency.

The programming languages listed below are the oldest at the agency. They are used to a very limited extent for a handful of minor applications and models.

| Name of programming language | Year organization started using it | # of lines of code | # federal FTE maintaining code | FY-14 Contract Obligations ($K) | FY-15 Contract Obligations ($K) | FY-16 Contract Obligations ($K) |
|---|---|---|---|---|---|---|
| FORTRAN | 1995 | 29,000 | 0.0 | 2 | 2 | 2 |
| Visual Basic | 1999 | 295,0000 | 0.7 | 25 | 25 | 25 |
| Pascal | Late 70s | 122,000 | 0.1 | 0 | 0 | 0 |

3. Top five oldest hardware and infrastructure components in use at the agency.

Below is an update to the information provided in 2016 regarding top five oldest components.

| Name of five oldest IT hardware and infrastructure in use | Date when you plan to modernize or replace (or state that there is no such date planned) | Does it house mission-critical system? | Does it house PII? |
|---|---|---|---|
| 1. DEC MicroVAX 3100-80 (1 workstation) | Replaced in 2017 | | |
| 2. Sun Ultra Enterprise (1 workstations) | 2018 | N | N |
| 3. IBM X350 server | 2017 | N | N |
| 4. IBM X360 server | 2017 | N | N |
| 5. Sun V440 (2 workstations) | 2018 | N | N |

4. Software or operating systems no longer supported by the vendor

Below is an update of the list of software or operating systems in use at the agency that are no longer supported by the vendor. Software or operating systems that were provided in last year's response that are no longer used have been removed from this list.

| Name of Software | Version | Last date of support by the vendor | How does your organization support this software? | Plans for upgrading / replacing |
|---|---|---|---|---|
| Internet Explorer | 9 | January 2016 | In house support / needed to run some internal and external applications that only run on IE 9 | No plans at this time |
| Windows Server | 2003 | 2015 | In house support | No plans at this time, used minimally |
| Windows | XP | 2014 | In house support / isolated networks | Much of it has been upgraded / replaced across the agency. Some organizations are waiting for new versions of analytical software to become available before they can upgrade / replace. |
| SQL Server | 2000 | 2013 | Contractor support | 2017 |
| Oracle DB | 9i | 2010 | Contractor support | Plan to upgrade / replace in 2017. Government proprietary lab / analytics software integration causing delays. |

| | | | | |
|---|---|---|---|---|
| Oracle Forms | 6.0 | 2008 | Contractor support | Expected to be upgraded / replaced in 2018 |
| Visual Basic | 6.0 | 2008 | Contractor support | Expected to be upgraded / replaced in 2017 |
| Windows | 98 / NT / 95 | 2006 / 2003 / 2001 | Contract support / isolated network | Lab equipment / no plans at this time |
| Novell Netware | 4.11 | 2001 | Contract support / isolated network | 2017 |

5. IT staff at the agency

The information below relates to IT staff at the agency.

| Federal IT Staff | | | | | Number of Contractor IT FTE* |
|---|---|---|---|---|---|
| Number of Federal IT FTE (2210 series) | Average Age | Turnover Rate | | | |
| | | FY 2014 | FY 2015 | FY 2-16 | |
| 612 | 50.6 | 7.3% | 6.4% | 5.9% | 1,905 |

** The number of contractors is very difficult to estimate accurately depending on the type of contracts and whether the contract employees are on site. The number provided is based on an estimate made by each Program Office or Region.*

When hiring federal IT staff, the agency uses OPM qualification standards to qualify candidates for employment for the 2210 series (Information Technology Management). The current OPM qualification standards do not mandate industry recognized certifications for IT personnel. A candidate may qualify with either education or experience. The specific experience factors and specialized experience are published by OPM in the General Schedule Qualification Standards.

The requirements for contract staff for IT services are dependent on the specific technical requirements and provisions identified in the contract solicitation.

6. Active IT contracts providing services for enterprise upgrades of unsupported hardware or software.

The agency does not currently have any active IT contracts providing services for enterprise upgrades of unsupported hardware or software.

7. Active contracts for replacement legacy IT hardware and software systems

Below is a list of active contracts that the agency is using to replace legacy IT hardware and software systems.

| **Contract Number** | **Short Description of the Project** | **Total Contract Value (base year and option years) ($M)** | **Total Funding Expensed Toward Contract as of 1/31/17 ($M)** |
|---|---|---|---|
| GS-06F-0535Z | Acquisition of network switches via the ITI Support Services contract | 4.297 | 4.297 |

| | | | |
|---|---|---|---|
| GS-35F-0085K | This contract is to provide the design, development, engineering/reengineering, enhancement and support for the GAP Online information system, as well as other systems for the Office of International and Tribal affairs. | 0.979 | 0.723 |
| GS-35F-0276W | Implementation of AutoAudit for Windows; replacement system for AutoAudit for Notes | 0.396 | 0.254 |
| EP-17-H-000078 | OpenText – eDM 10 Upgrade | 0.040 | 0.040 |
| EP-G15H-01127 | OGD IT Systems Support Contract. Includes O&M and Development Activities for all OGD systems (IGMS, CADS, etc) | 7.345 | 3.511 |
| GS-35F-0590T / EP-G14H-008800 | OAM LAN Technical Network Infrastructure Support Services (currently in option year 2 of 4 years) | 5.088 | 2.832 |
| GS-35F-0151L | Budget system O&M, replacement of legacy budget system | 14.700 | 13.800 |
| GSF1007Z/1295 | Scorpios Modernization/Oil Module | 3.524 | 0.676 |
| NIH, NITAAC GWAC CIO-SP3 Small Business | Contract is supporting the SDWIS modernization referenced under the first question (note that contract's scope is broader than just SDWIS) | 57.000 | ~17.000 |

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JASON CHAFFETZ, UTAH
CHAIRMAN

ONE HUNDRED FIFTEENTH CONGRESS

ELIJAH E. CUMMINGS, MARYLAND
RANKING MINORITY MEMBER

# Congress of the United States

## House of Representatives

AL-17-000-3332
Incoming

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM
2157 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6143
MAJORITY (202) 225-5074
MINORITY (202) 225-5051
http://oversight.house.gov

January 10, 2017

The Honorable Gina McCarthy
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Ms. McCarthy:

Federal agencies are accelerating the hiring of civil service positions and compressing hiring timelines in anticipation of a possible hiring freeze in 2017, according to a recent news account.[1] The report states that certain agencies are "racing" to fill vacancies after advertising jobs "for periods of as little as five to six days."[2] In fact, federal job postings in the last two months of 2016 rose 16 percent compared to the last two months of 2015.[3] In contrast, the Office of Personnel Management (OPM) establishes a 45-day hiring model between a vacancy announcement and making a job offer.[4] Such reports raise questions. The Department cannot disregard the merit principles undergirding the civil service for political considerations. Hiring decisions must be legitimate, justified, and free from political influence.

The hiring push described in the report is borne out by data on the federal government's official employment site, usajobs.gov. These new job postings, however, come with strings attached that contravene the merit principles of civil service. For instance, several agencies posted job openings for as little as two weeks —during the holidays.[5] The accelerated hiring timelines create the appearance that some federal

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[1] Lisa Rein and Juliet Eilperin, *Federal agencies rush to fill job openings before Trump takes office Jan. 20*, WASH. POST, Dec. 31, 2016, https://www.washingtonpost.com/powerpost/federal-agencies-rush-to-fill-job-openings-before-trump-takes-office-jan-20/2016/12/30/de0c1030-cdd8-11e6-a747-d03044780a02_story.html?utm_term=.993ddfd0c0b2.
[2] *Id.*
[3] *Supra* note 1.
[4] *Office of Personnel Mgmt Frequently Asked Questions*, https://www.opm.gov/faqs/topic/employment/?cid=5d9058d6-78fb-42a2-9d2a-9d14c22982f0&page=2 (last visited Jan. 4, 2017).
[5] Federal jobs available in and around Washington, D.C., USAJOBS.GOV, https://www.usajobs.gov (search "Washington, D.C." in "Location" search field). For example, the Department of Labor posted a GS-15

agencies are pushing to fill as many slots as possible without regard for identifying and hiring the most qualified applicants. Additionally, more than half of the jobs available in the Washington, D.C., area are not available to applicants from outside the federal government.[6] This restriction favors current federal employees at the expense of applicants from the public.

To help the Committee understand your agency's recent hiring practices, please provide the following documents and information:

1. A list of all job openings, GS-13 and higher, announced since November 9, 2016. For each position, include:

    a. the job announcement, including name and grade of the position;

    b. the description of the position, including any necessary skills and qualifications;

    c. the number of applicants;

    d. whether the position was a competitive service position, and if so, the number of individuals that were on the certification list for each such position; and

    e. the date of hire.

2. All documents submitted to OPM referring or relating to employee hiring after November 9, 2016, including any and all documents seeking Direct-Hire Authority or approval to convert non-career political staff to career positions; and

3. For each GS-13 position opening during calendar year 2015, please identify the number of days between the vacancy announcement and the date the Department selected a candidate.

---

level position on December 22, 2016 that closed twelve days later. Similarly, the Bureau of Land Management posted a GS-15 level position on December 22, 2016 that closed two weeks later.

[6] Federal jobs available to non-federal employees in and around Washington, D.C., USAJobs.gov, https://www.usajobs.gov (search for jobs "Open to the Public" in "Washington, D.C."). On Jan. 3, 2017, a search for jobs open to the public in Washington, D.C. returned 999 openings, whereas jobs open to "Federal Employees" in Washington, D.C. returned 2,006 openings.

Please produce this information to the Committee by no later than 5:00 p.m. on January 19, 2017. When producing documents to the Committee, please deliver production sets to the Majority staff in Room 2157 of the Rayburn House Office Building and the Minority staff in Room 2471 of the Rayburn House Office Building. The Committee prefers, if possible, to receive all documents in electronic format. An attachment to this request provides additional information about responding to the Committee's request.

The Committee on Oversight and Government Reform is the principal oversight committee of the House of Representatives and has broad authority to investigate "any matter" at "any time" under House Rule X.

Please contact Drew Feeley of the Committee staff at (202) 225-5074 with any questions about this request. Thank you for your prompt attention to this matter.

Sincerely,

Jason Chaffetz
Chairman

Enclosure

cc: The Honorable Elijah E. Cummings, Ranking Minority Member

Sign In Help Search

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# Division Chief (Public Affairs)

## BUREAU OF LAND MANAGEMENT

Agency Contact Information

1 vacancy in the following location:

Washington DC, DC

Work Schedule is Work Schedule is Full Time. -
This is a permanent position.

Opened Thursday 12/22/2016
(12 day(s) ago)

Closes Thursday 1/5/2017
(2 day(s) away)

**Salary Range**

$128,082.00 to $160,300.00 / Per Year

**Series & Grade**

GS-1035-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

- All current or former federal employees with competitive/reinstatement eligibility;
- CTAP and ICTAP eligibles within the local commuting area;
- Veteran Employment Opportunity Act (VEOA) eligibles;
- All former PLC members who within the past 120 days have completed all requirements of a creditable PLC project;
- Current or former time-limited employees eligible under PL-114-47, Land Management Workforce Flexibility Act (LMWFA) ; and
- Persons eligible under Special Hiring Authorities.

**Control Number**

460691600

**Job Announcement Number**

WO Merit-2017-0062

Print
Save

Apply

# Job Overview

## Summary

About the Agency

Explore a new career with the BLM - where our people are our greatest natural resource. For additional information about the BLM, please visit Our website.

This position reports to the Communications Directorate (WO-600) in Washington, DC. Information

Sign In Help Search

Create an account to get started — build your profile, create or upload resumes and apply for jobs.

# Chief of Staff

## OFFICE OF FEDERAL CONTRACT COMPLIANCE PROGRAMS

Agency Contact Information

1 vacancy in the following location:

Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Thursday 12/22/2016
(12 day(s) ago)

Closes Tuesday 1/3/2017
(0 day(s) away)

**Salary Range**

$128,082.00 to $160,300.00 / Per Year

**Series & Grade**

GS-0301-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

All current, federal Department of Labor employees with competitive status. CTAP eligibles in the local commuting area. Qualified Land Management Eligibles.

**Control Number**

460563200

**Job Announcement Number**

MS-17-HRC-OF-106

Print
Save

Apply

# Job Overview

## Summary

About the Agency

DOL seeks to attract and retain a high performing and diverse workforce in which employees' differences are respected and valued to better meet the varying needs of the diverse customers we serve. DOL fosters a diverse and inclusive work environment that promotes collaboration, flexibility and fairness so that all individuals are able to participate and contribute to their full potential.

This position is located in the Office of the Director, Office of Federal Contract Compliance Programs (OFCCP) within the Department of Labor (DOL) located in Washington, DC. The mission of OFCCP is to enforce, for the benefit of job seekers and wage earners, the contractual promise of affirmative action and equal employment opportunity required of those who do business with the Federal government.

This position is located in the immediate Office of the Director and if selected you will serve in a close and confidential working relationship with the Director and other managers within OFCCP concerning all program and administrative issues.

## Responding to Committee Document Requests

1. In complying with this request, you are required to produce all responsive documents that are in your possession, custody, or control, whether held by you or your past or present agents, employees, and representatives acting on your behalf. You should also produce documents that you have a legal right to obtain, that you have a right to copy or to which you have access, as well as documents that you have placed in the temporary possession, custody, or control of any third party. Requested records, documents, data or information should not be destroyed, modified, removed, transferred or otherwise made inaccessible to the Committee.

2. In the event that any entity, organization or individual denoted in this request has been, or is also known by any other name than that herein denoted, the request shall be read also to include that alternative identification.

3. The Committee's preference is to receive documents in electronic form (i.e., CD, memory stick, or thumb drive) in lieu of paper productions.

4. Documents produced in electronic format should also be organized, identified, and indexed electronically.

5. Electronic document productions should be prepared according to the following standards:

   (a) The production should consist of single page Tagged Image File ("TIF"), files accompanied by a Concordance-format load file, an Opticon reference file, and a file defining the fields and character lengths of the load file.

   (b) Document numbers in the load file should match document Bates numbers and TIF file names.

   (c) If the production is completed through a series of multiple partial productions, field names and file order in all load files should match.

   (d) All electronic documents produced to the Committee should include the following fields of metadata specific to each document;

   BEGDOC, ENDDOC, TEXT, BEGATTACH, ENDATTACH, PAGECOUNT,CUSTODIAN, RECORDTYPE, DATE, TIME, SENTDATE, SENTTIME, BEGINDATE, BEGINTIME, ENDDATE, ENDTIME, AUTHOR, FROM, CC, TO, BCC, SUBJECT, TITLE, FILENAME, FILEEXT, FILESIZE, DATECREATED, TIMECREATED, DATELASTMOD, TIMELASTMOD, INTMSGID, INTMSGHEADER, NATIVELINK, INTFILPATH, EXCEPTION, BEGATTACH.

6. Documents produced to the Committee should include an index describing the contents of the production. To the extent more than one CD, hard drive, memory stick, thumb drive, box or folder is produced, each CD, hard drive, memory stick, thumb drive, box or folder should contain an index describing its contents.

7. Documents produced in response to this request shall be produced together with copies of file labels, dividers or identifying markers with which they were associated when the request was served.

8. When you produce documents, you should identify the paragraph in the Committee's schedule to which the documents respond.

9. It shall not be a basis for refusal to produce documents that any other person or entity also possesses non-identical or identical copies of the same documents.

10. If any of the requested information is only reasonably available in machine-readable form (such as on a computer server, hard drive, or computer backup tape), you should consult with the Committee staff to determine the appropriate format in which to produce the information.

11. If compliance with the request cannot be made in full by the specified return date, compliance shall be made to the extent possible by that date. An explanation of why full compliance is not possible shall be provided along with any partial production.

12. In the event that a document is withheld on the basis of privilege, provide a privilege log containing the following information concerning any such document: (a) the privilege asserted; (b) the type of document; (c) the general subject matter; (d) the date, author and addressee; and (e) the relationship of the author and addressee to each other.

13. If any document responsive to this request was, but no longer is, in your possession, custody, or control, identify the document (stating its date, author, subject and recipients) and explain the circumstances under which the document ceased to be in your possession, custody, or control.

14. If a date or other descriptive detail set forth in this request referring to a document is inaccurate, but the actual date or other descriptive detail is known to you or is otherwise apparent from the context of the request, you are required to produce all documents which would be responsive as if the date or other descriptive detail were correct.

15. Unless otherwise specified, the time period covered by this request is from January 1, 2009 to the present.

16. This request is continuing in nature and applies to any newly-discovered information. Any record, document, compilation of data or information, not produced because it has not been located or discovered by the return date, shall be produced immediately upon subsequent location or discovery.

17. All documents shall be Bates-stamped sequentially and produced sequentially.

18. Two sets of documents shall be delivered, one set to the Majority Staff and one set to the Minority Staff. When documents are produced to the Committee, production sets shall be delivered to the Majority Staff in Room 2157 of the Rayburn House Office Building and the Minority Staff in Room 2471 of the Rayburn House Office Building.

19. Upon completion of the document production, you should submit a written certification, signed by you or your counsel, stating that: (1) a diligent search has been completed of all documents in your possession, custody, or control which reasonably could contain responsive documents; and (2) all documents located during the search that are responsive have been produced to the Committee.

**Definitions**

1. The term "document" means any written, recorded, or graphic matter of any nature whatsoever, regardless of how recorded, and whether original or copy, including, but not limited to, the following: memoranda, reports, expense reports, books, manuals, instructions, financial reports, working papers, records, notes, letters, notices, confirmations, telegrams, receipts, appraisals, pamphlets, magazines, newspapers, prospectuses, inter-office and intra-office communications, electronic mail (e-mail), contracts, cables, notations of any type of conversation, telephone call, meeting or other communication, bulletins, printed matter, computer printouts, teletypes, invoices, transcripts, diaries, analyses, returns, summaries, minutes, bills, accounts, estimates, projections, comparisons, messages, correspondence, press releases, circulars, financial statements, reviews, opinions, offers, studies and investigations, questionnaires and surveys, and work sheets (and all drafts, preliminary versions, alterations, modifications, revisions, changes, and amendments of any of the foregoing, as well as any attachments or appendices thereto), and graphic or oral records or representations of any kind (including without limitation, photographs, charts, graphs, microfiche, microfilm, videotape, recordings and motion pictures), and electronic, mechanical, and electric records or representations of any kind (including, without limitation, tapes, cassettes, disks, and recordings) and other written, printed, typed, or other graphic or recorded matter of any kind or nature, however produced or reproduced, and whether preserved in writing, film, tape, disk, videotape or otherwise. A document bearing any notation not a part of the original text is to be considered a separate document. A draft or non-identical copy is a separate document within the meaning of this term.

2. The term "communication" means each manner or means of disclosure or exchange of information, regardless of means utilized, whether oral, electronic, by document or otherwise, and whether in a meeting, by telephone, facsimile, email (desktop or mobile device), text message, instant message, MMS or SMS message, regular mail, telexes, releases, or otherwise.

3. The terms "and" and "or" shall be construed broadly and either conjunctively or disjunctively to bring within the scope of this request any information which might otherwise be construed to be outside its scope. The singular includes plural number, and vice versa. The masculine includes the feminine and neuter genders.

4. The terms "person" or "persons" mean natural persons, firms, partnerships, associations, corporations, subsidiaries, divisions, departments, joint ventures, proprietorships, syndicates, or other legal, business or government entities, and all subsidiaries, affiliates, divisions, departments, branches, or other units thereof.

5. The term "identify," when used in a question about individuals, means to provide the following information: (a) the individual's complete name and title; and (b) the individual's business address and phone number.

6. The term "referring or relating," with respect to any given subject, means anything that constitutes, contains, embodies, reflects, identifies, states, refers to, deals with or is pertinent to that subject in any manner whatsoever.

7. The term "employee" means agent, borrowed employee, casual employee, consultant, contractor, de facto employee, independent contractor, joint adventurer, loaned employee, part-time employee, permanent employee, provisional employee, subcontractor, or any other type of service provider.

AL-17-000-3332
FR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 18 2017

OFFICE OF
ADMINISTRATION
AND RESOURCES
MANAGEMENT

The Honorable Jason Chaffetz
Chairman
Committee of Oversight and Government Reform
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for your letter of January 10, 2017, in which you request certain information relating to recent hiring by the U.S. Environmental Protection Agency.

The agency queried its personnel offices in order to obtain the data and information you have requested, and the results are included in enclosures to this letter.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Christina Moody in the EPA's Office of Congressional and Intergovernmental Relations at moody.christina@epa.gov or (202) 564-0260.

Sincerely,

Donna J. Vizian
Principal Deputy Assistant Administrator

Enclosures

cc: The Honorable Elijah E. Cummings
Ranking Minority Member

# Supervisory Program Analyst

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Monday 11/14/2016 (59 day(s) ago)

Closed Monday 11/28/2016 (45 day(s) ago)

**Salary Range**

$128,082.00 to $160,300.00 / Per Year

**Series & Grade**

GS-0343-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

You may apply if you:

1-Work in the commuting area of Washington, DC as a current federal employee with competitive status; are reinstatement, non-competitive appointment, ICTAP or EPA CTAP eligible;

**or**

2-Live anywhere as: a preference eligible veteran or honorably discharged from the armed services after 3-years or more of continuous active service; or Public Health Service Officer.

**Control Number**

455926600

**Job Announcement Number**

CI-OARM-MP-2017-0004

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at EPA.

Except in special circumstances, those new to the federal government will be hired at the starting salary (step 1) of the applicable grade range listed above.

This position is located in the Office of Administration and Resources Management (OARM), Office of Human Resources (OHR), Executive Resources Division (ERD) in Washington, DC.

For more information on this office, visit their website: www.epa.gov/oarm

## Duties

You will:

--Analyze and evaluate on a quantitative/qualitative bases, effectiveness of Senior Executive Service (SES) programs, management policies and operations in meeting established goals and objectives and evaluates and advises on program methods, procedures and implementation; and provide substantive recommendations for correction or improvement.

--Serve as the lead advisor to Director, Executive Research Division (ERD) and senior within OHR and OARM; and undertakes assignments or projects of special concern to the Agency regarding executive resources. Assignments are broad based with respect to impact and general policy involvement and require relationships outside the Office of Human Resources (OHR), usually of the highest political sensitivity.

--Lead or serve on inter-agency work groups on SES policy. Provides expert advice to senior leadership within the agency on policies concerning SES/SL/ST management.

--Conduct special assignments on matters of special concern or interest to the mission of Office Human Resources (OHR)/Office of Administration and Resources Management (OARM) and/or the agency with regard to SES/SL/ST positions and performance management. Provide technical direction, leadership and guidance to a team of program and management analysts, HR specialists and other subordinate staff engaged in accomplishing the assigned mission of the organization.

--Maintain communication and effective collaborative working relationships with all program and regional offices, agency boards and councils and maintain an effective network of executive resource peers external to the agency.

You will spend less than 25% of your work time on contracts and grants/cooperative agreements.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents (See How to Apply)
- You may be required to travel 1 to 5 days per month.
- You must be a U.S. citizen.

## Qualifications

You do not need a degree to qualify for this position.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as applying new hypotheses and concepts in the evaluation of complex policy questions, anticipate the nature and direction of policy questions and present options for the use of substantive programs as they relate to functional responsibilities.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

--Knowledge of a wide range of qualitative and quantitative methods for the assessment and improvement of program effectiveness and improvement.

--Ability to independently research and analyze a wide range of issues.

--Ability to represent the Executive Resources Division (ERD)/Office of Human Resources (OHR), plan, organize and effectively negotiate with management officials to accept and implement recommendations.

--Skill to plan, organize and direct team efforts where proposals involve substantial resources, or require extensive changes in procedures to accomplish established deadlines.

--Ability to prepare executive level correspondence and prepare and present high level presentations.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

This position is designated as High Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation.

You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. The following Web addresses are provided for your reference to explore the major benefits offered to most Federal employees. To find out more visit Benefits. To learn more about us, visit Life and Careers at EPA.

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

--Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.

--Responses to the on-line assessment questionnaire.

--Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).

--Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

--Current and Former Federal Employees: You are required to submit a Notification of Personnel Action (SF-50) indicating your status eligibility. This SF-50 should include your Position Title, Pay Plan, Occupational Code, and Grade or Level. If you are a current temporary/term employee who previously held a status Federal position, you need to submit your SF-50 which shows your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

--Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in eOPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

--If you are applying for a noncompetitive appointment, you'll need to submit additional documents to prove your eligibility to apply to this vacancy announcement. If you want to learn more about noncompetitive appointments, visit OPM's web site: http://www.opm.gov/employ/students/fedhire.asp#authorities

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Abdullah Cortez
Phone: 513-569-7722
Email: cortez.abdullah@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supervisory Human Resources Specialist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Thursday 11/17/2016 (56 day(s) ago)

Closed Monday 11/21/2016 (52 day(s) ago)

**Salary Range**

$126,245.00 to $158,700.00 / Per Year

**Series & Grade**

GS-0201-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

You may apply if you:
1-Work in the commuting area of Washington D.C. as a current federal employee with competitive status; are reinstatement, non-competitive appointment, ICTAP or EPA CTAP eligible; or
2-Live anywhere as: a preference eligible veteran or honorably discharged from the armed services after 3-years or more of continuous active service; or Public Health Service Officer.

**Control Number**

456668600

**Job Announcement Number**

CI-OARM-MP-2017-0005

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at EPA.

This position is located in the Office of Administration and Resources Management, Office of Human Resources (OHR), Diversity, Recruitment, and Employee Services Division (DRESD), Employee Services Branch

For more information on this office, visit their website: www.epa.gov/oarm

## Duties

You will:

-Supervise employees of the Employee Services Branch in the Diversity, Retirement and Employee Services Division (DRESD). Advise and provide counsel to employees regarding policies, procedures, and directives of management. Select or recommend selection of candidates for vacancies, promotions, details, and reassignments in consideration of skills and qualifications, mission requirements, and EEO and diversity objectives.

-Implement the functional areas of worklife (Employee Assistance Program, Child Care Subsidy Program, and conflict resolution), benefit and retirement programs, leave administration, awards, workers' compensation, unemployment compensation, Drug Free Workplace Programs, and onboarding and off-boarding employees.

-Identifies and conducts special assignments and projects designed to improve the overall effectiveness and responsiveness of employee benefits programs. Coordinates program initiatives and studies with the agency's HR Shared Services Centers, senior management, and the Office of Personnel Management (OPM).

-Represents the Director in meetings with senior management officials to develop and/or implement resolutions to identified areas of weaknesses in programs which the encumbent has oversight. Monitors the effectiveness of the recommendations that are adopted and keeps senior management informed. Leads work groups in the development of issue definition, analysis, research, and recommendations for complex issues in human resources programs.

-Prepares procedural guidance on worklife, benefits and retirements, and employee services and topics to ensure stakeholders are informed of, and given an opportunity to comment on, proposed changes or decisions affecting human resources programs.

-Researches and provides authoritative advisory services on legislation, regulations, and other issuances relating to human resources programs. Determines the effect of any changes on EPA's programs and recommends appropriate changes to EPA's policies and procedures. Prepares EPA-wide notices and directives, as necessary, to communicate program changes to the EPA workforce.

-Performs special assignments for senior management on matters of special concern or particular sensitivity. Often develops assignments on own initiative or in response to requests or concerns from senior management.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents(See How to Apply)
- You may be required to travel 1 to 5 days per month.

## Qualifications

You do not need a degree to qualify for this position.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-14 level, you need to have one year of full time experience defined as applying analytical and evaluative skills to identify problem areas, provide in-depth analysis and resolve problems of a complex or difficult

nature for a variety of civilian HR policies and programs which include: the functional areas of worklife (Employee Assistance Program, Child Care Subsidy Program, and conflict resolution), benefit and retirement programs, leave administration, awards, worker's compensation, unemployment compensation, Drug Free Workplace Programs, and onboarding and off-boarding employees; communicates orally and in writing to provide advice, recommendations, problem resolutions, program improvement and negotiate and broker resolutions without precedents.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1. Skill in leading and supervising staff.
2. Knowledge of a wide range of HR concepts, practices, laws, regulations, policies, and precedents sufficient to evaluate comprehensive HR management advisory and technical services.
3. Ability to provide technical authority for various human resources programs and provide expertise to Shared Service Centers and agency employees on employee services programs and able to resolve issues and problems in these various programs.
4. Ability to develop new program policies and comprehensive guidelines as a result of a change in programs or new legislation.
5. Skill in conducting trend analysis, providing meaningful metrics and offering recommendations for process improvement.
6. Ability to establish metrics and analyze human resources programs to ensure actions are timely and reviewed at critical points.
7. Ability to communicate in writing by preparing various documents, responses and/or Standard Operating Procedures (SOPs) for various stakeholders.
8. Ability to communicate orally by presenting, explaining and defending human resources management positions and proposals regarding human resources issues.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.
This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this

announcement.

If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

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## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/evapr.html

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/evapr.html

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: http://www.epa.gov/careers/evapr.html

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

Position has portable work and selectee may be eligible to telework.

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/evapr.html

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

--Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
--Responses to the on-line assessment questionnaire.
--Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit

certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).
--Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
--Current and Former Federal Employees: You are required to submit a Notification of Personnel Action (SF-50) indicating your status eligibility. This SF-50 should include your Position Title, Pay Plan, Occupational Code, and Grade or Level. If you are a current temporary/term employee who previously held a status Federal position, you need to submit your SF-50 which shows your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.
--Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in eOPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.
--If you are applying for a noncompetitive appointment, you'll need to submit additional documents to prove your eligibility to apply to this vacancy announcement. If you want to learn more about noncompetitive appointments, visit OPM's web site: http://www.opm.gov/employ/students/fedhire.asp#authorities

If you want to know more about submitting documentation to our office, visit EPA's web site: http://www.epa.gov/careers/evapr.html

# Environmental Protection Agency

## Contact

Abdullah Cortez
Phone: 513-569-7722
Email: cortez.abdullah@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supervisory Program Analyst

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Wednesday 11/16/2016 (57 day(s) ago)

Closed Wednesday 11/30/2016 (43 day(s) ago)

**Salary Range**

$128,082.00 to $160,300.00 / Per Year

**Series & Grade**

GS-0343-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

You may apply if you:

1-Work in the commuting area of Washington, DC as a current federal employee with competitive status; are reinstatement, non-competitive appointment, ICTAP or EPA CTAP eligible;

**or**

2-Live anywhere as: a preference eligible veteran or honorably discharged from the armed services after 3-years or more of continuous active service; or Public Health Service Officer.

**Control Number**

456442600

**Job Announcement Number**

CI-OARM-MP-2017-0009

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at EPA.

Except in special circumstances, those new to the federal government will be hired at the starting salary (step 1) of the applicable grade range listed above.

This position is located in Office of Administration and Resources Management (OARM), Office of Human Resources (OHR), Diversity, Recruitment and Employee Services Division (DRESD), Diversity and Recruitment Branch (DRB) in Washington, DC.

For more information on this office, visit their website: www.epa.gov/oarm

## Duties

You will:

--Supervise employees of the Diversity and Recruitment Branch (DRB) in Diversity, Recruitment and Employee Service Division (DRESD) and is responsible for providing agency leadership and coordination for recruitment and diversity and inclusion activities.

--Support development and institutionalization of the US Environmental Protection Agency's (EPA) strategic recruitment and outreach strategy. Support coordination of the EPA's activities to enhance workplace diversity and inclusion.

--Identify and conduct special assignments and projects designed to improve the overall effectiveness of recruiting, outreach and diversity and inclusion programs; coordinate program initiatives and studies with the agency's Human Resources Shared Service Centers, senior management and Office of Personnel Management (OPM).

--Represent the Division Director in meetings with senior management officials to develop and/or implement programs or program improvements designed to improve the diversity of EPA's workforce and ensure diversity in the flow of applicants for EPA hiring.

--Encourage consultation and communication throughout the human resources and Equal Employment Opportunity (EEO) communities to promote collaboration and understanding of key issues and recommend new approaches to problems and objectives and enlist cooperation and contributions from stakeholders.

You will spend 25% of your work time on contracts management.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents (See How to Apply)
- You may be required to travel 1 to 5 days per month.
- You must be a U.S. citizen.

## Qualifications

You do not need a degree to qualify for this position.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as overall responsibility for leading and managing all aspects of an Agency's Human Resources program.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

--Ability to plan, organize and direct team efforts and provide leadership to accomplish established deadlines.

--Knowledge of initiatives designed to improve agency diversity.

--Knowledge of requirements and administration of recruiting, hiring and diversity and inclusion programs.

--Ability to represent management to plan, organize and effectively improve diversity in the workforce.

--Ability to communicate effectively to diverse audiences to promote collaboration and understanding of key program issues.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation.

You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

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## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your

background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

--Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.

--Responses to the on-line assessment questionnaire.

--Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).

--Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

--Current and Former Federal Employees: You are required to submit a Notification of Personnel Action (SF-50) indicating your status eligibility. This SF-50 should include your Position Title, Pay Plan, Occupational Code, and Grade or Level. If you are a current temporary/term employee who previously held a status Federal position, you need to submit your SF-50 which shows your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

--Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in eOPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

--If you are applying for a noncompetitive appointment, you'll need to submit additional documents to prove your eligibility to apply to this vacancy announcement. If you want to learn more about noncompetitive appointments, visit OPM's web site: http://www.opm.gov/employ/students/fedhire.asp#authorities

If you want to know more about submitting documentation to our office, visit EPA's web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Krisheena Parker
Phone: 513-569-7654
Email: parker.krisheena@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supervisory Human Resources Specialist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Wednesday 11/16/2016 (57 day(s) ago)

Closed Wednesday 11/30/2016 (43 day(s) ago)

**Salary Range**

$128,082.00 to $160,300.00 / Per Year

**Series & Grade**

GS-0201-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

You may apply if you:

1-Work in the commuting area of Washington, DC as a current federal employee with competitive status; are reinstatement, non-competitive appointment, ICTAP or EPA CTAP eligible;

**or**

2-Live anywhere as: a preference eligible veteran or honorably discharged from the armed services after 3-years or more of continuous active service; or Public Health Service Officer.

**Control Number**

456507500

**Job Announcement Number**

CI-OARM-MP-2017-0010

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at EPA.

Except in special circumstances, those new to the federal government will be hired at the starting salary (step 1) of the applicable grade range listed above.

This position is located in Office of Administration and Resources Management (OARM), Office of Human Resources (OHR), Policy, Planning and Training Division (PPTD), Training Branch in Washington, DC.

For more information on this office, visit their website: www.epa.gov/oarm

## Duties

You will:

--Serve as first line supervisor for a staff of training specialists, human resources specialists, technical and administrative staff; overseeing daily operations of the Office of Human Resources' Training Branch.

--Lead branch efforts to establish and build on formal linkages between the Environmental Protection Agency's (EPA) training program and those of other federal agencies including the development of memoranda of understanding and/or interagency agreements.

--Direct the establishment of policy to meet new agency-wide strategic planning needs based on consideration of factors such as the impact of new or anticipated global, economic, technological, educational or workforce conditions that will affect the Agency's organizational capacity to meet EPA's environmental missions.

--Based on training and organizational development knowledge, work with senior management to identify their needs and concerns.

--Manage extramural resources by overseeing and performing, as needed, duties associated with the pre-award/post-award and closeout and interagency agreements executed by the branch; duties consist of preparing the statement of work, collecting cost estimates, securing and preparing funding documents, providing technical direction, reviewing deliverables, approving invoices for payment and working with the contracts officer and/or grant specialists, as appropriate to facilitate the process.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents (See How to Apply)
- You may be required to travel 1 to 5 days per month.
- You must be a U.S. citizen.

## Qualifications

You do not need a degree to qualify for this position.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as providing leadership in carrying out all aspects of training and knowledge management, and provides direction and guidance to staff related to agency wide training and organizational development.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

--Ability to provide direction, leadership and guidance to a team of training specialists, management analysts, and human resources specialists engaged in accomplishing the assigned mission of the organization.

--Ability to shape and improve on effectiveness and efficiency on an Agency training program.

--Ability to establish policy and meet strategic planning needs that will impact the Agency's organizational capacity.

--Ability to maintain communication and effective collaborative working relationship with management to determine

their training and organizational development needs.

--Knowledge of interagency agreements.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.
If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation.

You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. The following Web addresses are provided for your reference to explore the major benefits offered to most Federal employees. To find out more visit Benefits. To learn more about us, visit Life and Careers at EPA.

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later

than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

--Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.

--Responses to the on-line assessment questionnaire.

--Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).

--Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

--Current and Former Federal Employees: You are required to submit a Notification of Personnel Action (SF-50) indicating your status eligibility. This SF-50 should include your Position Title, Pay Plan, Occupational Code, and Grade or Level. If you are a current temporary/term employee who previously held a status Federal position, you need to submit your SF-50 which shows your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

--Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in eOPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

--If you are applying for a noncompetitive appointment, you'll need to submit additional documents to prove your eligibility to apply to this vacancy announcement. If you want to learn more about noncompetitive appointments, visit OPM's web site: http://www.opm.gov/employ/students/fedhire.asp#authorities

If you want to know more about submitting documentation to our office, visit EPA's web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Krisheena Parker
Phone: 513-569-7654
Email: parker.krisheena@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Program Analyst

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Thursday 12/1/2016 (42 day(s) ago)

Closed Monday 12/5/2016 (38 day(s) ago)

**Salary Range**

$108,887.00 to $141,555.00 / Per Year

**Series & Grade**

GS-0343-14/14

**Promotion Potential**

14

**Supervisory Status**

No

**Who May Apply**

If you are an EPA employee in the commuting area of Washington D.C., and are:
- Current permanent EPA employee with competitive status; or
- EPA Career Transition Assistance Program (CTAP) eligible

**Control Number**

458032400

**Job Announcement Number**

CI-OARM-MP-2017-0013

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at EPA.

This position is located in Office of Administration and Resources Management, Immediate Office of the Assistant Administrator, Washington D.C.

For more information on this office, visit their website: https://www.epa.gov/aboutepa/about-office-administration-and-resources-management-oarm#

## Duties

You will:

-Serve as a senior special assistant to the Assistant Administrator (AA) for the Office Administration and Resources Management (OARM), and provide advice and guidance on policy development, planning, coordination and a variety of other matters and project/assignments as they relate to the programmatic responsibilities of OARM.

-Conduct and develop special assignments on own initiative or in response to requests by the Assistant and Deputy Assistant Administrator. Assignments are usually broad based, touching upon wide program areas or activities within OARM, relationships with other part of the Agency and other Government agencies, or with various segments of the private sector.

-Ensure that Office Directors and other key personnel are informed of, and given an opportunity to comment on,

proposed actions or decisions affecting their offices or responsibilities. Encourage consultation and communication throughout the AA ship to ensure collaboration and understanding of key issues. Represent the Assistant and Deputy Assistant Administrators' points of view, desired emphases, and goals.

-Discuss the objectives of OARM programs with the Assistant and Deputy Assistant Administrators, the viewpoints of the program officials, the existing policies and laws pertaining to the programs, and the problems that they have encountered in carrying out these programs.

-Provide assistance including staff support in the oversight of operations performing a wide range of functions which include coordinating assignments, responsibilities and providing advice among secretaries, junior special assistants, and identifying equipment, training and other tools necessary to enhance the performance of the Assistant Administrator's Immediate Office.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents(See How to Apply)
- You may be required to travel 1 to 5 days per month.

## Qualifications

You do not need a degree to qualify for this position.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-14 level, you need to have at least one year of full time experience equivalent to the GS-13 level defined as experience providing advice and guidance to senior management on policy development, planning and coordination on projects/assignments as they relate to the programmatic responsibilities of OARM; analyzing and evaluating (on a qualitative and quantitative basis) the effectiveness of program operations in meeting established goals and objectives; organizing and directing team efforts; and negotiating effectively with management officials to accept and implement recommendations.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1. Comprehensive knowledge of planning, programming and budgeting regulations, guidance and processes and a thorough knowledge of OARM's missions and functions to prepare long and short range planning guidance in accordance with broad EPA policies and objectives.

2. Skill in using qualitative and quantitative methods for the assessment and improvement of program effectiveness and the improvement of complex management processes.

3. Skill in justifying recommendations and options to resolve administrative problems and influencing management to accept and implement findings and recommendations where there is resistance. Able to settle matters which involve significant or controversial issues which have an impact on major programs.

4. Ability to plan, organize and direct team efforts and to negotiate effectively with management officials to accept and implement recommendations, where proposals involve substantial resources, or require extensive changes in established procedures.

5. Skill in concise written communications that provide information and/or guidance to management and employees within a local office.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual;

community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. To learn more about us, visit Life and Careers at EPA.

This position is not in the bargaining unit.

Benefits will not change for current permanent EPA employees.

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

--Resume clearly stating your experience related to this position as described in the Duties Section and

Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
--Responses to the on-line assessment questionnaire.
--Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
--Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in eOPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.
--If you are applying for a noncompetitive appointment, you'll need to submit additional documents to prove your eligibility to apply to this vacancy announcement. If you want to learn more about noncompetitive appointments, visit OPM's web site: http://www.opm.gov/employ/students/fedhire.asp#authorities

If you want to know more about submitting documentation to our office, visit EPA's web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Krisheena Parker
Phone: 513-569-7654
Email: Parker.Krisheena@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Procurement Analyst

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - District of Columbia, DC

Work Schedule is Full-time - Permanent

Opened Thursday 11/17/2016 (56 day(s) ago)

Closed Wednesday 11/23/2016 (50 day(s) ago)

**Salary Range**

$128,082.00 to $160,300.00 / Per Year

**Series & Grade**

GS-1102-15/15

**Promotion Potential**

15

**Supervisory Status**

No

**Who May Apply**

Current permanent EPA employees within the Office of Administration and Resources Management, Office of Acquisition Management with competitive status and CTAP eligibles.

**Control Number**

456613400

**Job Announcement Number**

CI-OARM-MP-2017-0014

## Job Summary

About the Agency

This position is located in the Office of Administration Resources Management (OARM), Office of Acquisition Management (OAM), Immediate Office (IO), located in Washington, DC. For more information on this office, visit their website: www.epa.gov

## Duties

You will:

-Manage strategic alliances with internal and external entities including customers, senior leadership, and other Agencies, to ensure effective collaboration, implementation and integration of OAM initiatives such as strategic sourcing and organizational realignment into the acquisition function.

-Understand and manage proper organizational alignment to eliminate redundancies and optimize efficiency and provide oversight.

-Review and apply acquisition policies and regulations in support of EPA systems for Federal Procurement Reporting.

-Apply overall planning, management and direction pertaining to solicitation and negotiation.

-Provide an overall knowledge of project management.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.

- You must submit resume and required documents (See How to Apply)
- You may be required to travel 1 to 5 days per month.

## Qualifications

You need a degree or combination of education and experience as described below to qualify for this position.

**Basic Requirements for GS-13 and Above** Completion of all mandatory training prescribed by the head of the agency for progression to GS-13 or higher level contracting positions, including at least 4-years experience in contracting or related positions. At least 1 year of that experience must have been specialized experience at or equivalent to work at the next lower level of the position, and must have provided the knowledge, skills, and abilities to perform successfully the work of the position. AND A 4-year course of study leading to a bachelor's degree, that included or was supplemented by at least 24 semester hours in any combination of the following fields: accounting, business, finance, law, contracts, purchasing, economics, industrial management, marketing, quantitative methods, or organization and management. Exceptions: Employees in GS-1102 positions will be considered to have met the standard for positions they occupy on January 1, 2000. This also applies to positions at the same grade in the same agency or other agencies if the specialized experience requirements are met. However, they will have to meet the basic requirements and specialized experience requirements in order to qualify for promotion to a higher grade, unless granted a waiver under Paragraph D. Waiver: When filling a specific vacant position, the senior procurement executive of the selecting agency, at his or her discretion, may waive any or all of the requirements of Paragraphs A and B above if the senior procurement executive certifies that the applicant possesses significant potential for advancement to levels of greater responsibility and authority, based on demonstrated analytical and decision making capabilities, job performance, and qualifying experience. With respect to each waiver granted under this Paragraph D, the senior procurement executive must document for the record the basis of the waiver. If an individual is placed in a position in an agency on the basis of a waiver, the agency may later reassign that individual to another position at the same grade within that agency without additional waiver action. **THE ACQUISITION OFFICER AT THIS EPA OFFICE WILL NOT ENTERTAIN AND/OR GRANT ANY WAIVERS.**

In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below: To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as experience with organizational and Agency-wide performance-management systems to include the establishment and management of performance measures.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

-Knowledge of program contractual authority and advisor on the acceptability of contractual matters related to the assigned acquisition program.

-Skill to analyze facts and conditions, draw conclusions and make comparison in order to develop business practices and efficiencies.

-Knowledge of Federal Regulations and policies.

-Ability to develop and give presentations to all levels in order to develop and exchange information on acquisition related topics.

-Ability to manage, compile and analyze data and give recommendations to Senior Leadership.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.

A bachelor's degree from an accredited or pre-accredited college or university that included or was supplemented by at least 24 semester hours in any combination of the following fields: accounting, business, finance, law, contracts, purchasing, economics, industrial management, marketing, quantitative methods or organization and management. As part of the application process, you are required to submit **college transcripts or a list of courses,/b> as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with EPA. More information on verification of education can be found here: http://epa.gov/ohr/ezhire/vacancy_requirements.htm**

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Other

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

## Other Information

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

If you have part-time work experience, read this: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

Position has portable work and selectee may be eligible to telework.

This position is not in the bargaining unit.

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

**NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.**
**To preview questions please click here.**

Documents to be submitted on-line:

-Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. **In describing your experience, you need to be clear and specific**. We may not make assumptions regarding your experience.
-Responses to the on-line assessment questionnaire

**-College transcripts - required to submit either unofficial transcripts or a list of courses that includes school (s) attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned.**
-Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
-Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Abdullah Cortez
Phone: 513-569-7722
Email: cortez.abdullah@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Human Resources Specialist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Tuesday 11/22/2016 (51 day(s) ago)

Closed Thursday 12/1/2016 (42 day(s) ago)

**Salary Range**

$108,887.00 to $141,555.00 / Per Year

**Series & Grade**

GS-0201-14/14

**Promotion Potential**

14

**Supervisory Status**

No

**Who May Apply**

You may apply if you:
1-Work in the commuting area of Washington, D.C. as a current federal employee with competitive status; are reinstatement, non-competitive appointment, ICTAP or EPA CTAP eligible; or
2-Live anywhere as: a preference eligible veteran or honorably discharged from the armed services after
3-years or more of continuous active service; or Public Health Service Officer.

**Control Number**

457097400

**Job Announcement Number**

CI-OARM-MP-2017-0017

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at EPA.

This position is located in Office of Administration and Resources Management, Office of Human Resources, Policy, Planning, and Training Division, Policy and Accountability Branch, HQ Washington DC For more information on this office, visit their website:https://www.epa.gov/aboutepa/about-office-administration-and-resources-management-oarm#ohr

## Duties

- Develop and issue agency-level policy to clarify issues, resolve conflicting guidance, or implement new regulations, laws, or guidance issued by the US Office of Personnel Management, Merit System Protections Board, the President, Congress, or other federal authorities.
- Participates in reviewing transactional documents for compliance with established law, regulations and agency or OPM policy.

- Evaluate, develop, revise or recommend changes in policies and guidance related to Agency's Human Resources program
- Prepare and deliver written issue papers, analyses, oral presentations and status reports geared to meet client communications needs.

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents(See How to Apply)

## Qualifications

You do not need a degree to qualify for this position.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-14 level, you need to have at least one year of full time experience equivalent to the GS-13 level defined as developed and issued agency-level policy to clarify issues, resolve conflicting guidance, or implement new regulations, laws, or guidance issued by the US Office of Personnel Management, Merit System Protections Board, the President, Congress, or other federal authority; evaluate, develop, revise or recommend changes in policies and guidance related to an agency's human resources program; participated in reviewing transactional documents for compliance with established law, regulations and agency or OPM policy; coordinated and prepared analyses of proposed legislation to determine the potential applicability to agency policies, practices and HR systems.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas: 1) Knowledge of federal HR operations, including staffing classification, leave, training and pay. 2) Skill in researching, interpreting, and applying human resources laws, regulations, policies and procedures. 3) Ability to research and/or develop new ideas for the federal human resources arena, and recommend products and services such as demonstration and/or pilot projects.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for

employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. The following Web addresses are provided for your reference to explore the major benefits offered to most Federal employees. To find out more visit
Benefits. To learn more about us, visit Life and Careers at EPA.

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

--Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
--Responses to the on-line assessment questionnaire.
--Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).
--Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
--Current and Former Federal Employees: You are required to submit a Notification of Personnel Action (SF-50) indicating your status eligibility. This SF-50 should include your Position Title, Pay Plan, Occupational Code, and Grade or Level. If you are a current temporary/term employee who previously held a status Federal position, you need to submit your SF-50 which shows your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.
--Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in eOPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.
--If you are applying for a noncompetitive appointment, you'll need to submit additional documents to prove your eligibility to apply to this vacancy announcement. If you want to learn more about noncompetitive appointments, visit OPM's web site: http://www.opm.gov/employ/students/fedhire.asp#authorities

If you want to know more about submitting documentation to our office, visit EPA's web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Abdullah Cortez
Phone: 513-569-7722
Email: cortez.abdullah@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supervisory Contract Specialist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Washington DC, DC
1 vacancy - Durham, NC
1 vacancy - Cincinnati, OH

Work Schedule is Full-time - Permanent

Opened Friday 12/2/2016 (41 day(s) ago)

Closed Thursday 12/15/2016 (28 day(s) ago)

**Salary Range**

$121,061.00 to $160,300.00 / Per Year

**Series & Grade**

GS-1102-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

Current permanent EPA employees in the Office of Acquisition Management (OAM) with competitive status and CTAP eligibles.

**Control Number**

457981700

**Job Announcement Number**

CI-OARM-MP-2017-0021

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

This position is located in the Office of Administration and Research Management (OARM), Office of Acquisition Management (OAM) located in Cincinnati, OH, Durham, NC and Washington, DC. **There will be one selection made at each duty location and salary will be commensurate to each duty location.**

For more information on this office, visit their website: www.epa.gov/oarm

## Duties

You will:

--Exercise supervisory personnel management responsibilities over staff members, making assignments and determining responsibilities and priorities, evaluating employee performance, recommending appropriate incentives, initiating corrective actions assuring safety practices, keeping employees informed of management and personnel policies, counseling employees regarding their benefits, salaries, etc., and provide training for subordinate personnel.

--Responsible for the overall development of long-range plans for the assigned portion of the Environmental Protection Agency's (EPA's) procurement program which include requirements for operations, budget, reporting, control methods and procedures for accomplishing the assigned mission.

--Participate in specific studies of various phases of EPA contractual matters and provides information to higher echelons and, if necessary, to investigative bodies concerning the award of contracts.

--Represent the EPA at ad hoc conferences and committee meetings concerned with contractual progress. Confers with top-level government and industry officials to represent the official point of view of the organization and to exchange and coordinate information on critical issues.

--Maintain regular contact with senior officials of the EPA and other government agencies and corporate officer-level personnel of major industry concerns.

--Maintain liaison with appropriate government agencies, private industry and other activities to keep current as to new products, developments, procedures and other facts to provide better service to the organization.

--Responsible for the training of subordinate personnel.

--Establishes, directs and coordinates subordinate units in the are of negotiated procurements, sealed bidding procurement, contract administration and procurement operations and review.

--Develops program objectives, operating procedures and major responsibility assignments, plans for the coordination, integration and direction of all segments in the advertisement, negotiation and execution of contracts.

You will spend more than 50% of your work time on contracts management.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- Position has educational/degree requirements. (See Qualifications Section)
- EPA and non-EPA applicants must submit transcripts/course listings.
- You must submit resume and required documents (See How to Apply)
- You may be required to travel 1 to 5 days per month.

## Qualifications

Absent an exception or waiver, the following are the requirements for this position:

FAC-C Level III (Federal Acquisition Certification-Contracting) certification is required.

You need a degree or combination of education and experience as described below to qualify for this position.

**Contract Specialist, GS-1102**

**A.** Completion of all mandatory training prescribed by the head of the agency for progression to GS-13 or higher level contracting positions, including at least 4-years experience in contracting or related positions. At least 1 year of that experience must have been specialized experience at or equivalent to work at the next lower level of the position, and must have provided the knowledge, skills, and abilities to perform successfully the work of the position.

**B.** A 4-year course of study leading to a bachelor's degree, that included or was supplemented by at least 24 semester hours in any combination of the following fields: accounting, business, finance, law, contracts, purchasing, economics, industrial management, marketing, quantitative methods, or organization and management.

**C.** Exceptions: Employees in GS-1102 positions will be considered to have met the standard for positions they occupy on January 1, 2000. This also applies to positions at the same grade in the same agency or other agencies if the specialized experience requirements are met. However, they will have to meet the basic requirements and specialized experience requirements in order to qualify for promotion to a higher grade, unless granted a waiver under Paragraph D.

**D.** Waiver: When filling a specific vacant position, the senior procurement executive of the selecting agency, at his or her discretion, may waive any or all of the requirements of Paragraphs A and B above if the senior procurement executive certifies that the applicant possesses significant potential for advancement to levels of greater responsibility and authority, based on demonstrated analytical and decision making capabilities, job performance,

and qualifying experience. With respect to each waiver granted under this Paragraph D, the senior procurement executive must document for the record the basis of the waiver. If an individual is placed in a position in an agency on the basis of a waiver, the agency may later reassign that individual to another position at the same grade within that agency without additional waiver action.

**In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:**

To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as supervising staff of acquisition professionals whose work consists of negotiating, procuring and administering contracts in support of Agency programs.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

--Ability to exercise supervisory personnel management responsibilities over staff members.

--Ability to develop long-range plans which encompass the requirements for operations, budget, reporting, control methods and procedures.

--Ability to apply qualitative and/or qualitative methods in order to participate in specific studies of various phases of EPA contractual matters and thereby identify, assess, analyze and improve the effectiveness and efficiency or work problems.

--Ability to confer with and/or develop and deliver oral briefings to top level government and industrial officials in order to keep current on new products, developments, procedures, etc.

--Ability to instruct and/or provide training to subordinates on such subjects as negotiated procurement, sealed bidding procurement, contract administration and procurement operations review.

--Ability to develop program objectives, operating procedures and major responsibility assignments, plans for the coordination, integration and direction of all segements in the advertisement, negotiation and execution of contracts.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation.

You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Benefits will not change for current permanent EPA employees.

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

-- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.

-- Responses to the on-line assessment questionnaire

--College transcripts - required to submit either unofficial transcripts or a list of courses that includes school(s) attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned.

--Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

-- Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Krisheena Parker
Phone: 513-569-7654
Email: parker.krisheena@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Realty Specialist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - District of Columbia, DC

Work Schedule is Full-time - Permanent

Opened Monday 12/12/2016 (31 day(s) ago)

Closed Friday 12/23/2016 (20 day(s) ago)

**Salary Range**

$108,887.00 to $141,555.00 / Per Year

**Series & Grade**

GS-1170-14/14

**Promotion Potential**

14

**Supervisory Status**

No

**Who May Apply**

You may apply if you:
1-Work in the commuting area of Washington, D.C. as a current federal employee with competitive status; are reinstatement, non-competitive appointment, ICTAP or EPA CTAP eligible; or
2-Live anywhere as: a preference eligible veteran or honorably discharged from the armed services after
3-years or more of continuous active service; or Public Health Service Officer.

**Control Number**

459212700

**Job Announcement Number**

CI-OARM-MP-2017-0026

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at EPA.
This position is located in the Office of Administration and Resources Management, Office of Administration, Real Property Services Staff, Washington, D.C. For more information on this office, visit their website: www.epa.gov/oarm

Except in special circumstances, those new to the federal government will be hired at the starting salary (step 1) of the applicable grade range listed above.

## Duties

You will:
-Provide technical suggestions and recommendations for planning, implementing, evaluating, inspection and coordinating all phases of Real Property and Space Management Activities.
-Consult with the Real Property Services Staff (RPSS) Director and Lead Property and Space analyst to identify selection of sites and acquisition and management of space.
-Collaborate with the Office of Administration (OA) nationally focused security and safety and sustainability divisions, EPA, regions, labs and General Services Administrative (GSA).

-Work with EPA and GSA professionals to fulfill Agency specific requirements for office, laboratory and support space and realty related projects to include procurement of title, survey, or appraisal services and use permits granted to other federal agencies.
You will spend less than 25% of your work time on contracts, grants/cooperative agreements, and/or interagency agreements.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents (See How to Apply).
- You may be required to travel 1 to 3 days per month.

## Qualifications

You do not need a degree to qualify for this position.
We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-14 level, you need to have at least one year of full time experience equivalent to the GS-13 level defined as experience in real property interests and real estate principles, real estate development processes, federal real property practices, concepts and interests.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:
-Skill in project management and identification and interpretation of regulations polices and guidelines to develop and implement space utilization plans, space rentals and standards.
-Ability to analyze interpret and evaluate technical documents and data.
-Ability to advise and collaborate with the stakeholders at the national level to include senior management.
-Knowledge of project, acquisition and financial management on multiple-functional program activities and full range of procurement policies and regulations.
-Ability to serve as a Contracting Officer Representative and/or Project Officer.
-Ability to communicate and provide quality feedback to diverse customers.
Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.
If you are selected, you must complete a one year probationary period.
This position is designated as Low Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.
You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Other

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs account after we conduct a qualification review of your complete application package.

You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. To learn more about us, visit Life and Careers at EPA.

## Other Information

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

Position has portable work and selectee may be eligible to telework.

This position is in the bargaining unit.

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

You are strongly encouraged to read the entire announcement before you submit your application for this position. To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.
All required supporting documents will be collected electronically via the USAJobs document portfolio feature.
If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.
For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.
We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.
**NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.**
**To preview questions please click here.**

Documents to be submitted on-line:

-Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
-Responses to the on-line assessment questionnaire.
-Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).
-Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
-Current and Former Federal Employees: You are required to submit a Notification of Personnel Action (SF-50) indicating your status eligibility. This SF-50 should include your Position Title, Pay Plan, Occupational Code, and Grade or Level. If you are a current temporary/term employee who previously held a status Federal position, you need to submit your SF-50 which shows your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.
-Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in eOPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.
-If you are applying for a noncompetitive appointment, you'll need to submit additional documents to prove your eligibility to apply to this vacancy announcement. If you want to learn more about noncompetitive appointments, visit

OPM's web site: http://www.opm.gov/employ/students/fedhire.asp#authorities

If you want to know more about submitting documentation to our office, visit EPA's web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Michelle Bullock-Smith
Phone: 513-569-7825
Email: bullock-smith.michelle@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supervisor Safety Health and Environmental Manager

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Friday 12/9/2016 (34 day(s) ago)

Closed Sunday 12/18/2016 (25 day(s) ago)

**Salary Range**

$128,082.00 to $160,300.00 / Per Year

**Series & Grade**

GS-0018-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

Current permanent EPA employees with competitive status and CTAP eligibles.

**Control Number**

458921800

**Job Announcement Number**

CI-OARM-MP-2017-0029

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

This position is located in Office of Administration and Resources Management (OARM), Office of Administration (OA), Safety and Sustainability Division (SSD), Environmental, Safety and Health Programs Branch (ESHPB), HQ Washington DC.

For more information on this office, visit their website: https://www.epa.gov/aboutepa/about-office-administration-and-resources-management-oarm#oa

## Duties

- Planning, coordinating, and supervising the safety, health, and environmental management activities of the staff.
- Direct and coordinate strategies for Agency-wide safety, health and environmental programs.
- Serve as a technical expert and provide assistance and expert council to Agency officials on safety, health and environmental management projects.
- Provide leadership and guidance for the investigation and resolution of complex and often undefined environmental occupational health accidents, releases and losses.
- Develop and maintain an effective Agency-wide communications strategy to educate the Agency's senior managers, regional safety, health and environmental managers, and EPA employees about their safety, health and environmental management obligations.

You will spend less than 25% of your work time on contracts, grants/cooperative agreements, and/or interagency agreements.

## Travel Required

- Occasional Travel
- You may be required to travel 1 to 5 days per month.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents(See How to Apply)

## Qualifications

You do not need a degree to qualify for this position.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as planning, coordinating, and supervising the safety, health, and environmental management activities of the staff; direct and coordinate strategies for Agency-wide safety, health and environmental programs; serve as a technical expert and provides assistance and expert council to Agency officials on safety, health and environmental management projects; provide leadership and guidance for the investigation and resolution of complex and often undefined environmental occupational health accidents, releases and losses; develop and maintain an effective Agency-wide communications strategy to educate the Agency's senior managers, regional safety, health and environmental managers, and EPA employees about their safety, health and environmental management obligations.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas: 1) Knowledge of occupational health, safety, and environmental activities. 2) Ability to formulate and implement safety, health and environmental management policies, standards, directives, instructions, and protocols. 3) Knowledge of safety, health and environmental management principles and practices. 4) Skills in written communication.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.
You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line

occupational questionnaire, resume and any supporting documentation. You will be
notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. The following Web addresses are provided for your reference to explore the major benefits offered to most Federal employees. To find out more visit
Benefits. To learn more about us, visit Life and Careers at EPA.

Benefits will not change for current permanent EPA employees.

## Other Information

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

Position has portable work and selectee may be eligible to telework.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

This position is not in the bargaining unit.

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application

materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

-- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
-- Responses to the on-line assessment questionnaire
-- Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
-- Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Abdullah Cortez
Phone: 513-569-7722
Email: cortez.abdullah@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Contract Specialist (Open Continuous)

## ENVIRONMENTAL PROTECTION AGENCY

FEW vacancies - Durham, NC
FEW vacancies - Cincinnati, OH

Work Schedule is Full-time - Permanent

Opened Monday 11/21/2016 (52 day(s) ago)

Closes Monday 11/20/2017 (312 day(s) away)

**Salary Range**

$87,094.00 to $114,014.00 / Per Year

**Series & Grade**

GS-1102-13/13

**Promotion Potential**

13

**Supervisory Status**

No

**Who May Apply**

Any U.S. citizen may apply.

**Control Number**

457128900

**Job Announcement Number**

CI-OARM-OT-2017-0007

## Job Summary

About the Agency

These positions are located at the Environmental Protection Agency Cincinnati, Ohio or Durham, North Carolina. For more information on this office, visit their website: http://www.epa.gov

One or more positions may be filled.

The salary will be commensurate with the duty location.

Cut-off dates for referral consideration are as follows:

- January 02, 2017
- February 27, 2017
- March 27, 2017
- April 24, 2017
- May 22, 2017
- June 19, 2017
- July 17, 2017
- August 14, 2017
- September 11, 2017
- October 09, 2017

## Duties

You will:
-Serve as an advisor to program officials in procurement planning activities;

-Prepare solicitation documents such as Requests for Quotations, Invitation for Bids, Requests for Proposals, and other supporting procurement documentation;

-Perform cost analysis or detailed analysis of all elements of cost in contractor proposals;

-Analyze potential problem areas with regard to progress of work, available funds, requests for changes, delays in performance and possible termination actions.

You will spend more than 50% of your work time on contracts, grants/cooperative agreements, and/or interagency agreements.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents (See How to Apply).
- You may be required to travel 1 to 5 days per month.
- Position has educational/degree requirements. (See Qualifications Section)
- EPA and non-EPA applicants must submit transcripts/course listings.

## Qualifications

You need a degree or combination of education and experience as described below to qualify for this position.

**Basic Requirements for GS-13 Contracting Series, 1102**:
1. Completion of all mandatory training prescribed by the head of the agency for progression to GS-13 or higher level contracting positions, including at least 4-years experience in contracting or related positions. At least 1 year of that experience must have been specialized experience at or equivalent to work at the next lower level of the position, and must have provided the knowledge, skills, and abilities to perform successfully the work of the position.
2. A 4-year course of study leading to a bachelor's degree, that included or was supplemented by at least 24 semester hours in any combination of the following fields: accounting, business, finance, law, contracts, purchasing, economics, industrial management, marketing, quantitative methods, or organization and management.

3.Exceptions: Employees in GS-1102 positions will be considered to have met the standard for positions they occupy on January 1, 2000. This also applies to positions at the same grade in the same agency or other agencies if the specialized experience requirements are met. However, they will have to meet the basic requirements and specialized experience requirements in order to qualify for promotion to a higher grade, unless granted a waiver under Paragraph D.

4.Waiver: When filling a specific vacant position, the senior procurement executive of the selecting agency, at his or her discretion, may waive any or all of the requirements of Paragraphs A and B above if the senior procurement executive certifies that the applicant possesses significant potential for advancement to levels of greater responsibility and authority, based on demonstrated analytical and decision making capabilities, job performance, and qualifying experience. With respect to each waiver granted under this Paragraph D, the senior procurement executive must document for the record the basis of the waiver. If an individual is placed in a position in an agency on the basis of a waiver, the agency may later reassign that individual to another position at the same grade within that agency without additional waiver action.

As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with EPA. More information on verification of education can be found here: http://epa.gov/ohr/ezhire/vacancy_requirements.htm

In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-13 level, you need to have at least one year of full time experience equivalent to the GS-12

level defined as reviewing correspondence, progress reports, and data submitted by the contractor during performance to detect delays, cost or price changes, problems, and other factors not in accordance with the contract or otherwise adversely affecting the government's interest.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

-Knowledge of contracting procedures, types, and methods;

-Skill in using simplified acquisition procedures;

-Knowledge of federal laws, regulations, and rules as they relate to the Federal Acquisition Regulations (FAR);

-Ability to develop procurement plans;

-Skill in oral communication sufficient to provide advice on the appropriate steps in the procurement process;

-Skill in written communication to prepare procurement documentation.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. **FAC-C Level II (Federal Acquisition Certification-Contracting) certification is required at the GS-13 level.**

If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

You must meet time in grade requirements at the time the application is submitted.

## Security Clearance

Other

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

## Other Information

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

EPA participates in e-Verify. E-Verify is an Internet system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

If you have part-time work experience, read this: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

This position is in the bargaining unit.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

This position is being filled through the Office of Personnel Management's government-wide direct-hire authority. Under the provisions of the direct-hire authority, category rating, veterans' preference, and traditional rating and ranking of applicants do not apply. We will review your resume and required documents to ensure you meet the basic qualification requirements. All applicants who meet these requirements will be forwarded to the selecting official for further consideration.

**To preview questions please click here.**

Documents to be submitted on-line:

-Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.

-Responses to the on-line assessment questionnaire.

-College transcripts - required to submit either unofficial transcripts or a list of courses that includes school(s) attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned.

-FAC-C Level II Certification - provide documentation or proof of FAC-C Level II (Federal Acquisition Certification - Contracting)

-Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).

-Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

Additional information can be found on our web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Abdullah Cortez
Phone: 513-569-7722
Email: cortez.abdullah@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supervisory, Program Analyst

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Monday 12/19/2016 (24 day(s) ago)

Closed Friday 12/23/2016 (20 day(s) ago)

**Salary Range**

$128,082.00 to $160,300.00 / Per Year

**Series & Grade**

GS-0343-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

Current permanent EPA employees in OECA with competitive status and CTAP eligibles.

**Control Number**

460041500

**Job Announcement Number**

CI-OECA-MP-2017-0012

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

This position is located in Office of Enforcement and Compliance Assurance (OECA), Office of Site Remediation Enforcement (OSRE), Program Operations Staff (POS), Washington, DC. For more information on this office, visit their website: http://www.epa.gov/oeca

## Duties

You will:

- Serve as Branch Chief and have responsibility for providing technical direction to staff, assessing progress toward work goals, reviewing work products and evaluating priorities for the branch.

- Make assignments and determine responsibilities and priorities; evaluate employee performance, ensure quality of employment/selection decisions and ensure staff training and development needs are met.

- Oversee development of the budget for submission. Provide oversight in the development and coordinating of all resource planning, documents for the office. Direct financial management forecasting and quality control over data and financial integrity.

- Advise the Director and Deputy Director and other senior managers on management and administrative policies and procedures. Direct the development and preparation of official budget execution and monitoring policies, processes and instructions.

- Direct the execution of the operating plan, monitoring and auditing all office resources to assure and financial and personnel resources are properly utilized, and that funding and personnel ceilings and restrictions are observed. Oversee the information technology work that involves developing, delivering, and supporting IT systems and services, including website development and communications activities.

You will spend less than 25% of your work time on contracts, grants/cooperative agreements, and/or interagency agreements.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents. (See How to Apply)
- You may be required to travel 1 to 5 days per month.

## Qualifications

You do not need a degree to qualify for this position.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as experience in resource planning related to budgeting, resource management, human resources management, financial management, contract and facilities management and administrative operations.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1. Knowledge of management and administrative policies and procedures.

2. Skill in developing and directing resources and planning activities related to budgeting, resource management, human resource management and financial management.

3. Ability to lead subordinate organizational units or others.

4. Knowledge of budget policies and processes.

5. Skill in developing and directing resources and planning activities related to budgeting, resource management, human resource management and financial management.

6. Skill in interpreting and analyzing data to provide advice on the implementation of programs required by this position.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to

complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Benefits will not change for current permanent EPA employees.

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf.

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

Position has portable work and selectee may be eligible to telework.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

-- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.

-- Responses to the on-line assessment questionnaire
-- Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
-- Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Angie Johnston
Phone: 513-569-7542
Email: johnston.angela@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supv. Interdisciplinary Environmental Engineer/Chemical Engineer/Physical Scientist

## ENVIRONMENTAL PROTECTION AGENCY

FEW vacancies - Washington DC, DC

Work Schedule is Full-time - Permanent

Opened Tuesday 12/27/2016 (16 day(s) ago)

Closed Tuesday 1/10/2017 (2 day(s) ago)

**Salary Range**

$128,082.00 to $160,300.00 / Per Year

**Series & Grade**

GS-0819, 0893, 1301-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

Current permanent EPA employees with competitive status and CTAP eligibles.

**Control Number**

460820800

**Job Announcement Number**

CI-OECA-MP-2017-0015

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

These positions are located in Office of Enforcement and Compliance Assurance (OECA), Washington, DC. For more information on this office, visit their website: https://www.epa.gov/oeca

One or more positions may be filled.

## Duties

You will:

- Provide direction and management to the staff to accomplish the organizations work. Exercise authority to set priorities for work plans to achieve the goals and objectives for the Branch, Division and Office in response to changes in appropriation levels, legislation, and policy direction.

- Serve as an expert on many of the technical, policy, and programmatic aspects of the compliance programs within the Branch's responsibility. Develop national policies, guidance documents, and monitoring strategies to assist the regions, states, tribes, and local agencies in the implementation of their environmental programs and develop materials to assist the regulated community in understanding their regulatory and compliance requirements.

- Develop staffs technical ability to ensure they can provide sound guidance, knowledge and advice on the compliance programs within the Branch's responsibility.

- Represent the Branch's programs and policies to agency decision-makers through participation on inter/intra-agency work groups, task forces and committees. Explain national compliance monitoring policy, programs and initiatives to Congressional staff, industry representatives, environmental organizations, public interest groups, state and federal regulatory agencies, and other interested parties.

- Ensure the administrative and financial management activities comply with the Federal Managers Financial Integrity Act (FMFIA). Oversee and provide direction to staff with grant and contract responsibility, ensuring Agency policies and Federal regulations are followed.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- Position has educational/degree requirements. (See Qualifications Section)
- EPA and non-EPA applicants must submit transcripts/course listings.
- You must submit resume and required documents. (See How to Apply)
- You may be required to travel 1 to 5 days per month.

## Qualifications

**Series 0800 – Engineer**

You must have a bachelor's degree from an accredited or pre-accredited college or university in one of the following: you must meet either paragraph A or B:

A. Professional engineering degree from a school of engineering with at least one or more curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum; or (2) include differential and integral calculus AND courses (advance beyond first year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics.

-OR-

B. Combination of education AND experience—college-level education, training, and/or technical experience that furnished: 1) a thorough knowledge of physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following: 1) Professional registration; 2) Written test—Evidence of having successfully passed the Engineer in Training exam or the written test required for professional registration; 3) Specified academic courses—Successful completion of at least 60 semester hours in the physical, mathematical, and engineering sciences and in engineering curriculum as described in paragraph A; or 4) Related curriculum leading to a bachelor's degree in engineering technology or appropriate professional field provided applicant has 1 year professional engineering experience acquired under professional engineering supervision and guidance.

**Series 1301 – Physical Scientist**

You must have a bachelor's degree from an accredited or pre-accredited college or university in one of the following Physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering sciences such as mechanics, dynamics, properties of materials, and electronics; OR a combination of education and experience with education equivalent to one of the majors listed that included at least 24 semester hours in physical science and/or related engineering science.

In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as: develop National policies (i.e, Air, Water, FIFRA, RCRA and TSCA), guidance documents, and

monitoring strategies to assist the regions, states, tribes, and local agencies in the implementation of their environmental programs and develop materials to assist the regulated community in understanding their regulatory and compliance requirements.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1. Ability to provide guidance primarily in the form of general policy directives to staff within time, and budget constraints.

2. Knowledge of promoting and improving compliance and monitoring strategies to support the EPA, state, local and tribal compliance programs..

3. Skill in evaluating employee's performance and recommend appropriate awards for high quality performance.

4. Ability to manage the hiring process and ensure quality selection and promotion.

5. Ability to recognize and meet staffs training needs through training opportunities, reassignments, details and mentoring.

6. Knowledge in developing solutions to complex and controversial issues related to the Branch's programs and policies.

7. Ability to advise and exercise discretionary authority to approve the allocation and distribution of funds in the Branch's budget.

8. Knowledge of agency grant and contract management policies and Federal regulations to ensure compliance.

9. Ability to mitigate situations where a conflict of interest might occur in grant and contract management.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with EPA. More information on verification of education can be found here: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures This position is designated as High Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. The following Web addresses are provided for your reference to explore the major benefits offered to most Federal employees. To find out more visit
Benefits. To learn more about us, visit Life and Careers at EPA.

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf.

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

Position has portable work and selectee may be eligible to telework.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

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For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

-- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
-- Responses to the on-line assessment questionnaire
-- College transcripts - required to submit either unofficial transcripts or a list of courses that includes school(s) attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned.
-- Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
-- Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Angie Johnston
Phone: 513-569-7542
Email: johnston.angela@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Environmental Engineer/Physical Scientist (Environmental)

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy in the following locations:

Chicago, IL
Grosse Ile, MI
Westlake, OH

Work Schedule is Full-time - Permanent

Opened Friday 12/2/2016 (41 day(s) ago)

Closed Thursday 12/15/2016 (28 day(s) ago)

**Salary Range**

$122,015.00 to $160,300.00 / Per Year

**Series & Grade**

GS-0819, 1301-15/15

**Promotion Potential**

15

**Supervisory Status**

No

**Who May Apply**

Current permanent EPA employees in Region 5 with competitive status and CTAP eligibles.

**Control Number**

458077200

**Job Announcement Number**

CI-R5-MP-2017-0017

## Job Summary

About the Agency

This position is located in Region 5, Superfund Division, Emergency Response Branch, Immediate Office, Chicago, IL, Grosse Ile, MI, or Westlake, OH. The location will be determined after selection.

For more information on this office, visit their website: http://www2.epa.gov/aboutepa/epa-region-5

The salary will be commensurate with the duty location.

**EXCEPT UNDER SPECIAL CIRCUMSTANCES, A NEW GS EMPLOYEE WILL BE HIRED AT STEP ONE OF THE APPLICABLE GS GRADE.**

## Duties

You will:

-Serve as an expert on emergency response policies, guidance, and procedures, with emphasis on homeland security functions.

-Serve as an executive officer for regional and national significant incidents.

-Serve as deputy regional incident coordinator and provides high level training and develops homeland security exercise for senior managers to elevate regional preparedness for responding to incident of National Significance.

-Provide leadership and expert opinions and advice concerning preparedness, response planning, and homeland security.

-Take a leadership role to ensure the development of homeland security plan and gap analysis in the major areas of training, exercise, response, coordination, outreach, water security and continuity of government.

-Provide consultation and briefing to technical experts, and high level executives from US EPA and other federal agencies.

-Represent the region at national meetings, provide congressional testimony, and explain EPA policy to interested groups.

-Develop regional disaster plan, COOP plans, ICS implementation plan, RSC plan, EOC plan and RICT plan.

You will spend 25-50% of your work time on contracts, grants/cooperative agreements, and/or interagency agreements.

### Relocation Authorized

- No

### Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents (see How to Apply).
- Position has educational/degree requirements (see Qualifications Section).
- EPA and non-EPA applicants must submit transcripts/course listings.
- You must be a U.S. citizen.
- You may be required to travel 1 to 5 days per month.

### Qualifications

You need a degree or combination of education and experience as described below to qualify for this position.

# All Professional Engineering Positions, 0800

Basic Requirements:

Degree: professional engineering. To be acceptable, the curriculum must: (1) be in a school of engineering with at least one curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum; or (2) include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics. OR
Combination of education and experience -- college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of the physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following:

- *Professional registration* -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Absent other means of qualifying under this standard, those applicants who achieved such registration by means other than written test (e.g., State grandfather or eminence provisions) are eligible only for positions that are within or closely related to the specialty field of their registration. For example, an applicant who attains registration through a State Board's eminence provision as a manufacturing engineer typically would be rated eligible only for manufacturing engineering positions.
- *Written Test*-- Evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico.

  Applicants who have passed the EIT examination and have completed all the requirements for either (a) bachelor's degree in engineering technology (BET) from an accredited college of university that included 60 semester hours of courses in the physical, mathematical, and engineering sciences, or (b) a BET from a program accredited by the Accreditation Board for Engineering and Technology (ABET) may be rated eligible for certain engineering positions at GS-5. Eligibility is limited to positions that are within or closely related to the specialty field of the engineering technology program. Applicants for positions that involve highly technical research, development, or similar functions requiring an advanced level of competence in basic science must meet the basic requirements in paragraph A.

  Because of the diversity in kind and quality of BET programs, graduates of other BET programs are required to complete at least 1 year of additional education or highly technical work experience of such nature as to provide reasonable assurance of the possession of the knowledge, skills, and abilities required for professional engineering competence. The adequacy of this background must be demonstrated by passing the EIT examination.
- *Specified academic courses* -- Successful completion of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering that included the courses specified in the basic requirements. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in paragraph A.
- *Related curriculum* -- Successful completion of a curriculum leading to a bachelor's degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology, may be accepted in lieu of a degree in engineering, provided the applicant has had at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. Ordinarily there should be either an established plan of intensive training to develop professional engineering competence, or several years of prior professional engineering-type experience, e.g., in interdisciplinary positions. (The above examples of related curricula are not all-inclusive.)

**PHYSICAL SCIENCE:** A bachelor's degree from an accredited or pre-accredited college or university in physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics **OR** a combination of education and experience -- education equivalent to one of the majors shown above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as improving program operations by identifying and addressing policies, procedures or processes impacting the effectiveness or efficiency of Emergency Response.
Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

- Knowledge of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Superfund Amendments and Reauthorization Act (SARA), and other federal, state, and local environmental regulations.

- Ability to communicate with internal and external stakeholders.

- Knowledge of incident Command System, and Incident Management Team.
- Knowledge of national response framework, National Incident Management System (NIMS), national approach to response and incident command system.
- Ability to demonstrate strong technical and public speaking skills and knowledge of EPA's regional and national organization and communication process, including congressional affairs.
- Skill in communicating technical information to various audiences.
- Ability to draft homeland and emergency response plans.
- Knowledge of national response framework, National Incident Management System (NIMS), national approach to response and incident command system.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.

A bachelor's degree from an accredited or pre-accredited college or university in physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics. or Combination of education and experience -- education equivalent to one of the majors shown above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with EPA. More information on verification of education can be found here: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

This position is designated as High Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJOBS account. You will receive an acknowledgement from USAJOBS that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJOBS account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

## Other Information

This position is not in the bargaining unit.

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://epa.gov/ohr/ezhire/vacancy_requirements.htm

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://epa.gov/ohr/ezhire/vacancy_requirements.htm

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

If you have part-time work experience, read this: http://epa.gov/ohr/ezhire/vacancy_requirements.htm

If you are selected, travel, transportation, and relocation expenses will **not** be paid by the EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

Position has portable work and selectee may be eligible to telework.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the closing date of this announcement.

All required supporting documents will be collected electronically via the USAJOBS document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the closing date of this announcement.

For detailed instructions to assist you in ensuring your application package is received, go to:
http://epa.gov/ohr/ezhire/vacancy_requirements.htm

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position. You are being evaluated under the category rating method which means, if you are determined to be qualified, you will be placed into the Best Qualified, Well Qualified, or Qualified Category.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. **We may not make assumptions regarding your experience.**
- Responses to the on-line assessment questionnaire.
- College Transcripts - required to submit either unofficial transcripts or a list of courses that includes school(s) attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned. **It is the applicant's responsibility to provide documentation or proof that he or she has met the applicable educational provisions described.**
- Veterans' Preference Documents - DD-214 Member 4 copy, VA Letter, and SF-15, if applicable; active duty military submit statement of service from commanding officer documenting dates of active duty and any campaign medals/badges; include character of service.
- Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

-Current EPA employees are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

Additional information can be found on our web site: http://epa.gov/ohr/ezhire/vacancy_requirements.htm

# Environmental Protection Agency

## Contact

Ronald R Jones
Phone: 513-569-7247
Email: jones.ronaldr@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supervisory Life Scientist/Environmental Engineer/Physical Scientist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Chicago, IL

Work Schedule is Full-time - Permanent

Opened Thursday 12/15/2016 (28 day(s) ago)

Closed Wednesday 12/28/2016 (15 day(s) ago)

**Salary Range**

$109,463.00 to $142,304.00 / Per Year

**Series & Grade**

GS-0819, 1301, 0401-14/14

**Promotion Potential**

14

**Supervisory Status**

Yes

**Who May Apply**

Current permanent EPA employees in Region 5 with competitive status and CTAP eligibles.

**Control Number**

459627900

**Job Announcement Number**

CI-R5-MP-2017-0019

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

This position is located in the Water Division, Ground Water and Drinking Water Branch, Section 1 in Chicago, IL.

For more information, please visit: www.epa.gov/region5

## Duties

You will:

- Plan, organize, and direct the activities of the organizational unit, ensuring that they comply with legal and regulatory requirements and meet customer needs.

- Exercise supervisory personnel management responsibilities.

- Represent the Agency with a variety of functional area organizations.

- Serve as at technical advisor and assistant to the Second-Level Supervisor on issues pertaining to the oversight of the drinking water program including preventing drinking water contamination problems through implementation of the Public Water System Supervision program, enforcement, source water protection, enhanced water system management, and partnerships.

## Relocation Authorized

• No

## Key Requirements

- Position has educational/degree requirements. (See Qualifications Section)
- EPA applicants must submit transcripts/course listings.
- You must submit resume and required documents. (See How to Apply)
- You may be required to travel 1 to 5 days per month.
- If you are selected, a pre-employment background check is required.

## Qualifications

You need a degree or combination of education and experience as described below to quality for this position.

**Life Scientist, GS-0401:** You must meet paragraph A or B to meet the basic educational requirement for this occupational series:

A. Degree: biological sciences, agriculture, natural resource management, chemistry, or related disciplines appropriate to the position OR

B. Combination of education and experience: Courses equivalent to a major, as shown in A above, plus appropriate experience or additional education.

**Environmental Engineer, GS-0819**: You must meet paragraph A or B to meet the basic educational requirement for this occupational series:

A. Possess a degree in professional engineering from a school of engineering with at least one or more curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics; (a) statics, dynamics; (b) strength of materials (stress strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics-OR- B. Appropriate combination of education and experience--college-level education, training, and/or technical experience that furnished: (1) a thorough knowledge of physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following: 1) Current registration as a professional engineer by any state, the district of Columbia, Guam, or Puerto Rico; or 2) evidence of having successfully passed the Engineer-in-Training (EIT) examination or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico; or 3) successful completion of at least 60 semester hours in the physical, mathematical, and engineering sciences and in engineering that included in the courses specified in paragraph A. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in paragraph A; or 4) successful completion of a curriculum leading to a bachelor's degree in engineering technology or appropriate professional field (e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology) provided the applicant has 1 year professional engineering experience acquired under professional engineering supervision and guidance.

**Physical Science, GS-1301:** You must meet paragraph A or B to meet the basic educational requirement for this occupational series:

A. Successful completion of a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree that included a major field of study in physical science, engineering, or mathematics. This course work must have included at least 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics -OR- B. Appropriate combination of education and experience with courses equivalent to a major in physical science, engineering, or mathematics that included at least 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics.

As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with EPA. More information on verification of education can be found here: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-14 level, you need to have at least one year of full time experience equivalent to the GS-13 level defined as supervising, instructing or leading staff; advising and/or planning specific problems, programs, and policies and develop new or improved techniques and solutions pertaining to drinking water program implementation including enforcement and source water protection.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1. Knowledge of concepts, principles and practices of drinking water.

2. Knowledge of guidance related to the implementation of the rules and regulations under the Safe Drinking Water Act.

3. Ability to lead staff by evaluating work performance and giving advice, counsel and instruction.

4. Skill in oral communication.

5. Skill in written communication. If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be

notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Benefits will not change for current permanent EPA employees.

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf.

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later

than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

-- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
-- Responses to the on-line assessment questionnaire
-- College transcripts - required to submit either unofficial transcripts or a list of courses that includes school(s) attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned.
-- Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
-- Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Diane J Fox
Phone: 513-569-7061
Email: fox.diane@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Environmental Engineer/Physical Scientist (Environmental)

## ENVIRONMENTAL PROTECTION AGENCY

2 vacancies - Chicago, IL

Work Schedule is Full-time - Permanent

Opened Thursday 12/15/2016 (28 day(s) ago)

Closed Thursday 12/29/2016 (14 day(s) ago)

**Salary Range**

$92,632.00 to $120,427.00 / Per Year

**Series & Grade**

GS-0819, 1301-13/13

**Promotion Potential**

13

**Supervisory Status**

No

**Who May Apply**

Current permanent EPA employees in Region 5 with competitive status and CTAP eligibles.

**Control Number**

459587500

**Job Announcement Number**

CI-R5-MP-2017-0021

## Job Summary

About the Agency

This position is located in Region 5, Air and Radiation Division, Air Enforcement and Compliance Assurance Branch, Air Enforcement & Compliance Section MI/WI, IL/IN, or MI/OH in Chicago, IL.

One or more positions may be filled.

For more information on this office, visit their website: http://www2.epa.gov/aboutepa/epa-region-5

**EXCEPT UNDER SPECIAL CIRCUMSTANCES, A NEW GS EMPLOYEE WILL BE HIRED AT STEP ONE OF THE APPLICABLE GS GRADE.**

## Duties

You Will:

- Conduct inspections of complex industrial air emission sources.
- Prepare emission calculations, evaluate reasons for a source's failures.
- Maintain a high level of engineering knowledge in several areas of air pollution control and industrial source categories.
- Advise and mentor other technical staff and teams in the areas of specialized knowledge.
- Write reports and communicates findings pertaining to violations, non-complying emissions, reasons for failure to comply, and actions to correct failures.
- Assist with long range planning a program development of the section.
- Serve as a full technical partner to agency attorneys in the development of enforcement case strategy, timing and implementation. This includes developing abatement requirements, selecting enforcement options, drafting orders and decrees, preparing for discovery requests and determining appropriate penalties.
- Participate as the principal technical negotiator in Federal enforcement cases in which technical issues frequently border on the limits of known technology. Cross-examines and is cross-examined by industry experts as to the

economic and technological feasibility of air pollution control programs at the administrative and judicial proceedings. Successfully brings cases to resolution.

- Serve as the principal government witness in assigned cases.
- Serve as the technical manager of contracts to develop the agency's knowledge of control technology.
- Respond to inquiries from the State, citizens, or industry concerning the interpretation and application of air enforcement regulations and policies.
- Respond to Congressional, media and Headquarter inquires concerning air pollution programs in assigned States or relative to specific violators.
- Demonstrate the ability to evaluate and give advice on Federal and State air pollution programs, policies and statues.

When entering a Federal job at a grade level lower than the highest promotion potential level, you may be promoted to more complex duties and work more independently, as your career progresses.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents (see How to Apply).
- Position has educational/degree requirements (see Qualifications Section).
- EPA and non-EPA applicants must submit transcripts/course listings.
- You may be required to travel 1 to 5 days per month.

## Qualifications

You need a degree or combination of education and experience as described below to qualify for this position.

All Professional Engineering Position, 800

Basic Requirements:

Degree: professional engineering. To be acceptable, the curriculm must: (1) be in a school of engineering with at least on curriculum accredited by the Accrediation Board for Engineering and Technogoly (ABET) as a professional engineering curriculum; or (2) include differentail and integral calculus and courese (more advanced than first-year physiscs and chemistry) in five of the folowing seven areas of engineering science or physics: (a) statics, dynamics; (b) strength ofmaterials (stress-stain relationships): (c) fluid mechanics, hydraulics; (d) thermodynamics: (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics. OR

# Combination of education and experience -- college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of

# the physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following:

- *Professional registration* -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Absent other means of qualifying under this standard, those applicants who achieved such registration by means other than written test (e.g., State grandfather or eminence provisions) are eligible only for positions that are within or closely related to the specialty field of their registration. For example, an applicant who attains registration through a State Board's eminence provision as a manufacturing engineer typically would be rated eligible only for manufacturing engineering positions.
- *Written Test*-- Evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico.

  Applicants who have passed the EIT examination and have completed all the requirements for either (a) bachelor's degree in engineering technology (BET) from an accredited college of university that included 60 semester hours of courses in the physical, mathematical, and engineering sciences, or (b) a BET from a program accredited by the Accreditation Board for Engineering and Technology (ABET) may be rated eligible for certain engineering positions at GS-5. Eligibility is limited to positions that are within or closely related to the specialty field of the engineering technology program. Applicants for positions that involve highly technical research, development, or similar functions requiring an advanced level of competence in basic science must meet the basic requirements in paragraph A.

  Because of the diversity in kind and quality of BET programs, graduates of other BET programs are required to complete at least 1 year of additional education or highly technical work experience of such nature as to provide reasonable assurance of the possession of the knowledge, skills, and abilities required for professional engineering competence. The adequacy of this background must be demonstrated by passing the EIT examination.
- *Specified academic courses* -- Successful completion of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering that included the courses specified in the basic

requirements. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in paragraph A.

- *Related curriculum* -- Successful completion of a curriculum leading to a bachelor's degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology, may be accepted in lieu of a degree in engineering, provided the applicant has had at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. Ordinarily there should be either an established plan of intensive training to develop professional engineering competence, or several years of prior professional engineering-type experience, e.g., in interdisciplinary positions. (The above examples of related curricula are not all-inclusive.)

**PHYSICAL SCIENCE:** A bachelor's degree from an accredited or pre-accredited college or university in physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics **OR** a combination of education and experience -- education equivalent to one of the majors shown above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-13 level, you need to have at least one year of full-time experience equivalent to the GS-12 level defined as analyzing and addressing inquiries about pollutant emissions and control technologies related to stack and fugitive emissions; determining compliance of major sources of pollutants; a working understanding of a range of industrial processes and the pollutants that are created from those processes. And evaluating the compliance status of various pollutants and propose cost effective program for noncomplying sources.
Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

- Knowledge in evaluating stationary sources of air pollution and control systems.

- Skill in applying environmental control technology to resolve pollutant emissions.
- Ability to evaluate enforcement programs and activities.
- Skill in communicating technical information to various audience.
- Skill in negotiations.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.

A bachelor's degree from an accredited or pre-accredited college or university in physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics. or Combination of education and experience -- education equivalent to one of the majors shown above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with EPA. More information on verification of education can be found

here: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

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## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJOBS account. You will receive an acknowledgement from USAJOBS that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJOBS account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

## Other Information

This position is in the bargaining unit.

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- Responses to the on-line assessment questionnaire.
- College Transcripts - required to submit either unofficial transcripts or a list of courses that includes school(s)

attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned. **It is the applicant's responsibility to provide documentation or proof that he or she has met the applicable educational provisions described.**

- Veterans' Preference Documents - DD-214 Member 4 copy, VA Letter, and SF-15, if applicable; active duty military submit statement of service from commanding officer documenting dates of active duty and any campaign medals/badges; include character of service.
- Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

Additional information can be found on our web site: http://epa.gov/ohr/ezhire/vacancy_requirements.htm

# Environmental Protection Agency

## Contact

Ronald R. Jones
Phone: 513-569-7247
Email: jones.ronaldr@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supervisory Physical Scientist (ENV) /Environmental Engineer/Life Scientist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy in the following location:

Chicago, IL

Work Schedule is Full-time - Permanent

Opened Monday 12/19/2016 (24 day(s) ago)

Closed Tuesday 1/3/2017 (9 day(s) ago)

**Salary Range**

$109,463.00 to $142,304.00 / Per Year

**Series & Grade**

GS-0401, 0819, 1301-14/14

**Promotion Potential**

14

**Supervisory Status**

Yes

**Who May Apply**

Current permanent EPA employees in Region 5 with competitive status and CTAP eligibles.

**Control Number**

460014600

**Job Announcement Number**

CI-R5-MP-2017-0022

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

This position is located in Region 5, Air and Radiation Division, Air Toxics and Assessment Branch, The Toxics and Global Atmospheric Section, Chicago IL.
For more information on this office, visit their website: www.epa.gov/region5

## Duties

You will:

- Plan, organize, and direct the activities of the organizational unit, ensuring that they comply with legal and regulatory requirements and meet customer needs;
- Exercise supervisory personnel management responsibilities;
- Represent the Agency with a variety of functional area organizations;
- Serve as a technical advisor and assistant to the Second-Level Supervisor pertaining to: The air toxics provisions of the Clean Air Act, including Sections 111, 112, and 129; emission inventories and modeling; risk reduction from air toxics, including voluntary emission reductions and sustainable communities work; the deposition of air toxics in the Great Lakes; and climate change, including the Clean Power Plan and energy.

## Key Requirements

- If you are selected, a pre-employment background check is required.
- Position has educational/degree requirements. (See Qualifications Section)
- EPA and non-EPA applicants must submit transcripts/course listings.
- You must submit resume and required documents(See How to Apply)
- You may be required to travel 1 to 5 days per month.

## Qualifications

Life Scientist (0401): A bachelor's degree from an accredited or pre-accredited college or university in biological sciences, agriculture, natural resource management, chemistry, or related disciplines appropriate to the position OR Combination of education and experience: Courses equivalent to a major, as shown above, plus appropriate experience or additional education.

Physical Scientist (1301): A bachelor's degree from an accredited or pre-accredited college or university in physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics or Combination of education and experience -- education equivalent to one of the majors shown above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

Environmental Engineer (0819): A bachelor's degree from an accredited or pre-accredited college or university in professional engineering. To be acceptable, the curriculum must: (1) be in a school of engineering with at least one curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum; or (2) include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics.
OR

Combination of education and experience -- college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of the physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following:

- *Professional registration* -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Absent other means of qualifying under this standard, those applicants who achieved such registration by means other than written test (e.g., State grandfather or eminence provisions) are eligible only for positions that are within or closely related to the specialty field of their registration. For example, an applicant who attains registration through a State Board's eminence provision as a manufacturing engineer typically would be rated eligible only for manufacturing engineering positions.
- *Written Test*-- Evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico.

  Applicants who have passed the EIT examination and have completed all the requirements for either (a) a bachelor's degree in engineering technology (BET) from an accredited college of university that included 60 semester hours of courses in the physical, mathematical, and engineering sciences, or (b) a BET from a program accredited by the Accreditation Board for Engineering and Technology (ABET) may be rated eligible for certain engineering positions at GS-5. Eligibility is limited to positions that are within or closely related to the specialty field of the engineering technology program. Applicants for positions that involve highly technical research, development, or similar functions requiring an advanced level of competence in basic science must meet the basic requirements in paragraph A.

  Because of the diversity in kind and quality of BET programs, graduates of other BET programs are required to complete at least 1 year of additional education or highly technical work experience of such nature as to provide

reasonable assurance of the possession of the knowledge, skills, and abilities required for professional engineering competence. The adequacy of this background must be demonstrated by passing the EIT examination.

- *Specified academic courses* -- Successful completion of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering that included the courses specified in the basic requirements. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in paragraph A.
- *Related curriculum* -- Successful completion of a curriculum leading to a bachelor's degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology, may be accepted in lieu of a degree in engineering, provided the applicant has had at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. Ordinarily there should be either an established plan of intensive training to develop professional engineering competence, or several years of prior professional engineering-type experience, e.g., in interdisciplinary positions. (The above examples of related curricula are not all-inclusive.)

As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with EPA. More information on verification of education can be found here: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures
In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-14 level, you need to have at least one year of full time experience equivalent to the GS-13 level defined as the following:

The air toxics provisions of the Clean Air Act, including Sections 111, 112 and 129; emission inventories and modeling; risk reduction from air toxics, including voluntary emission reductions and sustainable communities work; the deposition of air toxics in the Great Lakes; and climate change, including the Clean Power Plan and energy; providing leadership, oversight or technical expertise for a scientific project or program of limited scope in coaching, mentoring or leading others.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1. Knowledge of concepts, principles, and practices of air pollution

2. Knowledge of guidance related to the implementation of the rules and regulations under the Clean Air Act

3. Ability to lead staff by evaluating work performance and giving advice, counsel, and instruction

4. Skill in oral communication

5. Skill in written communication

6. Ability to advise on technical issues pertaining to Air Pollution

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide

valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling

financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

-- Resume clearly stating your experience related to this position as described in the Duties Section and

Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
-- Responses to the on-line assessment questionnaire

-- College transcripts - required to submit either unofficial transcripts or a list of courses that includes school(s) attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned.

-- Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
-- Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Yvonne Tyler
Phone: 513-569-7968
Email: tyler.yvonne@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Interdisciplinary Environmental Engineer/Physical Scientist/Life Scientist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Westlake, OH

Work Schedule is Full-Time - Permanent

Opened Wednesday 12/21/2016 (22 day(s) ago)

Closed Wednesday 1/4/2017 (8 day(s) ago)

**Salary Range**

$87,781.00 to $114,120.00 / Per Year

**Series & Grade**

GS-0819, 1301, 0401-13/13

**Promotion Potential**

13

**Supervisory Status**

No

**Who May Apply**

Current permanent EPA employees in Region 5 with competitive status and CTAP eligibles.

**Control Number**

460368800

**Job Announcement Number**

CI-R5-MP-2017-0026

## Job Summary

About the Agency

Earth Day is every day at the EPA! At the EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

This position is located in Region 5, Office of Regional Administrator, Office of Enforcement and Compliance Assurance, Cleveland Section, Westlake, Ohio.

For more information on this office, visit their website: https://www.epa.gov/aboutepa/epa-region-5

## Duties

You will:

- Serve as project lead for complex multimedia investigative, environmental, and technical support assignments.
- Conduct inspections and investigations of regulated facilities for compliance with applicable regulations, permits, or other federal requirements
- Provide technical advice and information on significant analytical methods, sampling techniques, etc. Plan, conduct, and provide regulatory technical assistance on complex field sampling and analytical services, facility inspections, and audits.
- Serve as technical expert supporting the development, negotiation, and litigation of both civil and criminal enforcement matters.
- Provide assistance to regional personnel, other federal, state, local agencies, tribes, industry representatives, and concerned public citizens on technical aspects of EPA laws and regulations.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- Position has educational/degree requirements (see Qualifications Section).
- EPA and non-EPA applicants must submit transcripts/course listings.
- You must submit resume and required documents (see How to Apply).
- You may be required to travel 1 to 5 days per month.

## Qualifications

This position is interdisciplinary. You need a degree or combination of education and experience as described below to qualify for this position.

You must possess a bachelor's degree from an accredited or pre-accredited college or university in:

**ENGINEERING - 0819:**

A. Degree: professional engineering. To be acceptable, the curriculum must: (1) be in a school of engineering with at least one curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum; or (2) include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics.
OR

B. Combination of education and experience -- college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of the physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following:

- *Professional registration* -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Absent other means of qualifying under this standard, those applicants who achieved such registration by means other than written test (e.g., State grandfather or eminence provisions) are eligible only for positions that are within or closely related to the specialty field of their registration. For example, an applicant who attains registration through a State Board's eminence provision as a manufacturing engineer typically would be rated eligible only for manufacturing engineering positions.
- *Written Test*-- Evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico.

  Applicants who have passed the EIT examination and have completed all the requirements for either (a) a bachelor's degree in engineering technology (BET) from an accredited college of university that included 60 semester hours of courses in the physical, mathematical, and engineering sciences, or (b) a BET from a program accredited by the Accreditation Board for Engineering and Technology (ABET) may be rated eligible for certain engineering positions at GS-5. Eligibility is limited to positions that are within or closely related to the specialty field of the engineering technology program. Applicants for positions that involve highly technical research, development, or similar functions requiring an advanced level of competence in basic science must meet the basic requirements in paragraph A.

  Because of the diversity in kind and quality of BET programs, graduates of other BET programs are required to complete at least 1 year of additional education or highly technical work experience of such nature as to provide reasonable assurance of the possession of the knowledge, skills, and abilities required for professional engineering competence. The adequacy of this background must be demonstrated by passing the EIT examination.

- *Specified academic courses* -- Successful completion of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering that included the courses specified in the basic requirements. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in paragraph A.
- *Related curriculum* -- Successful completion of a curriculum leading to a bachelor's degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology, may be accepted in lieu of a degree in engineering, provided the applicant has had at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. Ordinarily there should be either an established plan of intensive training to develop professional engineering competence, or several years of prior professional engineering-type experience, e.g., in interdisciplinary positions. (The above examples of related curricula are not all-inclusive.)

Note: An applicant who meets the basic requirements as specified in A or B above may qualify for positions in any branch of engineering unless selective factors indicate otherwise, or unless he/she qualifies under the provisions of B.2 related to the EIT examination or BET degree.

**PHYSICAL SCIENCE - 1301:**

1. Degree: physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics.
OR

2. Combination of education and experience -- education equivalent to one of the majors shown in A above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

**LIFE SCIENCE - 0401:**

A. Degree: biological sciences, agriculture, natural resource management, chemistry, or related disciplines appropriate to the position. -OR
B. Combination of education and experience: Courses equivalent to a major, as shown in A above, plus appropriate experience or additional education

As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with EPA. More information on verification of education can be found here: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures
In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:

**To qualify for the GS-13 level, you need to have at least one year of full time experience equivalent to the GS-12 level defined as** conducting inspections and investigations; overseeing organizational unit programs of complex, regulatory, and/or of scientific nature; communicating with Federal, state, and local agencies regarding compliance and enforcement.
Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1) Skill in leading complex projects;
2) Ability to serve as a team leader;
3) Ability to manage data collected in the field;
4) Knowledge of environmental laws;
5) Ability to conduct inspections and investigations;
6) Ability to provide advice and assistance to others;

7) Ability to communicate in writing;
8) Skill in providing technical assistance on various compliance or enforcement topics;
9) Ability to support enforcement matters; and
10) Skill in communicating with internal and external groups.
Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.
This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJOBS account. You will receive an acknowledgement from USAJOBS that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation.

You will be notified of the status of your application via your USAJOBS account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Benefits will not change for current permanent EPA employees.

## Other Information

This position is in the bargaining unit.

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

This information is used to determine your qualifications for employment. The use of this information is authorized

under Title 5 USC, Sections 3302 and 3361.

If you have part-time work experience, read this: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

Position has portable work and selectee may be eligible to telework.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the closing date of this announcement.

All required supporting documents will be collected electronically via the USAJOBS document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the closing date of this announcement.

For detailed instructions to assist you in ensuring your application package is received, go to: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed below. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

- *Resume* clearly stating your experience related to this position as described in the Duties Section, Qualifications Required Section and Evaluation Section. **In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.**
- *Responses to the on-line assessment questionnaire.*
- *College transcript(s)* ***(undergraduate and graduate if applicable)*** **-** required to submit either an unofficial transcript(s) or a list of courses that includes school attended, school address, course title, grade earned, completion date, department, and quarter or semester hours earned. **It is the applicant's responsibility to provide documentation or proof that he or she has met the applicable educational provisions described. If**

**you earned your degree in a foreign country, you must provide an U.S. equivalency evaluation of your education by a private U.S. organization (credential evaluation service).**

- *Professional registration* -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico or evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico.
- *Displaced Federal employees under CTAP* -- copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
- *Current EPA Employees* -- You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

DIANE FOX
Phone: 513-569-7061
Email: fox.diane@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Environmental Engineer

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Chicago, IL

Work Schedule is Full-time - Permanent

Opened Thursday 12/29/2016 (14 day(s) ago)

Closes Thursday 1/12/2017 (0 day(s) away)

**Salary Range**

$92,632.00 to $120,427.00 / Per Year

**Series & Grade**

GS-0819-13/13

**Promotion Potential**

13

**Supervisory Status**

No

**Who May Apply**

Current permanent EPA employees in Region 5 with competitive status and CTAP eligibles.

**Control Number**

460947700

**Job Announcement Number**

CI-R5-MP-2017-0027

## Job Summary

About the Agency

Earth Day is every day at the EPA! At the EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

This position is located in the EPA, Region 5, Water Division, Water Enforcement and Compliance Assurance Branch, Section 1, in Chicago, Illinois. For more information on this office, visit their website: https://www.epa.gov/aboutepa/epa-region-5

## Duties

You will:

- Serve as enforcement officer and technical specialist under the National Pollutant Discharge Elimination System (NPDES) Program. Control and reduce the quantities of pollutants discharged from wet weather and wastewater discharges into the United States waters. Manage the NPDES and pretreatment programs under the Clean Water Act (CWA).

- Plan work related to the compliance monitoring and enforcement of NPDES permits, including the oversight of state, municipal and industry pollution control/pollution prevention programs, and the direct implementation of pretreatment compliance monitoring and enforcement in unauthorized states.

- Review and analyze technical and administrative issues on environmental programs, giving assistance to senior management in the negotiation and resolution of sensitive environmental policy and legal and technical environmental issues.

- Perform liaison work with individuals in a variety of organizations on legislative proposals, regulations, policies, program issues, resources, etc

## Relocation Authorized

• No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents. (See How to Apply)
- Position has educational/degree requirements. (See Qualifications Section)
- EPA and non-EPA applicants must submit transcripts/course listings.
- You may be required to travel 1 to 5 days per month.
- Position has portable work and selectee may be eligible to telework.

## Qualifications

You need a degree or combination of education and experience as described below to qualify for this position.

**Series: 0819**

A. You must have a bachelor's degree from an accredited or pre-accredited college or university in one of the following: professional engineering. To be acceptable, the curriculum must: (1) be in a school of engineering with at least one curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum; or (2) include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics.
OR

B. Combination of education and experience -- college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of the physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following:

- *Professional registration* -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Absent other means of qualifying under this standard, those applicants who achieved such registration by means other than written test (e.g., State grandfather or eminence provisions) are eligible only for positions that are within or closely related to the specialty field of their registration. For example, an applicant who attains registration through a State Board's eminence provision as a manufacturing engineer typically would be rated eligible only for manufacturing engineering positions.
- *Written Test* -- Evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico.

  Applicants who have passed the EIT examination and have completed all the requirements for either (a) a bachelor's degree in engineering technology (BET) from an accredited college of university that included 60 semester hours of courses in the physical, mathematical, and engineering sciences, or (b) a BET from a program accredited by the Accreditation Board for Engineering and Technology (ABET) may be rated eligible for certain engineering positions at GS-5. Eligibility is limited to positions that are within or closely related to the specialty field of the engineering technology program. Applicants for positions that involve highly technical research, development, or similar functions requiring an advanced level of competence in basic science must meet the basic requirements in paragraph A.

  Because of the diversity in kind and quality of BET programs, graduates of other BET programs are required to complete at least 1 year of additional education or highly technical work experience of such nature as to provide reasonable assurance of the possession of the knowledge, skills, and abilities required for professional engineering competence. The adequacy of this background must be demonstrated by passing the EIT examination.

- *Specified academic courses* -- Successful completion of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering that included the courses specified in the basic requirements. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in paragraph A.
- *Related curriculum* -- Successful completion of a curriculum leading to a bachelor's degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology, may be accepted in lieu of a degree in engineering, provided the applicant has had at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. Ordinarily there should be either an established plan of intensive training to develop professional engineering competence, or several years of prior professional engineering-type experience, e.g., in interdisciplinary positions. (The above examples of related curricula are not all-inclusive.)

Note: An applicant who meets the basic requirements as specified in A or B above may qualify for positions in any branch of engineering unless selective factors indicate otherwise, or unless he/she qualifies under the provisions of B.2 related to the EIT examination or BET degree.
In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-13 level, you need to have at least one year of full time experience equivalent to the GS-12 level defined as analyzing complex issues, identifying problems, and evaluating alternatives to make recommendations that lead to resolutions; implementing and executing programs under the National Pollutant Discharge Elimination (NPDES) Program and Clean Water Act (CWA); providing advice and assistance to state, local and tribal governments on matters relating to water pollution control.
Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1) Knowledge of the enforcement of environmental laws and regulations, particularly the Clean Water Act, NPDES, and industrial pretreatment.
2) Skill in developing project plans and schedules.
3) Skill in developing and implementing plans and regional policies to carry out technical solutions to significant environmental problems.
4) Skill in conducting state program assessments of program priorities and related efforts of the organization.
5) Ability to provide advice and assistance on all aspects of implementation of municipal wet weather, municipal wastewater, and industrial wastewater compliance monitoring and enforcement.
Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.
This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USA Jobs account. You will receive an acknowledgement from USA Jobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USA Jobs account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Benefits will not change for current permanent EPA employees.

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is in the bargaining unit.

If you have part-time work experience, read this: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

If you are selected, travel, transportation, and relocation expenses will not be paid by the EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the closing date of this announcement.

All required supporting documents will be collected electronically via the USA Jobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the closing date of this announcement.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

-- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
-- Responses to the on-line assessment questionnaire
--College transcripts - required to submit either unofficial transcripts or a list of courses that includes school(s) attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned.
-- Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
-- Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Diane J Fox
Phone: 513-569-7061
Email: fox.diane@epa.gov

## Address

Environmental Protection Agency
U.S. Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Interdisciplinary Supervisory Life Scientist, Environmental Engineer, Environmental Scientist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Chicago, IL

Work Schedule is Full-time - Permanent

Opened Wednesday 1/4/2017 (8 day(s) ago)

Closes Sunday 1/15/2017 (3 day(s) away)

**Salary Range**

$109,463.00 to $142,304.00 / Per Year

**Series & Grade**

GS-1301, 0401, 0819-14/14

**Promotion Potential**

14

**Supervisory Status**

Yes

**Who May Apply**

Current permanent EPA employees in Region 5 with competitive status and CTAP eligibles.

**Control Number**

461501200

**Job Announcement Number**

CI-R5-MP-2017-0028

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

This position is located in Region 5, Superfund Division, Land Revitalization Branch, Brownfields and NPL Reuse Section #3, Chicago, IL.

For more information on this office, visit their website: www.epa.gov/region5

## Duties

You will:

Responsible for activities associated with the assessments and appropriate cleanups at Brownfields economic redevelopment projects, which are primarily performed by the Section Staff.

Determine overall goals for the Brownfields/NPL Reuse Section #3 activities.

Manage the Section resources needed to accomplish the Section workload by balancing utilization of staff, training and travel needs.

Provide advice and input to management in the development of multi-year plans and budgets as well as measures of success.

Support management integrity as a top priority in the Section, and ensure that it is integrated into daily work.

You will spend less than 25% of your work time on contracts, grants/cooperative agreements, and/or interagency agreements.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- Position has educational/degree requirements. (See Qualifications Section)
- EPA and non-EPA applicants must submit transcripts/course listings.
- You must submit resume and required documents(See How to Apply)
- You may be required to travel 1 to 5 days per month.

## Qualifications

Life Scientist (0401): A bachelor's degree from an accredited or pre-accredited college or university in biological sciences, agriculture, natural resource management, chemistry, or related disciplines appropriate to the position OR Combination of education and experience: Courses equivalent to a major, as shown above, plus appropriate experience or additional education.

Physical Scientist (1301): A bachelor's degree from an accredited or pre-accredited college or university in physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics or Combination of education and experience -- education equivalent to one of the majors shown above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

Environmental Engineer (0819): A bachelor's degree from an accredited or pre-accredited college or university in professional engineering. To be acceptable, the curriculum must: (1) be in a school of engineering with at least one curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum; or (2) include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics.
OR

Combination of education and experience -- college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of the physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following:

- *Professional registration* -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Absent other means of qualifying under this standard, those applicants who achieved such registration by means other than written test (e.g., State grandfather or eminence provisions) are eligible only for positions that are within or closely related to the specialty field of their registration. For example, an applicant who attains registration through a State Board's eminence provision as a manufacturing engineer typically would be rated eligible only for manufacturing engineering positions.
- *Written Test*-- Evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico.

  Applicants who have passed the EIT examination and have completed all the requirements for either (a) a bachelor's degree in engineering technology (BET) from an accredited college of university that included 60 semester hours of courses in the physical, mathematical, and engineering sciences, or (b) a BET from a program accredited by the Accreditation Board for Engineering and Technology (ABET) may be rated eligible for certain engineering positions at GS-5. Eligibility is limited to positions that are within or closely related to the specialty field

of the engineering technology program. Applicants for positions that involve highly technical research, development, or similar functions requiring an advanced level of competence in basic science must meet the basic requirements in paragraph A.

Because of the diversity in kind and quality of BET programs, graduates of other BET programs are required to complete at least 1 year of additional education or highly technical work experience of such nature as to provide reasonable assurance of the possession of the knowledge, skills, and abilities required for professional engineering competence. The adequacy of this background must be demonstrated by passing the EIT examination.

- *Specified academic courses* -- Successful completion of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering that included the courses specified in the basic requirements. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in paragraph A.
- *Related curriculum* -- Successful completion of a curriculum leading to a bachelor's degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology, may be accepted in lieu of a degree in engineering, provided the applicant has had at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. Ordinarily there should be either an established plan of intensive training to develop professional engineering competence, or several years of prior professional engineering-type experience, e.g., in interdisciplinary positions. (The above examples of related curricula are not all-inclusive.)

As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with EPA. More information on verification of education can be found here: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-14 level, you need to have at least one year of full time experience equivalent to the GS-13 level defined as overseeing the Brownfields grants and funding and the Brownfields properties and their impact on affected communities.
Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1. Knowledge of laws, regulations, policies, practices and programs pertaining to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)Superfund/National Priorities List (NPL), that impact the reuse and redevelopment of contaminated properties.

2. Knowledge of CERCLA program requirements and policies pertaining to the Superfund redevelopment initiative.

3. Skill in training other staff members regarding Brownfield laws.

4. Ability to forecast, plan, and accomplish Section, Branch and Division goals and measures.

5. Ability to effectively utilize fiscal and human capital resources to accomplish section and division goals and measures.

6. Knowledge of agency budget policies.

7. Ability to develop, assess, and strengthen management control systems to safeguard programs and achieve section, branch and division goals and measures.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

If you are selected, you must complete (or have already completed) a 1-year supervisory or managerial probationary period.

Upon acceptance of an initial appointment to a supervisory or managerial position with the EPA, you agree to complete all elements of the EPA Successful Leaders Program. This development program is designed to enhance leadership skills and abilities and meet the Agency's goal of providing new leaders with the skills and tools you need to be successful.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

## Other Information

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's

employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

This position is not in the bargaining unit.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will not be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

-- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
-- Responses to the on-line assessment questionnaire
--College transcripts - required to submit either unofficial transcripts or a list of courses that includes school(s) attended, school address, course title, grades earned, completion dates, department, and quarter or semester hours earned.
--Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.
-- Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site:
http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Yvonne Tyler
Phone: 513-569-7968
Email: tyler.yvonne@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Interdisciplinary Environmental Engineer/Physical Scientist, GS-0819/1301-13

## ENVIRONMENTAL PROTECTION AGENCY

FEW vacancies - Dallas, TX

Work Schedule is Full-time - Permanent

Opened Thursday 12/29/2016 (14 day(s) ago)

Closed Thursday 1/5/2017 (7 day(s) ago)

**Salary Range**

$89,383.00 to $116,203.00 / Per Year

**Series & Grade**

GS-0819, 1301-13/13

**Promotion Potential**

13

**Supervisory Status**

No

**Who May Apply**

Any U.S. citizen may apply.

**Control Number**

461011500

**Job Announcement Number**

CI-R6-DE-2017-0001

## Job Summary

About the Agency

Earth Day is every day at the EPA! At the EPA, you can protect human health and the environment of all Americans, and you'll discover that the EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at the EPA.

Except in special circumstances, those new to the federal government will be hired at the starting salary (step 1) of the applicable grade range listed above.

One or more positions may be filled.

This position is located in Region 6 and may be in the Multimedia Division, Pesticides, Toxics, and Under Storage Tanks Branch, Underground Storage Tanks and Solid Waste Section (**VECA0000**) or in any one of the sections in the Compliance Assurance and Enforcement Division, Water Enforcement Branch or Waste Enforcement Branch in Dallas, Texas.

For more information on this office, visit their website: https://www.epa.gov/aboutepa/epa-region-6-south-central

## Duties

You will:

- Serve as a technical authority in providing expert advice and assistance to tribal governments on matters relating to the development, execution and monitoring of the most complex and politically sensitive environmental protection policies, plans, and programs.
- Review and implement environmental technical standards, guidelines, policies, and formal regulations.
- Analyze proposals for new or revised environmental protection regulations and determine their impact on land resources.
-

Perform work to foster proper management, re-use, and/or recycling of currently generated solid waste under the Resource Conservation and Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments (HSWA).

- Provide technical advice and assistance on the operation and maintenance of solid waste landfill and other waste management facilities to include gas management issues and technologies.
- Communicate with colleagues, agency management and other contacts outside the agency to gain information and corroboration on findings.

## Travel Required

- Occasional Travel
- You may be required to travel 1 to 5 days per month.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- Position has educational/degree requirements (see Qualifications Section).
- EPA and non-EPA applicants must submit transcripts/course listings.
- You must submit resume and required documents (see How to Apply).
- You must be a U.S. citizen.

## Qualifications

You need a degree or combination of education and experience as described below to qualify for this position.

**0819:**

A. Degree: professional engineering. To be acceptable, the curriculum must: (1) be in a school of engineering with at least one curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum; or (2) include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics.

OR

B. Combination of education and experience -- college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of the physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following:

*Professional registration* -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Absent other means of qualifying under this standard, those applicants who achieved such registration by means other than written test (e.g., State grandfather or eminence provisions) are eligible only for positions that are within or closely related to the specialty field of their registration. For example, an applicant who attains registration through a State Board's eminence provision as a manufacturing engineer typically would be rated

eligible only for manufacturing engineering positions.

*Written Test* -- Evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico. Applicants who have passed the EIT examination and have completed all the requirements for either (a) a bachelor's degree in engineering technology (BET) from an accredited college of university that included 60 semester hours of courses in the physical, mathematical, and engineering sciences, or (b) a BET from a program accredited by the Accreditation Board for Engineering and Technology (ABET) may be rated eligible for certain engineering positions at GS-5. Eligibility is limited to positions that are within or closely related to the specialty field of the engineering technology program. Applicants for positions that involve highly technical research, development, or similar functions requiring an advanced level of competence in basic science must meet the basic requirements in paragraph A. Because of the diversity in kind and quality of BET programs, graduates of other BET programs are required to complete at least 1 year of additional education or highly technical work experience of such nature as to provide reasonable assurance of the possession of the knowledge, skills, and abilities required for professional engineering competence. The adequacy of this background must be demonstrated by passing the EIT examination.

*Specified academic courses* -- Successful completion of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering that included the courses specified in the basic requirements. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in paragraph A.

*Related curriculum* -- Successful completion of a curriculum leading to a bachelor's degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology, may be accepted in lieu of a degree in engineering, provided the applicant has had at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. Ordinarily there should be either an established plan of intensive training to develop professional engineering competence, or several years of prior professional engineering-type experience, e.g., in interdisciplinary positions. (The above examples of related curricula are not all-inclusive.)

**1301:**

1. Degree: physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics.

OR

2. Combination of education and experience -- education equivalent to one of the majors shown in 1 above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with the EPA. More information on verification of education can be found here: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

**In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:**

To qualify for the GS-13 level, you need to have at least one year of full time experience equivalent to the GS-12 level defined as providing technical advice and assistance on solid waste landfill operation, maintenance, design and/or permitting under the Resource Conservation and Recovery Act (RCRA) Subtitle D.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1. Knowledge of engineering and/or science to provide advice on the interpretation and implementation of technical policy directives and programs as well as the review of plans, reports, and monitoring studies.

2. Knowledge of the Resource Conservation and Recovery Act (RCRA), Hazardous and Solid Waste Amendments (HSWA), and related regulations, policies, guidance documents, and practices.
3. Skill in reviewing environmental permits to ensure they are in compliance with all applicable federal, state, and/or local environmental laws.
4. Knowledge to serve as a technical authority on all aspects of waste management, solid waste reduction and/or recycling programs.
5. Ability to collaborate with state, local, and tribal governments to review, analyze, and recommend modifications of environmental plans.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.
If you are selected, you must complete a one year probationary period.

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJOBS account. You will receive an acknowledgement from USAJOBS that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJOBS account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join the EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. To learn more about us, visit Life and Careers at EPA.

## Other Information

This position is in the bargaining unit.

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit: https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

If you have part-time work experience, read this: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will NOT be paid by the EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJOBS document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic

qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position. You are being evaluated under the category rating method which means, if you are determined to be qualified, you will be placed into the Best Qualified, Well Qualified, or Qualified Category.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
- Responses to the on-line assessment questionnaire.
- College transcript(s) ***(both undergraduate and graduate if applicable)*** - required to submit either unofficial transcript(s) or a list of courses that includes school(s) attended, school address, course title, grade earned, completion dates, department, and quarter or semester hours earned. **It is the applicant's responsibility to provide documentation or proff that he or she has met the applicable educational provisions described. If you earned your degree in a foreign country, you must provide a U.S. equivalency evaluation of your education by a private U.S. organization (credential evaluation service).**
- Professional registration - Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico or evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico.
- Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).
- Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

Additional information can be found on our web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Sara Jones
Phone: 513-569-7832
Email: jones.sara@epa.gov

## Address

Environmental Protection Agency
U.S. Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Interdisciplinary Environmental Engineer/Physical Scientist, GS-0819/1301-13

## ENVIRONMENTAL PROTECTION AGENCY

FEW vacancies - Dallas, TX

Work Schedule is Full-time - Permanent

Opened Thursday 12/29/2016 (14 day(s) ago)

Closed Thursday 1/5/2017 (7 day(s) ago)

**Salary Range**

$89,383.00 to $116,203.00 / Per Year

**Series & Grade**

GS-0819, 1301-13/13

**Promotion Potential**

13

**Supervisory Status**

No

**Who May Apply**

Any U.S. citizen may apply.

**Control Number**

461011500

**Job Announcement Number**

CI-R6-DE-2017-0001

## Job Summary

About the Agency

Earth Day is every day at the EPA! At the EPA, you can protect human health and the environment of all Americans, and you'll discover that the EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at the EPA.

Except in special circumstances, those new to the federal government will be hired at the starting salary (step 1) of the applicable grade range listed above.

One or more positions may be filled.

This position is located in Region 6 and may be in the Multimedia Division, Pesticides, Toxics, and Under Storage Tanks Branch, Underground Storage Tanks and Solid Waste Section (**VECA0000**) or in any one of the sections in the Compliance Assurance and Enforcement Division, Water Enforcement Branch or Waste Enforcement Branch in Dallas, Texas.

For more information on this office, visit their website: https://www.epa.gov/aboutepa/epa-region-6-south-central

## Duties

You will:

- Serve as a technical authority in providing expert advice and assistance to tribal governments on matters relating to the development, execution and monitoring of the most complex and politically sensitive environmental protection policies, plans, and programs.
- Review and implement environmental technical standards, guidelines, policies, and formal regulations.
- Analyze proposals for new or revised environmental protection regulations and determine their impact on land resources.
-

Perform work to foster proper management, re-use, and/or recycling of currently generated solid waste under the Resource Conservation and Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments (HSWA).

- Provide technical advice and assistance on the operation and maintenance of solid waste landfill and other waste management facilities to include gas management issues and technologies.
- Communicate with colleagues, agency management and other contacts outside the agency to gain information and corroboration on findings.

## Travel Required

- Occasional Travel
- You may be required to travel 1 to 5 days per month.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- Position has educational/degree requirements (see Qualifications Section).
- EPA and non-EPA applicants must submit transcripts/course listings.
- You must submit resume and required documents (see How to Apply).
- You must be a U.S. citizen.

## Qualifications

You need a degree or combination of education and experience as described below to qualify for this position.

**0819:**

A. Degree: professional engineering. To be acceptable, the curriculum must: (1) be in a school of engineering with at least one curriculum accredited by the Accreditation Board for Engineering and Technology (ABET) as a professional engineering curriculum; or (2) include differential and integral calculus and courses (more advanced than first-year physics and chemistry) in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics.

OR

B. Combination of education and experience -- college-level education, training, and/or technical experience that furnished (1) a thorough knowledge of the physical and mathematical sciences underlying professional engineering, and (2) a good understanding, both theoretical and practical, of the engineering sciences and techniques and their applications to one of the branches of engineering. The adequacy of such background must be demonstrated by one of the following:

*Professional registration* -- Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico. Absent other means of qualifying under this standard, those applicants who achieved such registration by means other than written test (e.g., State grandfather or eminence provisions) are eligible only for positions that are within or closely related to the specialty field of their registration. For example, an applicant who attains registration through a State Board's eminence provision as a manufacturing engineer typically would be rated

eligible only for manufacturing engineering positions.

*Written Test* -- Evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico. Applicants who have passed the EIT examination and have completed all the requirements for either (a) a bachelor's degree in engineering technology (BET) from an accredited college of university that included 60 semester hours of courses in the physical, mathematical, and engineering sciences, or (b) a BET from a program accredited by the Accreditation Board for Engineering and Technology (ABET) may be rated eligible for certain engineering positions at GS-5. Eligibility is limited to positions that are within or closely related to the specialty field of the engineering technology program. Applicants for positions that involve highly technical research, development, or similar functions requiring an advanced level of competence in basic science must meet the basic requirements in paragraph A. Because of the diversity in kind and quality of BET programs, graduates of other BET programs are required to complete at least 1 year of additional education or highly technical work experience of such nature as to provide reasonable assurance of the possession of the knowledge, skills, and abilities required for professional engineering competence. The adequacy of this background must be demonstrated by passing the EIT examination.

*Specified academic courses* -- Successful completion of at least 60 semester hours of courses in the physical, mathematical, and engineering sciences and in engineering that included the courses specified in the basic requirements. The courses must be fully acceptable toward meeting the requirements of a professional engineering curriculum as described in paragraph A.

*Related curriculum* -- Successful completion of a curriculum leading to a bachelor's degree in engineering technology or in an appropriate professional field, e.g., physics, chemistry, architecture, computer science, mathematics, hydrology, or geology, may be accepted in lieu of a degree in engineering, provided the applicant has had at least 1 year of professional engineering experience acquired under professional engineering supervision and guidance. Ordinarily there should be either an established plan of intensive training to develop professional engineering competence, or several years of prior professional engineering-type experience, e.g., in interdisciplinary positions. (The above examples of related curricula are not all-inclusive.)

**1301:**

1. Degree: physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics.

OR

2. Combination of education and experience -- education equivalent to one of the majors shown in 1 above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

As part of the application process, you are required to submit college transcripts or a list of courses as described in the Required Documents section of this announcement. However, if you are selected, you must provide official educational transcripts before you start work with the EPA. More information on verification of education can be found here: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

**In addition to the educational requirements, we are looking for at least one year of specialized experience related to this position as described below:**

To qualify for the GS-13 level, you need to have at least one year of full time experience equivalent to the GS-12 level defined as providing technical advice and assistance on solid waste landfill operation, maintenance, design and/or permitting under the Resource Conservation and Recovery Act (RCRA) Subtitle D.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

1. Knowledge of engineering and/or science to provide advice on the interpretation and implementation of technical policy directives and programs as well as the review of plans, reports, and monitoring studies.

2. Knowledge of the Resource Conservation and Recovery Act (RCRA), Hazardous and Solid Waste Amendments (HSWA), and related regulations, policies, guidance documents, and practices.
3. Skill in reviewing environmental permits to ensure they are in compliance with all applicable federal, state, and/or local environmental laws.
4. Knowledge to serve as a technical authority on all aspects of waste management, solid waste reduction and/or recycling programs.
5. Ability to collaborate with state, local, and tribal governments to review, analyze, and recommend modifications of environmental plans.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience.
If you are selected, you must complete a one year probationary period.

This position is designated as Moderate Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJOBS account. You will receive an acknowledgement from USAJOBS that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJOBS account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join the EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. To learn more about us, visit Life and Careers at EPA.

## Other Information

This position is in the bargaining unit.

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit: https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

If you have part-time work experience, read this: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will NOT be paid by the EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJOBS document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

For detailed instructions to assist you in ensuring your application package is received, go to: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic

qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position. You are being evaluated under the category rating method which means, if you are determined to be qualified, you will be placed into the Best Qualified, Well Qualified, or Qualified Category.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.
- Responses to the on-line assessment questionnaire.
- College transcript(s) ***(both undergraduate and graduate if applicable)*** - required to submit either unofficial transcript(s) or a list of courses that includes school(s) attended, school address, course title, grade earned, completion dates, department, and quarter or semester hours earned. **It is the applicant's responsibility to provide documentation or proff that he or she has met the applicable educational provisions described. If you earned your degree in a foreign country, you must provide a U.S. equivalency evaluation of your education by a private U.S. organization (credential evaluation service).**
- Professional registration - Current registration as a professional engineer by any State, the District of Columbia, Guam, or Puerto Rico or evidence of having successfully passed the Engineer-in-Training (EIT) examination, or the written test required for professional registration, which is administered by the Boards of Engineering Examiners in the various States, the District of Columbia, Guam, and Puerto Rico.
- Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).
- Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

Additional information can be found on our web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Sara Jones
Phone: 513-569-7832
Email: jones.sara@epa.gov

## Address

Environmental Protection Agency
U.S. Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Supervisory Information Technology Specialist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Lenexa, KS

Work Schedule is Full-time - Permanent

Opened Monday 12/12/2016 (31 day(s) ago)

Closed Friday 12/16/2016 (27 day(s) ago)

**Salary Range**

$117,519.00 to $152,780.00 / Per Year

**Series & Grade**

GS-2210-15/15

**Promotion Potential**

15

**Supervisory Status**

Yes

**Who May Apply**

You may apply if you:

1-Work in the commuting area of Lenexa, KS as a current federal employee with competitive status; are reinstatement, non-competitive appointment, ICTAP or EPA CTAP eligible;

**OR**

2-Live anywhere as: a preference eligible veteran or honorably discharged from the armed services after 3-years or more of continuous active service; or Public Health Service Officer.

**Control Number**

459251300

**Job Announcement Number**

CI-R7-MP-2017-0007

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment. Discover how exciting safeguarding our natural resources and protecting human health can be. Find yourself at EPA.

**Except in special circumstances, those new to the federal government will be hired at the starting salary (step 1) of the applicable grade range listed above.**

This position is located in Region 7, Office of Policy and Management, R7 Information Technology in Lenexa, KS.

For more information on this office, visit their website: www.epa.gov/region7

## Duties

You will:

-Plan, organize, and direct the activities of the branch. Responsible for the full range of Information Technology and Information Resources services including operation of the Region 7 Datacenter; management of the Region 7 Local Area Network (LAN) and LAN-based services such as electronic mail and access to the internet; operation of the R7 Business Center which includes the Help Desk; telecommunications operation and administration. Responsible for implementing the Agency's Information Resources Management (IRM) policy, for developing and implementing an information security program in the Region.

-Direct, coordinate, and oversee work through team lead. Advise staff regarding policies, procedures, and directives. Select candidates for subordinate non-supervisory positions. Appraise performance of employees supervised. Approve expenses comparable to within-grade increases, extensive overtime, and employee travel. Recommend awards and changes in position classification. Hear and receive group grievances and employee complaints of employees. Initiate action to correct performance or conduct problems performance or conduct problems and review and/or approve serious disciplinary actions. Review developmental needs and make decisions in training needs. Encourage self-development. Approve leave and ensure adequate coverage in branch through peak workloads and traditional holiday vacation time.

-Establish, develop, and maintain effective working relationships with regional officials and into EPA Headquarters. Meet with key customers and coordinating officials to assess customer satisfaction, explain organization policy and procedures, and resolve significant problems that arise. Participate in special projects and initiatives and performs special assignments. Determine appropriate recommendations for unresolved or questionable problems and perform follow-up. Research and determine or recommend appropriate actions or interpretation of issues that impact organization. Division, Region, or Agency.

-You will spend less than 25% of your work time on contracts management.

## Travel Required

- Occasional Travel
- You may be required to travel 1 to 5 days per month.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents (See How to Apply)
- You may be required to travel 1 to 5 days per month.
- You must be a U.S. citizen.

## Qualifications

You do not need a degree to qualify for this position.

You must have IT-related experience demonstrating each of the four competencies listed here:

1) Attention to Detail - Is thorough when performing work and conscientious about attending to detail.

2) Customer Service - Works with clients and customers (that is, any individuals who use or receive the services or products that your work unit produces, including the general public, individuals who work in the agency, other agencies, or organizations outside the Government) to assess their needs, provide information or assistance, resolve their problems, or satisfy their expectations; knows about available products and services; is committed to providing quality products and services.

3) Oral Communication - Expresses information (for example, ideas or facts) to individuals or groups effectively, taking into account the audience and nature of the information (for example, technical, sensitive, controversial);

makes clear and convincing oral presentations; listens to others, attends to nonverbal cues, and responds appropriately.

4) Problem Solving - Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-15 level, you need to have at least one year of full time experience equivalent to the GS-14 level defined as evaluating new technologies that lead to improvement in the agency's system design and development; delivery of high quality information systems; communicating technical information to management and experience supervising a team.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

-Knowledge of software engineering principles, programming methodologies and database design concepts for information system development.

-Knowledge of basic information security concepts and requirements.

-Ability to plan, organize, and direct a variety of programs and administrative functions and activities.

-Knowledge of federal agency human resources, practices, administrative procedures, and equal employment/diversity programs.

-Knowledge of the concepts, principles, and practices of Information Management and Information Technology and it's applicability in supporting the agency's mission.

-Ability to communicate with staff, managers, senior managers, internal and external clients to provide information on IT systems, processes, innovations, hardware and software support, etc.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. This position is designated as High Risk and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

If you are selected, you will be required to complete a Confidential Financial Disclosure Form prior to your first day of employment and annually thereafter.

## Security Clearance

Public Trust - Background Investigation

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false

statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Join EPA in protecting human health and the environment and enjoy many work life quality options! Working for the EPA offers you a comprehensive benefits package that includes, in part, paid vacation, sick leave, holidays, life insurance, health benefits, and participation in the Federal Employees Retirement System. The following Web addresses are provided for your reference to explore the major benefits offered to most Federal employees. To find out more visit
Benefits. To learn more about us, visit Life and Careers at EPA.

## Other Information

This position is not in the bargaining unit.

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

EPA participates in e-Verify. E-Verify is an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that enables participating employers to electronically verify the employment eligibility of their newly hired employees. For additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

It is the policy of the Government not to deny employment simply because an individual has been unemployed or has had financial difficulties that have arisen through no fault of the individual. Information about an individual's employment experience will be used only to determine the person's qualifications and to assess his or her relative level of knowledge, skills, and abilities. Although an individual's personal conduct may be relevant in any employment decision, including conduct during periods of unemployment or evidence of dishonesty in handling financial matters, financial difficulty that has arisen through no fault of the individual will generally not itself be the basis of an unfavorable suitability or fitness determination. For more information, visit https://hru.gov/Studio_Recruitment/tools/Mythbuster_on_Federal_Hiring_Policies.pdf .

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will **not** be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

You are strongly encouraged to read the entire announcement before you submit your application for this position.

To begin the application process, click the Apply On-line button to the right on this screen, follow the prompts to log-in/register, submit all required documents, and complete the assessment questionnaire. To be considered, you must submit a complete application package by 11:59 PM Eastern time on the day the announcement closes.

All required supporting documents will be collected electronically via the USAJobs document portfolio feature.

If you cannot apply on-line, you must contact the Human Resources Office listed to the right for assistance no later than three business days prior to the closing date of this announcement. You must provide complete application materials by the day the announcement closes.

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## How You Will Be Evaluated

We will review your resume and required documents to ensure you meet the basic qualification requirements. Your resume must address the knowledge, skills, and abilities listed in the Qualifications Section. If you meet basic qualification requirements, your application will be further evaluated based on your answers to the on-line assessment. Your responses to the on-line assessment will be used to measure the degree to which your background matches the requirements for the position and an applicable score assigned.

We will compare your resume and supporting documentation to your responses on the assessment questionnaire. If you rate yourself higher than is supported by your application materials, your responses may be adjusted and/or you may be excluded from consideration for this job. We will evaluate your qualifications and eligibility and notify you if you meet minimum qualification requirements.

NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.
**To preview questions please click here.**

Documents to be submitted on-line:

--Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.

--Responses to the on-line assessment questionnaire.

--Veterans' Preference Documents - DD-214 Member 4 copy (or other copy indicating character of service), VA letter stating overall/combined disability rating (percentage), and SF-15, if applicable; active duty service members: submit certification from the armed forces documenting active duty dates, expected discharge/release date, campaign medals/badges, and character of service (a certification is any written document from the armed forces that certifies you are expected to be discharged/released from active duty service in the armed forces under honorable conditions within 120 days after you submit the certification).

--Displaced Federal employees under ICTAP/CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

--Current and Former Federal Employees: You are required to submit a Notification of Personnel Action (SF-50)

indicating your status eligibility. This SF-50 should include your Position Title, Pay Plan, Occupational Code, and Grade or Level. If you are a current temporary/term employee who previously held a status Federal position, you need to submit your SF-50 which shows your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

--Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in eOPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

--If you are applying for a noncompetitive appointment, you'll need to submit additional documents to prove your eligibility to apply to this vacancy announcement. If you want to learn more about noncompetitive appointments, visit OPM's web site: http://www.opm.gov/employ/students/fedhire.asp#authorities

If you want to know more about submitting documentation to our office, visit EPA's web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Gwen Huggins
Phone: 513-569-7755
Email: huggins.gwen@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

# Environmental Protection Specialist

## ENVIRONMENTAL PROTECTION AGENCY

1 vacancy - Lenexa, KS

Work Schedule is Full-time - Permanent

Opened Thursday 1/5/2017 (7 day(s) ago)

Closes Wednesday 1/18/2017 (6 day(s) away)

**Salary Range**

$72,500.00 to $112,074.00 / Per Year

**Series & Grade**

GS-0028-12/13

**Promotion Potential**

13

**Supervisory Status**

No

**Who May Apply**

If you are a Current permanent EPA employee in the local commuting area with competitive status; or
- EPA Career Transition Assistance Program (CTAP) eligible

**Control Number**

461433500

**Job Announcement Number**

CI-R7-MP-2017-0010

## Job Summary

About the Agency

Earth Day is every day at EPA! At EPA, you can protect human health and the environment of all Americans, and you'll discover that EPA is one great place to work! We offer great benefits and work flexibilities, and our diverse workforce connects to more than just a career--we share a common passion to promote a cleaner, healthier environment.

This position is located in Region 7, Office of Policy and Management, Security, Safety and Facilities Management, in Lenexa, KS.

For more information on this office, visit their website: www.epa.gov/region7

## Duties

At the entry level of this position, you will:

-Serve as the Regional Management System (MS) Coordinator for the Environmental Management System (EM) and provides analytical support and assistance for the Safety and Health Management System (SHMS).

-Plan, develop and coordinate the EMS Management Programs, policies, and standard operating procedures across all R7 operating programs at all R7 facilities.

-Evaluate the effectiveness of management system programs relating to all R7 operations. This includes measures of compliance, conformance, impact and cost.

-Identify the need for programmatic education, training, and promotion on the basis of analysis of reviews, audits, inspections, etc. Prepare various promotional materials designed to encourage on-the-job awareness by EPA personnel and contractors.

-Assist in regulatory compliance by conducting and overseeing inspections of facilities conduct and/or coordinate the completion of management system conformance audits.

-Render advice and assistance to R7 staff on all related matters affecting regional operations. Maintain liaison and represent the Region with EPA HQ, other agencies, private organizations and private industry on environmental areas of interest within the assigned area of responsibility.

When entering a Federal job at a grade level lower than the highest promotion potential level, you may be promoted to more complex duties and work more independently, as your career progresses.

## Relocation Authorized

- No

## Key Requirements

- If you are selected, a pre-employment background check is required.
- You must submit resume and required documents (See How to Apply)
- You may be required to travel 1 to 5 days per month.

## Qualifications

You do not need a degree to qualify for this position.

We are looking for at least one year of specialized experience related to this position as described below:

To qualify for the GS-12 level, you need to have at least one year of full time experience equivalent to the GS-11 level defined as experience reviewing, coordinating, developing and managing environmental programs, and communicating with management, staff and state and local governments.

To qualify for the GS-13 level, in addition to the GS-12 requirements, you need to have at least one year of full time experience equivalent to the GS-12 level defined as experience developing and setting-up environmental programs.

Your answers to the on-line assessment will be used to evaluate your competencies in the following areas:

--Skill to evaluate, plan (including strategic planning), organize and review of regulations to determine compliance with Environmental Protection Agency (EPA) regulations, guidelines, policies, consistent with interpretation and implementation of policy as set out in statutes, regulations, policy and guidance.

--Ability to effectively communicate with many different groups of stakeholders in the region, EPA Headquarters and advise management of changing policy and regulation.

--Knowledge of qualitative and/or quantitative methods for data analysis, assessment and improvement of program effectiveness and ability to translate policy and guidance into clear and effective recommendations and projects.

--Ability to organize, lead, and work with cross-programmatic teams in accomplishing goals and objectives.

Experience refers to paid and unpaid experience, including volunteer work done through National Service programs (e.g., Peace Corps, AmeriCorps) and other organizations (e.g., professional; philanthropic; religious; spiritual; community, student, social). Volunteer work helps build critical competencies, knowledge, and skills and can provide valuable training and experience that translates directly to paid employment. You will receive credit for all qualifying experience, including volunteer experience. This position is designated as Moderate and requires a background investigation. Unless an appropriate background investigation is already on record with the Office of Personnel Management, you must undergo a background investigation.

You must meet time in grade requirements no later than 30 calendar days after the closing date of this announcement.

## Security Clearance

Other

## What To Expect Next

You can track the progress of your application package via your USAJobs account. You will receive an acknowledgement from USAJobs that your submission was successful, once we have received your on-line occupational questionnaire, resume and any supporting documentation. You will be notified of the status of your application via your USAJobs Account after we conduct a qualification review of your complete application package. You will be contacted if further evaluation or interviews are required. Any exaggeration of your experience, false statements, or attempt to conceal information may disqualify you for employment consideration. We may verify all information you provide in your resume and questionnaire responses, through reference and/or background check, and/or verification of your education. If you are selected, you will be contacted personally by the human resources office posting this announcement.

## BENEFITS

Review our benefits

Benefits will not change for current permanent EPA employees.

## Other Information

This position is in the bargaining unit.

Are you a Displaced Federal Employee? If so, please read the Required Documents and visit the EPA website for additional information: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

This information is used to determine your qualifications for employment. The use of this information is authorized under Title 5 USC, Sections 3302 and 3361.

If you have part-time work experience, read this: (http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures)

Position has portable work and selectee may be eligible to telework.

If you are selected, travel, transportation, and relocation expenses will **not** be paid by EPA. Any travel, transportation, and relocation expenses associated with reporting to work in this position will be your responsibility.

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materials by the day the announcement closes.

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## How You Will Be Evaluated

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NOTE: We do not require a separate statement responding to the competencies, also referred to as Knowledge, Skills and Abilities (KSAs). However, your resume should clearly show possession of these competencies.

**To preview questions please click here.**

Documents to be submitted on-line:

-- Resume clearly stating your experience related to this position as described in the Duties Section and Qualifications Required Section. In describing your experience, you need to be clear and specific. We may not make assumptions regarding your experience.

-- Responses to the on-line assessment questionnaire

-- Displaced Federal employees under CTAP - copy of your most recent performance appraisal, proof of eligibility, and your most current SF-50 noting position, grade level, tenure, and duty station.

-- Current EPA Employees: You are encouraged to submit a Notification of Personnel Action (SF-50). If you fail to provide an SF-50, we will access your Federal employment records in e-OPF to verify your eligibility to be considered. If your eligibility for consideration cannot be determined, your application will be rated ineligible.

If you want to know more about submitting documentation to our office, visit EPA's web site: http://www.epa.gov/careers/epa-job-vacancy-announcements-policies-and-procedures

# Environmental Protection Agency

## Contact

Gwen Huggins
Phone: 513-569-7755
Email: huggins.gwen@epa.gov

## Address

Environmental Protection Agency
US Environmental Protection Agency
Human Resources Office
Cincinnati
OH
US
513-569-7826

**Addendum to OPM 5000, Agency Pre-Appointment Checklist, for**
**Selection of Jon Monger, current Political Appointee, from LV-OAR-DE-2016-0063**

**Bullet 1:** All of the staff in the Climate Economics and Modeling Center (CEMC), including the current Policy Advisor and the future Environmental Protection Specialist (EPS) positions, are expected to have strong analytical and communication skills. Similarly, a majority of the staff within the CEMC and the Transportation and Climate Division (TCD) as a whole are expected to use these analytical skills to advise regarding current and future policies, as is reflected in both the current Policy Advisor and future EPS positions. However, the current Policy Advisor position is focused on existing regulations and primarily on the regulatory process. This requires a strong understanding of existing laws and regulations. The new EPS position has some of the same core duties and requirements that are similar to those currently conducted by the political appointee, but will feature more of an analytical component that considers future policies and proposals. So, while the current position evaluates existing policies and regulations the new position will be more focused on evaluation and development of new policies and measures. The work currently performed by the Policy Advisor (Jon Monger) will be distributed across the other staff in the Center and Division as much as possible.

**Bullet 2:** Both the current political appointment and the Environmental Protection Specialist vacancy reside in the Office of Air and Radiation, Office of Transportation and Air Quality, Transportation and Climate Division, Climate Economics and Modeling Center.

**Bullet 3:** If the current political appointee's position is vacated, his current workload would be re-distributed among existing team members.

**Bullet 4:** A previous posting (LV-OAR-DE-2016-0006) resulted in a certificate with three candidates; two were deemed to be not qualified and were removed, and one removed himself from further consideration. Therefore, we reposted the job. The second time (LV-OAR-DE-2016-0063), we received a certificate with four candidates, all of whom were deemed to be qualified. Jon Monger was on this cert. LV-OAR-DE-2016-0063 also stated a "few vacancies" were available in the Washington, D.C. area. The selecting official will be making at least one more selection from the certificate.

**Bullet 5:**

| | | | | |
|---|---|---|---|---|
| Sharyn Lie* | Director, CEMC (Supervisory EPS) | (202) 564-1092 | lie.sharyn@epa.gov | Competitive (MP) |
| Jennifer Keller | Director, LFIAC (Supervisory EPS) | (202) 564-9541 | keller.jennifer@epa.gov | Competitive MP) |
| Lisa Snapp | Director, CASC (Supervisory EPS ) | (734) 214-4282 | snapp.lisa@epa.gov | Competitive (MP) |
| Dennis Johnson | Director, TAC (Supervisory Engineer) | (202) 343-9278 | johnson.dennis@epa.gov | Competitive (MP) |
| Herbert Aaron Levy | Environmental Protection Specialist | (734) 214-4586 | levy.aaron@epa.gov | Excepted (PMF) |
| Britney McCoy | Engineer | (202) 343-9218 | mccoy.britney@epa.gov | Excepted (FCIP) |

**Ranking member*

**Bullet 6:**

Recommending Official

| | | | | |
|---|---|---|---|---|
| Karl Simon | Director, TCD | (202) 564-7918 | simon.karl@epa.gov | SES Career |

Selecting Official

| | | | | |
|---|---|---|---|---|
| Sharyn Lie | Director, CEMC (Supervisory EPS) | (202) 564-1092 | lie.sharyn@epa.gov | Competitive (MP) |

Script for Interview Chair

A. Introductions – 10 minutes

- **Welcome the Candidate**
- **Introduce the Panelists (name and position only—not who works on what),**
- **Give the Interviewee a chance to introduce him or herself by asking "what is your current position" (hopefully they will also be brief)**
- **Introductory statement (Why are we looking for a new employee?)**

Thank you for your interest in the position in the Climate Economics and Modeling Center, or CEMC, which is located within the Transportation and Climate Division of the Office of Transportation and Air Quality at EPA. This group is primarily responsible for conducting the lifecycle greenhouse gas emissions analyses of a wide range of fuels and feedstocks in support of the Renewable Fuels Standard (or RFS) program. The position we are seeking to fill would be a regulatory specialist – someone who will be responsible for writing the rules and regulations that are needed to implement the Renewable Fuels Standard program.

**C. New Questions – We would like to ask you a few questions to help us better understand you and your background and experience. [5 minutes per question.]**

1. Why did you apply for this position? How do you see your education/experience helping you in the job? [Sharyn]

2. Can you please elaborate on your experience developing and implementing programs designed to reduce greenhouse gas emissions in the transportation sector? [Lisa]

3. A necessary skill set in this job requires attention to detail. Give us an example of how you recently used these skills in a professional setting. What would have been the consequences if you had not paid attention to the details? [Aaron]

4. Describe a time when you were working in a team and integrating others' work was important. What was your role? What were the best and worst outcomes of the experience? [Dennis/Jennifer]

5. **Tell us about a time when you had to analyze information and make a recommendation. What kind of thought process did you go through? What was your reasoning behind your decision? [Sharyn]**

6. **How do you go about explaining a complex technical problem to a person who does not understand technical jargon? What approach do you take in communicating with people? [Lisa]**

7. Much of our work is project based, and requires navigating complex processes with multiple points of contact on a tight schedule. What tactics or techniques have you used to ensure projects are well planned and well executed, and that adequate communication takes place? [Aaron]

8. Tell us about an accomplishment you're particularly proud of and why? [Dennis/Jennifer]

D. **Candidate Questions - Ask if the candidate has any questions (5 minutes)**

E. Closing (1 minute)

- **Thank the candidate for their time and interest in the job.**

- Provide timing: We expect to complete panel interviews for the position .... We will be then forwarding recommendations to upper management for their consideration. We intend to have a final selection made to fill the position by ..... We will let you know if that changes.

**Bullet 7:**

The cert was comprised of applicants Jessica Daniels, Salil Deshpande, Joseph Ford, and Jon Monger. Panel interviews were conducted of all candidates on the cert using eight standardized questions plus follow-on questions as appropriate. Candidates were scored from 1 to 5 points for each question; total scores were then averaged for each candidate (see below). Individual scoring sheets are filed with the local HR office.

| Interviewer | Daniels (9/26) | Deshpande (9/27) | Monger (9/28) | Ford (10/3) |
|---|---|---|---|---|
| Sharyn Lie | 30 | 20 | 37 | 26 |
| Aaron Levy | 37 | 31 | 39 | NA |
| Jennifer Keller | 34 | NA | 39 | NA |
| Lisa Snapp | 37 | 32 | NA | NA |
| Dennis Johnson | NA | 16 | NA | 18 |
| Britney McCoy | NA | NA | NA | 27 |
| **Average:** | **34.5** | **24.75** | **38.33** | **23.67** |

**Addendum to OPM 5000, Agency Pre-Appointment Checklist, for**
**Selection of Jon Monger, current Political Appointee, from LV-OAR-DE-2016-0063**

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**Ranking member*

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Selecting Official

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|---|---|---|---|---|
| Sharyn Lie | Director, CEMC (Supervisory EPS) | (202) 564-1092 | lie.sharyn@epa.gov | Competitive (MP) |

Script for Interview Chair

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8. Tell us about an accomplishment you're particularly proud of and why? [Dennis/Jennifer]

**D. Candidate Questions - Ask if the candidate has any questions (5 minutes)**

E. Closing (1 minute)

- **Thank the candidate for their time and interest in the job.**

- **Provide timing: We expect to complete panel interviews for the position . . . . We will be then forwarding recommendations to upper management for their consideration. We intend to have a final selection made to fill the position by . . . . . We will let you know if that changes.**

**Bullet 7:**

The cert was comprised of applicants Jessica Daniels, Salil Deshpande, Joseph Ford, and Jon Monger. Panel interviews were conducted of all candidates on the cert using eight standardized questions plus follow-on questions as appropriate. Candidates were scored from 1 to 5 points for each question; total scores were then averaged for each candidate (see below). Individual scoring sheets are filed with the local HR office.

| Interviewer | Daniels (9/26) | Deshpande (9/27) | Monger (9/28) | Ford (10/3) |
|---|---|---|---|---|
| Sharyn Lie | 30 | 20 | 37 | 26 |
| Aaron Levy | 37 | 31 | 39 | NA |
| Jennifer Keller | 34 | NA | 39 | NA |
| Lisa Snapp | 37 | 32 | NA | NA |
| Dennis Johnson | NA | 16 | NA | 18 |
| Britney McCoy | NA | NA | NA | 27 |
| **Average:** | **34.5** | **24.75** | **38.33** | **23.67** |

| United States Environmental Protection Agency<br>**POSITION DESCRIPTION COVERSHEET** | **1. DUTY LOCATION**<br>Washington, DC | **2. POSITION NUMBER**<br>EPGS12005 |
|---|---|---|

**3. CLASSIFICATION ACTION**: a. Reference of Series and Date of Standards Used to Classify this Position

| | b. Title | c. Pay Plan | d. Series | e. Grade | f. CLC |
|---|---|---|---|---|---|
| **Official Allocation** | White House Lisiason | GS | 0301 | 12 | |
| **4. Supervisor's Recommendation** | | | | | |

| | |
|---|---|
| **5. ORGANIZATIONAL TITLE OF POSITION** (if any) | **6. NAME OF EMPLOYEE**<br>Monger, Jon Izak |
| **7. ORGANIZATION** (Give complete organizational breakdown) | e. |
| a. U.S. ENVIRONMENTAL PROTECTION AGENCY | f. |
| b. Office of the Administrator | g. |
| c. Immediate Office | h. Employing Office Location Washington, DC |
| d. | i. Organization Code 11010006 |

**8. SUPERVISORY STATUS**

☐ [2] **Supervisor or Manager**. Position requires the exercise of supervisory or managerial responsibilities that meet, at least, the minimum requirements for application of the General Schedule Supervisory Guide (GSSG) or similar standards for minimum supervisory responsibility specified in other position classification standards.

☐ [4] **Supervisor**. Position meets the definition of Supervisor in 5.U.S.C. 7103(a)(10), but does not meet the minimum requirements for application of the GSSG.

☑ [5] **Management Official.** Position meets the definition of Management Official in 5.U.S.C. 7103(a)(11), but does not meet the GSSG definition of Supervisor/Manager or the definition of Supervisor in 5.U.S.C. 7103(a)(10).

☐ [6] **Lead** Position leads a team performing one-grade interval work and meets the minimum requirements for application of Part 1 of the Work Leader Grade Evaluation Guide (WLGEG) or is under a wage system and meets similar minimum requirements as specified by those job standards or other directives of the applicable pay system.

☐ [7] **Team Leader**. Position leads a team performing two-grade interval work and meets the minimum requirements for application of Part II of the WLGEG.

☐ [8] **All Other Positions**. Position does not meet any of the above definitions. This is a non-supervisor/non-managerial position.

**9. SUPERVISORY CERTIFICATION** I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships and that the position is necessary to carry out governmental functions for which I am responsible. The certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

| **a. Typed Name and Title of Immediate Supervisor** | | **d. Typed Name and Title of Second-Level Supervisor** | |
|---|---|---|---|
| Diane E. Thompson, Chief of Staff | | Lisa P. Jackson, Administrator | |
| [redacted] | (b) (6) [redacted] | [redacted] | [redacted] |

[redacted]**ERTIFICATION:** I certify that this position [redacted] Title 5, U.S. Code, in conformance with standards published by the U.S. Office of Personnel Management or, if no published standards apply directly, consistently with the most applicable published standards.

**a. Promotion Potential**

☑ This position has no promotion potential ☐ If position develops as planned and employee progresses satisfactorily, this position has known promotion potential to grade: _____

| **b. PSB Risk Designation** | **c. Financial Disclosure Form** | **d. "Identical, Additional" (IA) Allocation** This position | **e. FLSA Determination** | **f. Functional Classification Code** |
|---|---|---|---|---|
| ☐ 1 Low<br>☐ 2 Moderate<br>☐ 3 High<br>Security Clearance Required: ☐ Yes ☐ No | ☐ OGE-450 Required<br>☒ OGE-278 Required<br>☐ No financial disclosure forms required | ☐ may be IA'ed<br>☒ may not be IA'ed<br>☐ is limited to current incumbent | ☐ NONEXEMPT ☒ EXEMPT*<br>(**check exemption category*)<br>☒ Administrative<br>☐ Professional ☐ Executive | |

| **g. Bargaining Unit Code** | **h. Check, if applicable:** | **i. Classifier's Signature** | **j. Date** |
|---|---|---|---|
| 8888 | ☐ Medical Monitoring Required<br>☐ Extramural Resources Management Duties (____% of time)<br>☐ This position is subject to random drug testing (____) | [signature] | 04/12/12 |

**11. REMARKS**

EPA Form 3150-1 (Rev 8/2009) Previous Versions are Obsolete

**WHITE HOUSE LIAISON**
**GS-0301-12**

## INTRODUCTION

The purpose of this position is to serve as White House Liaison in the Office of the Administrator, Immediate Office, with responsibility for serving as the Agency's liaison to the White House on confidential and sensitive duties regarding personnel and related issues.

The incumbent of the position requested for Schedule C exception will not be able to adequately perform her duties without being privy to the political, personal, and management philosophies of the Administrator. A confidential relationship of a Schedule C nature is imperative since the incumbent will speak for the Administrator and, as such, will be expected to reflect her philosophies in conversations with leading figures of government, business and other groups. The incumbent will also be obliged to present the views of the Administrator in correspondence and other communications with Agency managers and program officials.

## MAJOR DUTIES AND RESPONSIBILITIES

1. Serves as White House Liaison to the Administrator in the Immediate Office of the Administrator. In this capacity, the incumbent works under the close supervision of the Chief of Staff to help identify critical personnel needs and issues which require the immediate and personal attention of the Administrator. Provides leadership to the Deputy White House Liaison on all matters regarding the necessary interface with White House officials and EPA officials.

2. Provides advice to the Chief of Staff on all aspects of sensitive personnel issues. Identifies problem areas, develops and recommends solutions regarding specific policies and practices in relation to highly urgent and sensitive operational or program matters associated with the hiring process. Serves as a liaison to the White House, other EPA officials, and Federal and non-Federal agencies, to ascertain relevant information to ensure the Administrator is able to make a well informed decision on the appropriate course of action needed to eliminate the problems.

3. Performs a variety of confidential assignments associated with the coordination of sensitive personnel issues with the White House, Congress, industry, public interest groups, and others. Reviews and coordinates sensitive reports, documents and other material of special importance and concern to the Administrator to ensure that they are prepared in accordance with and reflect the Agency and the Administration's points of view.

4. As requested, attends conferences and meetings either with or as a representative of the Administrator, Deputy Administrator or Chief of Staff, within EPA to convey their point of view, desired emphasis, and goals. Assesses the impact and subsequent relevance of matters

discussed and enlists cooperation and stimulates contributions from Agency staff in developing new, imaginative approaches to problems and objectives. Briefs the Administrator on matters discussed and recommendations made.

5. As requested, conducts special assignments on matters of special concern or interest to senior management. Develops information, evaluates findings and prepares reports incorporating conclusions and specific recommendations. Provides information to senior managers through personal briefings.

6. Performs other duties of a close and confidential nature, as assigned.

**Factor 1. Knowledge Required Level 1-7 1250 points**

Knowledge of advanced and organizational principles and practices along with a comprehensive knowledge of planning, programmatic and administrative regulations, guidance and processes. A thorough knowledge of the Office of the Administrator's mission and functions to prepare short and long range planning guidance in accordance with broad Agency policies and objectives.

Comprehensive knowledge of a wide range of policies, precedents, and practices applicable of programs and functions across the Agency in order to provide substantive advice and to develop recommendations for the Chief of Staff to the Administrator. This includes knowledge of the Agency's program goals and objectives, the sequencing and timing of key program events and milestones. The work requires knowledge of the relationship between the Office and other EPA programs and other parts of the Executive Branch.

Knowledge of the application of a wide range of qualitative and quantitative methods for the assessment and improvement of program effectiveness and the improvement of complex management processes.

Skill in planning, organizing, and leading team efforts and to negotiate effectively with management officials to accept and implement recommendations, where proposals involve substantial resources, or require extensive changes in established procedures.

**Factor 2. Supervisory Controls Level 2-4 450 points**

The incumbent works under the general supervision of the Chief of Staff to the Administrator. The employee develops an acceptable project plan which typically includes identification of the work to be done, the scope of the project, and deadlines for its completion. The employee works under the broad guidance principles established by the Office of the Administrator and is fully responsible for daily management decisions operating under own initiative. The incumbent is expected to implement existing policy as it applies to problems relating to the smooth running of the Office of the Administrator. Work is reviewed in terms of established standards and instructions on timeliness and quality. Results of the work are considered to be typically authoritative and are normally accepted without significant changes. The incumbent is expected to bring complex issues to the Chief of Staff's attention and seek advice and guidance in

sensitive or complex situations. The incumbent is expected to have in-depth knowledge of the substantive functions of the organization and its program objectives and regulatory procedural requirements.

**Factor 3. Guidelines** **Level 3-4** **450 points**

Guidelines consist of Agency policy and guidance, general administrative policies, and management and organizational theories which require considerable adaptation or interpretation for application to issues and problems studied. Administrative policies and precedent-setting studies provide a basic outline of results desired but do not go into detail as to the methods used to accomplish the project. Administrative guidelines usually cover program goals and objectives of the employing organization. Within the context of broad regulatory guidelines, the employee may refine or develop more specific guidelines such as implementing regulations or methods.

**Factor 4. Complexity** **Level 4-4** **225 points**

This position is located in the Immediate Office of the Administrator and involves sensitive coordination of the highest order. The nature of each assignment involves many different operating components of the Agency as well as outside Federal and non-federal senior managers. Often the nature of the assignment must be determined after verbal instructions are given to the incumbent by the Chief of Staff. The variety of tasks performed is substantial and the methods used to accomplish the assignments are decided by the incumbent with guidance from the Chief of Staff and Deputy Chiefs of Staff to the Administrator on a case-by-case basis.

In order to carry out the fundamental tasks of the position, regular or frequent liaison is maintained with high level Agency officials – Assistant Administrators, Regional Administrators, Chief of Staff – as well as White House officials, Members of Congress, and constituency groups outside the Agency. These contacts are for coordination and planning meetings, conferences and follow-up on assignments emanating from the Chief of Staff.

**Factor 5. Scope and Effect** **Level 5-4** **225 points**

The purpose of this position is to perform broad and extensive programmatic assignments as White House Liaison. The purpose of the work is to analyze and evaluate major administrative Agency aspects and programs for the Chief of Staff. The findings and recommendations may result in senior management redirecting efforts or initiating policies related to and/or impacting major environmental issues of a national scale. This includes the development of long range policies, plans, goals and objectives; and/or identifying and developing ways to resolve problems.

**Factor 6. Personal Contacts** **Level 6-4** **110 points**

As a White House Liaison, the incumbent's personal contacts include persons outside the Agency such as high ranking officials of other Federal agencies, senior executives in the private sector, in addition to consultants and top Agency management such as the Administrator, Deputy Administrator, Assistant/Associate Administrators, and Office Directors in unstructured or ad

hoc settings.

**Factor 7. Purpose of Contacts** **Level 7-3** **120 points**

In addition to identifying decision-making alternatives and justifying recommendations and options to resolve administrative problems and influencing management to accept and implement findings and recommendations where there is some resistance, the purpose of these contacts is to justify or settle matters which involve significant or controversial issues which have an impact on major programs.

**Factor 8. Physical Demands** **Level 8-1** **5 points**

The work performed is primarily sedentary in nature, although there may be some walking, bending, or carrying of light objects such as books or files. Travel may be of a frequent nature.

**Factor 9. Work Environment** **Level 9-1** **5 points**

The work is performed in a traditional office setting which is adequately lighted, heated, ventilated, and requires no special precautions.

**TOTAL POINTS: 2840 = GS-12**

**AGENCY PRE-APPOINTMENT CHECKLIST**
**COMPETITIVE SERVICE POSITIONS**

*Please submit the following information along with a dated cover letter signed by the agency HR Director certifying that the proposed action meets all merit and fitness requirements in 5 U.S.C. 2301 and 2302 and Civil Service Rules 4.2 and 7.1.*

| | |
|---|---|
| Requesting Agency<br>Environmental Protection Agency | |
| Agency Point of Contact (Name, telephone number, email address for follow-up questions)<br>Lizabeth Engebretson, (702) 798-2432, engebretson.lizabeth@epa.gov | |
| Name of Proposed Selectee<br>Jon Monger | |
| ☑ Current Political Appointee | ☐ Former Political Appointee |
| Proposed Civil Service Position (Title, Pay Plan, Series, Grade, and Appointing Authority)<br>Environmental Protection Specialist, GS-0028-13, Competitive (DE) | |
| Location of Proposed Position (Office)<br>Washington, DC | |
| Proposed Rate of Basic Pay<br>(b) (6) [redacted] | |
| Political Position (Title, Pay Plan, Series, Grade, and Appointing Authority)<br>Policy Advisor to the CEMC Director, AD-0301-00, Excepted Appointment | |
| Agency/Office Political Position Held<br>Office of Transportation and Air Quality | |
| Rate of Basic Pay as Political Appointee<br>(b) (6) [redacted] | Former Political – Appointment Date of Political Position |
| Current Political – Date of Political Appointment in Agency Currently Employed<br>07/07/2013 | Former Political – Ending Date of Political Position |

- The position descriptions for the candidate's current or former political appointment and for the proposed appointment. Please include a fully executed OF-8 or equivalent showing why and how the respective positions were established. Explain any relationship between the two positions.

- An organizational chart identifying where both the political and the proposed positions reside within the agency or respective agencies.

- A statement explaining the disposition of the proposed selectee's current political position, if vacated.

- The complete case file for the proposed merit selection, including:
  - The job opportunity announcement(s) published on the USAJOBS website *(preferably the USAJOBS printed version; if not, include the USAJOBS control number)*
  - A description of recruiting sources and advertising methods used in addition to USAJOBS
  - The qualification standard used
  - The job analysis, justification of any selective factor, and rating schedule/crediting plan
  - Complete application packages from all applicants (e.g., résumés, questionnaires, DD-214s)
  - Documentation of all qualification determinations, how the crediting plan was used to assess each qualified applicant, and what tie-breaking method was used, if any (rating sheets, etc.)
  - Agency correspondence with applicants (e.g., acknowledging receipt, notices of rating)
  - Information showing how regulatory requirements of the Interagency Career Transition Assistance Program (ICTAP) were met
  - Documentation of any declinations and/or pass overs and objections
  - The referral list(s) issued to the selecting official and the completed referral list documenting the tentative selection

- The names of rating/ranking panel members (if appropriate) and their titles, telephone numbers, email addresses, and types of appointment.

- The names of the recommending and selecting officials, title, telephone number, email address, and type of appointment (e.g., career SES, Schedule C, Presidential Appointee).

- Documentation on the interview process, including the interviewer(s) and which candidates were interviewed.

*If OPM determines the selection appears to be free from political influence and in compliance with merit system principles, applicable civil service laws, and regulations, please provide the following to PoliticalConversions@opm.gov:*

- If appointed to the proposed position, please provide OPM a copy of the appointment SF-50, within 60 days of appointment, or as soon as practicable.
- If not appointed to the proposed position, please notify OPM, within 60 days of the decision, or as soon as practicable.

United States Environmental Protection Agency
**POSITION DESCRIPTION COVERSHEET**

**1. DUTY LOCATION** Washington, DC

**2. POSITION NUMBER**

**3. CLASSIFICATION ACTION** a. Reference of Series and Date of Standards Used to Classify this Position

EPS Series GS 0028, TS-133, 3/1995

| | b. Title | c. Pay Plan | d. Series | e. Grade | f. CLC |
|---|---|---|---|---|---|
| Official Allocation | Environmental Protection Spec | GS | 0028 | 13 | |
| 4. Supervisor's Recommendation | Environmental Protection Specialist | GS | 0028 | 13 | |

**5. ORGANIZATIONAL TITLE OF POSITION** (if any)

**6. NAME OF EMPLOYEE**

**7. ORGANIZATION** (Give complete organizational breakdown)

a. U.S. ENVIRONMENTAL PROTECTION AGENCY

b. Office of Air and Radiation

c. Office of Transportation and Air Quality

d. Transportation and Climate Division

e. Climate Economics and Modeling Center

f.

g.

h. Employing Office Location: Washington, D.C.

i. Organization Code LCCA0000

**8. SUPERVISORY STATUS**

☐ [2] **Supervisor or Manager** Position requires the exercise of supervisory or managerial responsibilities that meet, at least, the minimum requirements for application of the General Schedule Supervisory Guide (GSSG) or similar standards for minimum supervisory responsibility specified in other position classification standards

☐ [4] **Supervisor** Position meets the definition of Supervisor in 5 U.S.C. 7103(a)(10), but does not meet the minimum requirements for application of the GSSG

☐ [5] **Management Official** Position meets the definition of Management Official in 5 U.S.C. 7103(a)(11), but does not meet the GSSG definition of Supervisor Manager or the definition of Supervisor in 5 U.S.C. 7103(a)(10)

☐ [6] **Lead** Position leads a team performing one-grade interval work and meets the minimum requirements for application of Part I of the Work Leader Grade Evaluation Guide (WLGEG) or is under a wage system and meets similar minimum requirements as specified by those job standards or other directives of the applicable pay system

☐ [7] **Team Leader** Position leads a team performing two-grade interval work and meets the minimum requirements for application of Part II of the WLGEG

x [8] **All Other Positions** Position does not meet any of the above definitions. This is a non-supervisor non-managerial position

**9. SUPERVISORY CERTIFICATION** I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships and that the position is necessary to carry out governmental functions for which I am responsible. The certification is made with the knowledge that this information is to be used for statutory purposes relative to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations

a. **Typed Name and Title of Immediate Supervisor**

Sharyn Lee, Director, CEMC

b. **Signat**(b) (6) [redacted]

d. **Typed Name and Title of Second-Level Supervisor**

Karl Simon, Director, ICD

**10. OFFICIAL CLASSIFICATION CERTIFICATION:** I certify that this position has been classified/graded as required by Title 5, U.S. Code, in conformance with standards published by the U.S. Office of Personnel Management or, if no published standards apply directly, consistently with the most applicable published standards.

a. **Promotion Potential**

x This position has no promotion potential ☐ If position develops as planned and employee progresses satisfactorily, this position has known promotion potential to grade

| b. PSB Risk Designation | c. Financial Disclosure Form | d. "Identical, Additional" (IA) Allocation | e. FLSA Determination | f. Functional Classification Code |
|---|---|---|---|---|
| ☒ 1 Low<br>☐ 2 Moderate<br>☐ 3 High<br>Security Clearance Required: ☐ Yes ☐ No | ☐ OGE -450 Required<br>☐ OGE -278 Required<br>☒ No financial disclosure forms required | This position<br>☐ may be IA'ed<br>☒ may not be IA'ed<br>☐ is limited to current incumbent | ☒ NONEXEMPT ☐ EXEMPT*<br>(*check exemption category)<br>☐ Administrative<br>☐ Professional ☐ Executive | 00 |

| g. Bargaining Unit Code | h. Check, if applicable: | i. Classifier's Signature | j. Date |
|---|---|---|---|
| 1043 | ☐ Medical Monitoring Required<br>☐ Extramural Resources Management Duties ( % of time)<br>☐ This position is subject to random drug testing ( ) | | |

**11. REMARKS**

Previously Classified

EPA Form 3150-1 (Rev. 8/2009) Previous Versions are Obsolete

15-1439114

United States Environmental Protection Agency

**POSITION DESCRIPTION COVERSHEET**

**1. DUTY LOCATION** Washington, DC

**2. POSITION NUMBER** LA00288

**3. CLASSIFICATION ACTION** a. Reference of Series and Date of Standards Used to Classify this Position

EPS Series GS-0028 TS 133 Mar 1995

| | b. Title | c. Pay Plan | d. Series | e. Grade | f. CLC |
|---|---|---|---|---|---|
| Official Allocation | Environmental Protection Spec | GS | 0028 | 13 | |
| 4. Supervisor's Recommendation | Environmental Protection Specialist | GS | 0028 | 13 | |

**5. ORGANIZATIONAL TITLE OF POSITION** (if any)

**6. NAME OF EMPLOYEE**

**7. ORGANIZATION** (Give complete organizational breakdown)

a. U.S. ENVIRONMENTAL PROTECTION AGENCY

b. Office of Air and Radiation

c. Office of Transportation and Air Quality

d. Transportation and Climate Division

e. Climate Economics and Modeling Center

f.

g.

h. Employing Office Location Washington DC

i. Organization Code FCCA0000

**8. SUPERVISORY STATUS**

☐ [2] **Supervisor or Manager** Position requires the exercise of supervisory or managerial responsibilities that meet, at least, the minimum requirements for application of the General Schedule Supervisory Guide (GSSG) or similar standards for minimum supervisory responsibility specified in other position classification standards

☐ [4] **Supervisor** Position meets the definition of Supervisor in 5 U.S.C. 7103(a)(10), but does not meet the minimum requirements for application of the GSSG

☐ [5] **Management Official** Position meets the definition of Management Official in 5 U.S.C. 7103(a)(11), but does not meet the GSSG definition of Supervisor Manager or the definition of Supervisor in 5 U.S.C. 7103(a)(10)

☐ [6] **Lead** Position leads a team performing one-grade interval work and meets the minimum requirements for application of Part I of the Work Leader Grade Evaluation Guide (WLGEG) or is under a wage system and meets similar minimum requirements as specified by those job standards or other directives of the applicable pay system

☐ [7] **Team Leader** Position leads a team performing two-grade interval work and meets the minimum requirements for application of Part II of the WLGEG

☒ [8] **All Other Positions** Position does not meet any of the above definitions. This is a non-supervisor non-managerial position

**9. SUPERVISORY CERTIFICATION** I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships and that the position is necessary to carry out governmental functions for which I am responsible. The certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds, and that false or misleading statements may constitute violations of such statutes or their implementing regulations

**a. Typed Name and Title of Immediate Supervisor**

Sharyn Lie, Director, CEMC

**b. Signature** **c. Date**

**d. Typed Name and Title of Second-Level Supervisor**

Karl Simon, Director, TCD

**e. Signature** for Karl Simon **f. Date** 7/29/15

**10. OFFICIAL CLASSIFICATION CERTIFICATION:** I certify that this position has been classified graded as required by Title 5 U.S. Code, in conformance with standards published by the U.S. Office of Personnel Management or, if no published standards apply directly, consistently with the most applicable published standards

**a. Promotion Potential**

☒ This position has no promotion potential ☐ If position develops as planned and employee progresses satisfactorily, this position has known promotion potential to grade

**b. PSB Risk Designation**
☒ 1 Low
☐ 2 Moderate
☐ 3 High
Security Clearance Required ☐ Yes ☐ No

**c. Financial Disclosure Form**
☐ OGE-450 Required
☐ OGE-278 Required
☒ No financial disclosure forms required

**d. "Identical, Additional" (IA) Allocation** This position
☐ may be IA'ed
☐ may not be IA'ed
☐ limited to current incumbent

**e. FLSA Determination**
☒ NONEXEMPT ☐ EXEMPT*
(*check exemption category)
☒ Administrative
☐ Professional ☐ Executive

**f. Functional Classification Code** 00

**g. Bargaining Unit Code** 1043

**h. Check, if applicable:**
☐ Medical Monitoring Required
☐ Extramural Resources Management Duties ( % of time)
☐ This position is subject to random drug testing ( )

**i. Classifier's Signature**

**j. Date** 10/13/15

**11. REMARKS**

[illegible] Form 3150-1 (Rev 8/2000) Previous Versions are Obsolete

# Position Description
# Environmental Protection Specialist, GS-0028-13

## INTRODUCTION

This position resides in the U.S. Environmental Protection Agency (EPA), Office of Air & Radiation (OAR), Office of Transportation & Air Quality (OTAQ), Transportation and Climate Division (TCD), Climate Economics and Modeling Center (CEMC). It is physically located in Washington, DC.

TCD is responsible for coordinating OTAQ's strategic climate programs; implementing programs required by the Clean Air Act to be included in State Implementation Plans (SIP) addressing the impact on air quality of in-use vehicles and transportation systems; implementing programs and distributing Congressional funding to address criteria and GHG emissions from vehicles in the U.S. legacy fleet; assisting our nation's ports to promote sustainability, healthier air, and reduced climate emissions; and analyzing regulations and national policy issues concerning vehicles and fuels pathways.

## DUTIES & RESPONSIBILITIES

As an Environmental Protection Specialist in CEMC, the incumbent applies specialized knowledge of the principles, practices, and methods of environmental protection work to examine OTAQ programs involving transportation fuels and make recommendations for how policies and programs should be structured. The incumbent serves as a consultant to the division and management, identifying program design options and presenting pros and cons directly to senior leadership. In support of these responsibilities, the incumbent performs the following duties:

- Write regulations and preamble language in support of national environmental and energy policy programs and related issues concerning fuels and vehicles.
- Author reports and memos for direct dissemination to OTAQ leadership and conduct program briefings for senior management and officials to communicate a variety of complex policy and regulatory concepts; enhance and improve materials used to communicate complex regulatory and analytical information to key stakeholders.
- Advise management on the potential benefits of new strategies to streamline and improve the implementation of existing OTAQ programs.
- Advise management on the potential benefits and uses of Agency staff and outside resources to optimize team operations and products; marshal resources to coordinate and facilitate projects requiring cross-team interaction that relate to mobile source programs; and recommend changes or improvements in organization, staffing of projects, work methods, and procedures.
- Analyze proposed changes in OTAQ or TCD programs and advise whether new regulations, administrative actions, or policy changes are needed; monitor the Office's awareness of domestic and international fuel and transportation policies and regulations.
- Coordinate with the Office of General Council, other OTAQ divisions, and other offices as necessary to implement or update policies, interpret or update regulations, and develop or update guidance related to fuels and vehicle policies.

## KNOWLEDGE REQUIRED BY THE POSITION – FACTOR LEVEL 1-8 (1,550 PTS)

Mastery knowledge of and demonstrated ability to communicate complex regulatory programs and policies, particularly with respect to their applications to climate change with relation to the transportation sector.

Mastery of technical, policy, legal and regulatory issues endemic to the Office's transportation programs affecting climate through greenhouse gases (GHG) with a focus on fuel and vehicle technology pathways; knowledge sufficient to enhance the incumbent's ability to advocate for the usage of specific resources (data, skillsets) to properly assemble teams and vet their final products.

Mastery knowledge of and skill in writing regulations and preamble language for the purposes of reducing greenhouse gas emissions from the transportation sector.

Demonstrated ability to organize and work in multi-disciplinary teams to produce research, drawing on a demonstrated knowledge of staff capacities and the scope and purpose of Division work products; knowledge sufficient to optimally assemble cross-disciplinary and team projects agglomerating work from multiple staff to inform larger products.

Demonstrated ability to produce professional briefings, memos, and reports of a quality that is directly communicable to OTAQ leadership and parties outside of OTAQ.

Ability to interact with and provide both technical and administrative guidance geared to internal and external stakeholders with a variety of technical or administrative backgrounds.

## SUPERVISORY CONTROLS – FACTOR LEVEL 2-5 (650 PTS)

The supervisor provides overarching administrative direction and assigns work within the purview of broadly defined parameters; the incumbent independently develops objectives and frameworks within those national programs, exercising judgment and creativity in developing project scope and assignments, especially as regards data management. The Specialist's conclusions and recommendations are considered sound; completed work is reviewed mainly from an overall standpoint in terms of feasibility, compatibility with other work, or effectiveness in meeting requirements or expected results.

## GUIDELINES – FACTOR 3-4 (450 PTS)

Guidelines typically cover a range of technical and administrative criteria which must be interpreted, adapted, and extended. Guidelines include legislation, specifically the Clean Air Act and the Energy Independence and Security Act of 2007; regulations related to renewable fuels standards; agency policy; and professional literature. Existing legislation and policies may lack specificity and/or require extrapolation to apply to developments in the fuels industry and amendments to emissions reduction forecasts. The incumbent uses judgment and initiative to interpret guidelines, modify practices, and recommend regulatory changes as needed.

## COMPLEXITY – FACTOR LEVEL 4-5 (325 PTS)

The incumbent's work typically involves full responsibility for a TCD program or project; this work requires making many decisions involving the interpretation of data, planning work, refining existing criteria, or extending or modifying conventional methods and techniques used by TCD and OTAQ. The incumbent organizes and interacts within a multi-disciplinary team

carrying out a wide variety of major duties and responsibilities, such as writing and implementing regulations; assisting in the coordination of OTAQ's involvement in renewable fuel programs and initiatives; and communicating complex information to a wide and often distinguished audience that interacts with OTAQ. Decisions regarding what needs to be done depend on the assessment of unusual facts or conditions, variations in approach depending upon the environmental and political setting, available resources, impact on populations, involvement of State and local organizations, or incomplete or conflicting data.

**SCOPE & EFFECT – FACTOR LEVEL 5-5 (325 PTS)**

The purpose of this work is to analyze and evaluate major mobile source regulatory actions of substantive mission-oriented programs for OTAQ and TCD. Work products prepared by the incumbent include presentations, letters, federal register notices, and memorandum describing the analysis conducted by the environmental protection specialist. The incumbent has primary and overall responsibility for the content, factual accuracy, and proper format of these communications documents. Work affects the development of major aspects of the agency's environmental protection programs and policies; the work of State and local officials, top-level managers of the agency/department, private industry executives, or other environmental protection experts; important national goals and programs, and the well-being of substantial numbers of people.

**PERSONAL CONTACTS & PURPOSE OF CONTACTS – FACTOR LEVEL 3c (180 PTS)**

Personal contacts include a range of professional and administrative personnel throughout the Agency, at other Federal agencies, at the state and local government level, in private industry, and in academia. These interactions might require formal presentation of Agency scientific, engineering, legal and policy positions, as well as informal and formal discussions with national scientific, economic and engineering experts and concerned citizens with a variety of perspectives and objectives that interact with OTAQ programs. The employee might represent EPA on inter- and intra-agency task forces and at national and international councils and conferences as needed.

Contacts are for purposes of collecting and exchanging information on programs; providing consultation on problems; defending proposed approaches; negotiating settlements of differences; and resolving problem areas or controversies. Given the nature of the work evaluating and weighting different transportation fuel options, stakeholders are very involved in how/why their specific option is judged, and there is substantial time spent justifying the feasibility or desirability of plans.

**PHYSICAL DEMANDS – FACTOR LEVEL 8-1 (5 PTS)**

Work is primarily sedentary, though moderate walking, standing, carrying light items, or driving may be required.

**WORK ENVIRONMENT (FACTOR LEVEL 9-1 (5 PTS)**

Work requires normal safety precautions typical of an office environment, though occasional visits may be required to laboratory or industrial environments in which the Specialist may be exposed to moderate risks or discomforts.

## Showman, John

**From:** Higginbotham, Karen
**Sent:** Thursday, December 01, 2016 6:34 PM
**To:** SERS@opm.gov
**Cc:** Vizian, Donna; Gray, Linda; Barnett, Howard; Showman, John
**Subject:** SES Qualifications Review Board information

In response to the Office of Personnel Management email of November 18, 2016 concerning a moratorium on Senior Executive Service qualifications review board case processing the U.S. Environmental Protection Agency provides the following information.

- The following cases have been submitted to OPM and await QRB decision:

| |
|---|
| **Kenneth Schefski** Regional Counsel; Region 8<br>STATUS: submitted to OPM 10/31/16 |
| **Michael Goodis** Director, Registration Division; OCSPP;<br>STATUS: submitted to OPM on 10/31/16 |
| **Alice Gilliland** Deputy Director for Management – NRMRL; ORD;<br>STATUS: submitted to OPM on 11/14/16 |
| **Erica Canzler** Director, National Enforcement Investigations Center; OECA;<br>STATUS: submitted to OPM on 11/14/16 |
| **Cheryl Seager** Director, Compliance Assurance and Enforcement Division; Region 6;<br>STATUS: submitted to OPM on 11/17/16 |
| **Vanessa Holt** Deputy Director for Management – NHEERL; ORD;<br>STATUS: submitted to OPM on 11/28/16 |

- Anticipated cases (2) that will be submitted to OPM prior to December 7, 2016:

**Matthew Dalbey** – Director, Office of Sustainable Communities; AO
**Carey Neal** - Deputy Director, Office of Grants and Debarment; OARM

- The following cases (8) may require an exception after the moratorium goes into effect:

Director, Water Protection Division; Region 3
Director, Office of Strategic Environmental Management; AO
Director, Water, Wetlands and Pesticides Division; Region 7
Director, Office of Information Security and Privacy; OEI
Deputy Director, Office of Acquisition Management; OARM
Director, Office of Program Accountability and Resources Management; ORD
Deputy Director, Office of Superfund Remediation and Technology Innovation; OLEM
Director, Radiation Protection Division; OAR

Please advise if additional information is needed.

Karen D. Higginbotham
Director
Executive Resources Division/OHR
202-564-7287

UNITED STATES OFFICE OF PERSONNEL MANAGEMENT

Merit System
Accountability and
Compliance

DEC 2 9 2016

Ms. Lizabeth J. Engebretson
Director, Office of Human Resources
U.S. Environmental Protection Agency
Las Vegas Human Resources Shared Service Center
4220 S. Maryland Parkway, Bldg A, Suite 100
Las Vegas, NV 89119-7528

Dear Ms. Engebretson:

On November 23, 2016, we received your request for OPM's pre-appointment review and approval to appoint Mr. Jon Monger to a permanent, competitive service position as an Environmental Protection Specialist (GS-0028-13). This position is located in the Office of Transportation and Air Quality (OTAQ), Transportation and Climate Division (TCD). Mr. Monger currently serves as a Policy Advisor, AD-0301-00 in an administratively determined position in the excepted service and previously held a Schedule C political appointment with the U.S. Environmental Protection Agency (EPA).

We reviewed your request to determine if Mr. Monger's appointment is free of political influence and complies with merit system principles. Because of concerns regarding the merits of the proposed appointment, OPM cannot approve your request.

Mr. Monger was given a political appointment as a White House Liaison, GS-301-12 on April 29, 2012, in EPA's Office of the Administrator. According to the position description (PD), as a White House Liaison, Mr. Monger provided strategic counsel to the Administrator, Chief of Staff and White House on actions related to the OTAQ, TCD, Climate Economics Modeling Center (CEMC). Mr. Monger's resume states, for this position, he worked on complex environmental policy and regulatory programs developing policy positions on issues related to the transportation sector. It also states he analyzed proposed changes in programs and advised whether new regulations, administrative actions, or policy changes were needed, including monitoring domestic and international fuel and transportation policies and regulations. He indicated he led group efforts to evaluate and resolve issues related to greenhouse gas policies in the transportation sector; and has experience developing renewable fuels programs and conducted policy analysis of regulatory options related to reducing greenhouse gas emissions from the transportation sector.

On July 7, 2013, Mr. Monger was converted to an administratively determined position as a Policy Advisor (AD-301-00) to serve as a consultant in OTAQ, TCD, CEMC. As a policy advisor in CEMC, Mr. Monger worked on renewable fuels policy development work and projects involving the implementation and development of future rules for fuel standards. A

review of Mr. Monger's resume shows he was responsible for writing regulations and preamble language in support of national environmental and energy policy programs concerning fuels and vehicles. He also indicated experience in developing and implementing programs designed to reduce greenhouse gas emissions in the transportation sector and analyzed program changes to determine if new regulations or policy changes were needed. He developed renewable fuels programs, and also developed processes to streamline and improve the implementation of existing programs to increase efficiency and sharing of information and resources.

TCD established the Environmental Protection Specialist (EPS) position, classifying it on October 13, 2015. While the duties documented in the original political appointment, White House Liaison, share similarities to the duties of the EPS position, the duties performed by Mr. Monger in his current, consultant AD position are very similar to that of the EPS position. As a consultant, Mr. Monger's statement of work states he "undertakes assignments dealing with Renewable Fuels Policy development work projects involving the implementation and development of future rules for fuel standards; and develops policy positions, regulatory options, technical guidance, or public information on the transportation and climate sectors, as well as other environmental issues. He identifies options and presents information in the form of policy expertise to division management and high level Office and EPA officials...etc." The PD for the EPS position states: "The incumbent serves as a consultant to the division and management, identifying program design options and presenting pros and cons directly to senior leadership. In support of these responsibilities, the incumbent performs the following duties: write regulations and preamble language in support of national environmental and energy policy programs related issues concerning fuels and vehicles. Advises management on the potential benefits of new strategies to streamline and improve the implementation of existing OTAQ programs."

EPA announced the EPS position under external competitive procedures twice. The first time, LV-OAR-DE-2016-0006, (JOA #0006) was posted from November 4, 2015, to November 10, 2015. As a result of this announcement, the agency issued a veterans-only certificate containing three preference eligibles. While HR determined all three preference eligibles were qualified, the selecting official, who is the current supervisor of Mr. Monger, stated two were not qualified. HR concurred with this decision. The other preference eligible was not offered the position but declined further consideration when he learned relocation incentives would not be authorized. Mr. Monger applied to this announcement, but was not within reach for selection, even though he was in the top quality category, due to the preference eligibles being placed above him. EPA did not pursue any pass overs.

EPA made no selections from this first announcement (JOA #0006) and, instead, opted to reannounce the position under vacancy LV-OAR-DE-2016-0063 (JOA#0063). It opened September 6, 2016, and closed September 12, 2016. While EPA did not change the PD or job analysis for this second announcement, they did change the assessment questions. Changes to assessment criteria should be supported by changes to either or both the PD and the job analysis. The fact EPA merely changed the assessment questions rather than any of the source documents justifying their use is not indicative of good staffing work. Additionally, since EPA was not satisfied with the minimum qualifications of the candidates referred from the first JOA, it would have been prudent to update the specialized experience requirement to better assess the minimum qualifications of applicants. However, EPA opted not to do this, which, again, is not indicative

of good staffing work. In many previous cases we have referred to the Office of Special Counsel (OSC), agencies inappropriately narrowed the specialized experience requirements such that only a few candidates or even only one candidate was found qualified. After OSC found violations of the merit system principle of fair and open competition in several of these cases, we noticed more instances of agencies modifying assessment questions to target a particular candidate, rather than modifying the specialized experience requirements. The newly developed assessment questions for the EPS position appear to do just that, as they contained language describing tasks performed by Mr. Monger in his current consultant position with EPA.

Mr. Monger's statement of work (SOW) for his current consultant position describes his duties as "undertaking assignments dealing with renewable fuels policy development work and projects involving the implementation and development of future rules for fuel standards." This is very similar to new assessment questions added in the second JOA (#0063):

- Question #44063266 - "I have conducted policy analysis of regulatory options related to reducing greenhouse gas emissions from the transportation sector."
- Question 44063267 - "I have prepared regulatory language concerning environmental considerations in the transportation sector."
- Question 44063268 -"Do you have experience developing renewable fuels programs?"
- Question 44060494 - "I have advised senior management on the following items related to program planning and/or implementation."

These questions unfairly favored Mr. Monger. While EPA found 64 of the 68 candidates who applied for JOA #0063 qualified, because they did not modified the specialized experience requirements, despite complaints about the minimum qualifications of referred candidates from the previous JOA, they referred only 4 non-preference eligibles, including Mr. Monger, from the top quality category on a certificate, dated September 15, 2016. A panel of three to four SMEs, including the selecting official, conducted interviews of all four candidates and Mr. Monger was selected. EPA made a second selection from the certificate and a formal offer was extended on December 20, 2016, to a second candidate for another department within OTAQ. While the selection of another applicant from the certificate may provide an impression that the position was not skewed to favor Mr. Monger, the fact that it was in another department belies that.

The fact that the EPS position is newly created and has very similar duties to Mr. Monger's current position and EPA has no plans to backfill his current position are strong indicators the EPS position was designed solely for Mr. Monger. This is supported further by the similarities between the PD for the EPS position and the justification for two time-off awards Mr. Monger received on September 29, 2014, and May 17, 2016. The justification for the award dated September 29, 2014, states: "Jon has proven to be a key assets [sic] in guiding /informing the Agency's overall approach to reconciling the transportation sector with the environment." It also states: "Jon is instrumental and valuable resource to OAR/OTAQ/TCD/CEMS providing expertise, guidance, and analysis on the Center's portfolio of work related to Renewable Fuels and EPA's work in establishing pathways for suppliers and refiners to enter the market." The justification for the T/O award dated May 17, 2016, states "He coordinated CEMC's responses to comments on the 2014-2016 RFS Annual Volume rule, and he helped develop preamble and regulatory text for Carbon Capture storage related provisions of the Renewable Enhancement

and Growth rule. These rules will ensure that there are new and innovative options for reducing greenhouse gas emissions from renewable fuels."

All of the actions discussed above appear designed to favor Mr. Monger and open the path for his selection. Specifically, the facts that:

- the EPS position is newly created and has very similar duties to Mr. Monger's current position,
- EPA has no plans to backfill his current position,
- EPA announced the position twice rather than using preference eligible pass over procedures, and
- modified only the assessment questions for the second JOA, rather than any of the source documents justifying their use, and
- did not modify the specialized experience requirement for the second JOA, despite complaints about the minimum qualifications of referred candidates from the previous JOA

are strong indicators the EPS position was designed solely for Mr. Monger. Considering these actions in total, OPM cannot conclude that this appointment is free of political influence and complies with merit principles. Therefore, your request to appoint Mr. Monger to the position of Environmental Protection Specialist (GS-0028-13) under competitive examining procedures is denied.

If you or your staff have any questions or need further information about this decision, please contact Ms. Ana A. Mazzi, Deputy Associate Director, at (202) 606-4309 or at Ana.Mazzi@opm.gov.

Sincerely,

Mark W. Lambert

Mark W. Lambert
Associate Director

AL-17-000-3709

incoming

JASON CHAFFETZ, UTAH
CHAIRMAN

ONE HUNDRED FIFTEENTH CONGRESS

ELIJAH E. CUMMINGS, MARYLAND
RANKING MINORITY MEMBER

# Congress of the United States

## House of Representatives

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM
2157 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6143
Majority (202) 225-5074
Minority (202) 225-5051
http://oversight.house.gov

January 26, 2017

Ms. Catherine McCabe
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, D.C. 20460

Dear Ms. McCabe:

On July 29, 2015, four Environmental Protection Agency (EPA) employees provided testimony for a Committee hearing that examined allegations of sexual harassment occurring in the EPA Region 5 Great Lakes National Program Office.[1] Since then, two of these employees have reported retaliation for their participation in the hearing.

To assist the Committee in its investigation of these allegations, please provide all documents between any Environmental Protection Agency employee, since July 15, 2015, referring or relating to:

1. (b) (6) [redacted]

2. (b) (6) [redacted].

Please provide the requested documents as soon as possible but no later than February 9, 2017. When producing documents to the Committee, please delivery production sets to the Majority Staff in Room 2157 of the Rayburn House Office Building and the Minority Staff in Room 2471 of the Rayburn House Office Building. The Committee prefers, if possible, to receive all documents in electronic format.

The Committee on Oversight and Government Reform is the principal oversight committee of the House of Representatives and has broad authority to investigate "any matter" at "any time" under House Rule X.

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[1] *EPA Mismanagement Part II: Hearing before the H. Comm. on Oversight & Gov't Reform* 114th Cong. (2015).

Please contact Melissa Beaumont of the Committee staff at (202) 225-5074 with any questions about this request. Thank you for your prompt attention to this matter.

Sincerely,

Jason Chaffetz
Chairman

Enclosure

cc: The Honorable Elijah E. Cummings, Ranking Minority Member

## Responding to Committee Document Requests

1. In complying with this request, you are required to produce all responsive documents that are in your possession, custody, or control, whether held by you or your past or present agents, employees, and representatives acting on your behalf. You should also produce documents that you have a legal right to obtain, that you have a right to copy or to which you have access, as well as documents that you have placed in the temporary possession, custody, or control of any third party. Requested records, documents, data or information should not be destroyed, modified, removed, transferred or otherwise made inaccessible to the Committee.

2. In the event that any entity, organization or individual denoted in this request has been, or is also known by any other name than that herein denoted, the request shall be read also to include that alternative identification.

3. The Committee's preference is to receive documents in electronic form (i.e., CD, memory stick, or thumb drive) in lieu of paper productions.

4. Documents produced in electronic format should also be organized, identified, and indexed electronically.

5. Electronic document productions should be prepared according to the following standards:

   (a) The production should consist of single page Tagged Image File ("TIF"), files accompanied by a Concordance-format load file, an Opticon reference file, and a file defining the fields and character lengths of the load file.

   (b) Document numbers in the load file should match document Bates numbers and TIF file names.

   (c) If the production is completed through a series of multiple partial productions, field names and file order in all load files should match.

   (d) All electronic documents produced to the Committee should include the following fields of metadata specific to each document:

   BEGDOC, ENDDOC, TEXT, BEGATTACH, ENDATTACH, PAGECOUNT,CUSTODIAN, RECORDTYPE, DATE, TIME, SENTDATE, SENTTIME, BEGINDATE, BEGINTIME, ENDDATE, ENDTIME, AUTHOR, FROM, CC, TO, BCC, SUBJECT, TITLE, FILENAME, FILEEXT, FILESIZE, DATECREATED, TIMECREATED, DATELASTMOD, TIMELASTMOD, INTMSGID, INTMSGHEADER, NATIVELINK, INTFILPATH, EXCEPTION, BEGATTACH.

6. Documents produced to the Committee should include an index describing the contents of the production. To the extent more than one CD, hard drive, memory stick, thumb drive, box or folder is produced, each CD, hard drive, memory stick, thumb drive, box or folder should contain an index describing its contents.

7. Documents produced in response to this request shall be produced together with copies of file labels, dividers or identifying markers with which they were associated when the request was served.

8. When you produce documents, you should identify the paragraph in the Committee's schedule to which the documents respond.

9. It shall not be a basis for refusal to produce documents that any other person or entity also possesses non-identical or identical copies of the same documents.

10. If any of the requested information is only reasonably available in machine-readable form (such as on a computer server, hard drive, or computer backup tape), you should consult with the Committee staff to determine the appropriate format in which to produce the information.

11. If compliance with the request cannot be made in full by the specified return date, compliance shall be made to the extent possible by that date. An explanation of why full compliance is not possible shall be provided along with any partial production.

12. In the event that a document is withheld on the basis of privilege, provide a privilege log containing the following information concerning any such document: (a) the privilege asserted; (b) the type of document; (c) the general subject matter; (d) the date, author and addressee; and (e) the relationship of the author and addressee to each other.

13. If any document responsive to this request was, but no longer is, in your possession, custody, or control, identify the document (stating its date, author, subject and recipients) and explain the circumstances under which the document ceased to be in your possession, custody, or control.

14. If a date or other descriptive detail set forth in this request referring to a document is inaccurate, but the actual date or other descriptive detail is known to you or is otherwise apparent from the context of the request, you are required to produce all documents which would be responsive as if the date or other descriptive detail were correct.

15. Unless otherwise specified, the time period covered by this request is from January 1, 2009 to the present.

16. This request is continuing in nature and applies to any newly-discovered information. Any record, document, compilation of data or information, not produced because it has not been located or discovered by the return date, shall be produced immediately upon subsequent location or discovery.

17. All documents shall be Bates-stamped sequentially and produced sequentially.

18. Two sets of documents shall be delivered, one set to the Majority Staff and one set to the Minority Staff. When documents are produced to the Committee, production sets shall be delivered to the Majority Staff in Room 2157 of the Rayburn House Office Building and the Minority Staff in Room 2471 of the Rayburn House Office Building.

19. Upon completion of the document production, you should submit a written certification, signed by you or your counsel, stating that: (1) a diligent search has been completed of all documents in your possession, custody, or control which reasonably could contain responsive documents; and (2) all documents located during the search that are responsive have been produced to the Committee.

## Definitions

1. The term "document" means any written, recorded, or graphic matter of any nature whatsoever, regardless of how recorded, and whether original or copy, including, but not limited to, the following: memoranda, reports, expense reports, books, manuals, instructions, financial reports, working papers, records, notes, letters, notices, confirmations, telegrams, receipts, appraisals, pamphlets, magazines, newspapers, prospectuses, inter-office and intra-office communications, electronic mail (e-mail), contracts, cables, notations of any type of conversation, telephone call, meeting or other communication, bulletins, printed matter, computer printouts, teletypes, invoices, transcripts, diaries, analyses, returns, summaries, minutes, bills, accounts, estimates, projections, comparisons, messages, correspondence, press releases, circulars, financial statements, reviews, opinions, offers, studies and investigations, questionnaires and surveys, and work sheets (and all drafts, preliminary versions, alterations, modifications, revisions, changes, and amendments of any of the foregoing, as well as any attachments or appendices thereto), and graphic or oral records or representations of any kind (including without limitation, photographs, charts, graphs, microfiche, microfilm, videotape, recordings and motion pictures), and electronic, mechanical, and electric records or representations of any kind (including, without limitation, tapes, cassettes, disks, and recordings) and other written, printed, typed, or other graphic or recorded matter of any kind or nature, however produced or reproduced, and whether preserved in writing, film, tape, disk, videotape or otherwise. A document bearing any notation not a part of the original text is to be considered a separate document. A draft or non-identical copy is a separate document within the meaning of this term.

2. The term "communication" means each manner or means of disclosure or exchange of information, regardless of means utilized, whether oral, electronic, by document or otherwise, and whether in a meeting, by telephone, facsimile, email (desktop or mobile device), text message, instant message, MMS or SMS message, regular mail, telexes, releases, or otherwise.

3. The terms "and" and "or" shall be construed broadly and either conjunctively or disjunctively to bring within the scope of this request any information which might otherwise be construed to be outside its scope. The singular includes plural number, and vice versa. The masculine includes the feminine and neuter genders.

4. The terms "person" or "persons" mean natural persons, firms, partnerships, associations, corporations, subsidiaries, divisions, departments, joint ventures, proprietorships, syndicates, or other legal, business or government entities, and all subsidiaries, affiliates, divisions, departments, branches, or other units thereof.

5. The term "identify," when used in a question about individuals, means to provide the following information: (a) the individual's complete name and title; and (b) the individual's business address and phone number.

6. The term "referring or relating," with respect to any given subject, means anything that constitutes, contains, embodies, reflects, identifies, states, refers to, deals with or is pertinent to that subject in any manner whatsoever.

7. The term "employee" means agent, borrowed employee, casual employee, consultant, contractor, de facto employee, independent contractor, joint adventurer, loaned employee, part-time employee, permanent employee, provisional employee, subcontractor, or any other type of service provider.

AL17-000-3709
FR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 0 7 2017

OFFICE OF
CONGRESSIONAL AND
INTERGOVERNMENTAL
RELATIONS

The Honorable Jason Chaffetz
Chairman
Committee on Oversight and Government Reform
United States House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for your letter of January 26, 2017, to the U.S. Environmental Protection Agency Acting Administrator Catherine McCabe, requesting copies of certain documents referring to two employees that have reported retaliation. Administrator Pruitt asked that I respond on his behalf.

As discussed with your staff, we are currently focusing on a single employee currently in the EPA's Region 6 Office, (b) (6) [redacted]. Enclosed please find an initial set of responsive documents.

Please note that portions of the responsive documents contain internal deliberations, attorney-client communications, or attorney work product of an Executive Branch agency, the EPA, and, as such, raise a confidentiality interest. In order to identify specific documents in which the EPA has a confidentiality interest, we have added a watermark to these documents that reads "Deliberative or Privileged Document of the U.S. EPA; Disclosure Authorized Only to Congress for Oversight Purposes." Each document contains a footnote stating that privilege in this context may include, but is not limited to, attorney-client privilege or work-product privileged information. Through this accommodation, the EPA does not waive any confidentiality interests in these documents or similar documents in other circumstances. The EPA respectfully requests that the Committee and staff protect the documents and the information contained in them from further dissemination. Should the Committee determine that its legislative mandate requires further distribution of this confidential information outside the Committee, we request that such need first be discussed with the agency to help ensure the Executive Branch's confidentiality interests are protected to the fullest extent possible.

You will also notice that some of the documents contain redactions of nonresponsive or personal privacy information. We redacted this information in a manner that does not obscure the identity of any individuals involved in the relevant communications.

As communicated to your staff, we will provide additional responsive documents on a rolling basis as we review them.

Again, thank you for your letter. If you have any further questions, you may contact me or your staff may contact Kyle Aarons in the EPA's Office of Congressional and Intergovernmental Relations at Aarons.Kyle@epa.gov or (202) 564-7351.

Sincerely,

Troy M. Lyons
Associate Administrator

Enclosures

cc: The Honorable Elijah J. Cummings
Ranking Member

AL-17-000-3525
FR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB - 3 2017

OFFICE OF THE
CHIEF FINANCIAL OFFICER

The Honorable Jason Chaffetz
Chairman
Committee on Oversight and Government Reform
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

I am transmitting the U.S. Environmental Protection Agency's response to the September 2016 Government Accountability Office report entitled *Superfund Sediment Sites: EPA Considers Risk Management Principles but Could Clarify Certain Procedures* (GAO-16-777). The EPA prepared this response pursuant to 31 U.S.C. 720.

The agency's Office of Land and Emergency Management has worked closely with the GAO in providing information for this report. We appreciate the information and detailed feedback provided by the GAO concerning areas addressed in this report.

The GAO found that the EPA generally follows its steps for providing national consistency in its management of contaminated sediment sites but identified two main agency challenges: (1) technical complexities, including the use of sampling and modeling in developing a cleanup remedy, and (2) stakeholder involvement, including differing opinions, competing interests and varying levels of Superfund process knowledge. The GAO also found that the Contaminated Sediments Technical Advisory Group's operating procedures do not clearly describe what type of information should be provided to the CSTAG members before site update meetings.

The GAO made one recommendation to the Administrator of the EPA. That recommendation and the agency's responses follows below.

**GAO Recommendation:**

To ensure that CSTAG's information needs are met for update meetings, the EPA Administrator should direct CSTAG to clarify, in its operating procedures, what type of information and documentation, if any, should be prepared by regional offices and provided to CSTAG members in advance of these meetings.

**EPA Response:**

The EPA agrees with the recommendation and has revised the CSTAG operating procedures to clearly describe the types of information and data, if any, that the regional offices need to provide to CSTAG members before the Superfund Tier 2 sediment site update meetings. The depth of information may vary for different types of update meetings depending on where in the Remedial Investigation/Feasibility Study process these meetings occur. To that end, the specific information needs will be made clear for each update meeting.

The agency appreciates the opportunity to review and comment on the GAO's final report. If you have any questions, please contact me or your staff may contact James Blizzard of the Office of Congressional and Intergovernmental Relations by email at *blizzard.james@epa.gov* or by phone at (202) 564-1695.

Sincerely,

David A. Bloom
Acting Chief Financial Officer

AL-17-000-6545
Incoming

# United States Senate

WASHINGTON, DC 20510

March 10, 2017

The Honorable Scott Pruitt
Administrator
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator Pruitt,

As members of the Senate Great Lakes Task Force, we are writing to express our great concern about reports that the Environmental Protection Agency's Fiscal Year (FY) 2018 budget might include drastic cuts to the Great Lakes Restoration Initiative program, which enjoys bipartisan and bicameral support. It is our understanding that an initial budget blueprint only included $10 million for the Initiative, which if accurate, would be 97 percent below the $300 million Congress appropriated in FY 2016 and in previous fiscal years.

The Great Lakes Restoration Initiative is the largest federal investment in the Great Lakes' health, ecosystem, and water quality. Since its inception in 2010, $1.6 billion has been used to fund 3,068 projects to combat the greatest threats to the Great Lakes, including invasive species, harmful algal blooms and loss of fish and wildlife habitats. In targeting Areas of Concern, the program has successfully addressed problems that directly impact the public health and safety including beach closings; restrictions on fish and wildlife consumption; dredging restrictions; and problems with drinking water taste, odor and consumption. As the world's largest freshwater body, the Great Lakes provide drinking water for 40 million people, contribute $10 billion in tourism each year, and support hundreds of thousands of jobs across the region. Due to the importance of this Initiative in protecting our Great Lakes, Congress authorized the program as part of the Water Infrastructure Improvements for the Nations Act (P.L. 114-322) for five years at $300 million.

As part of your confirmation hearing before the Senate Environment and Public Works Committee, we were pleased by the clear support you expressed for the program in response to a question submitted for the record. As you begin your tenure as EPA Administrator, we hope that you will continue to support the Great Lakes Restoration Initiative by fully funding this program in the upcoming budget request.

Thank you for your consideration of this request. We look forward to working with you on this program of vital importance to the Great Lakes and all of our states.

Sincerely,

DEBBIE STABENOW
United States Senator
Co-Chair, Senate Great Lakes Task Force

ROB PORTMAN
United States Senator
Co-Chair, Senate Great Lakes Task Force

AMY KLOBUCHAR
United States Senator
Vice-Chair, Senate Great Lakes Task Force

SHERROD BROWN
United States Senator

RICHARD J. DURBIN
United States Senator

TAMMY BALDWIN
United States Senator

ROBERT P. CASEY, JR.
United States Senator

AL FRANKEN
United States Senator

JOE DONNELLY
United States Senator

KIRSTEN GILLIBRAND
United States Senator

GARY C. PETERS
United States Senator

TAMMY DUCKWORTH
United States Senator

Cc: Mick Mulvaney, Director, Office of Management and Budget

AL-17-000-6545
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

MAY - 3 2017

OFFICE OF THE
CHIEF FINANCIAL OFFICER

The Honorable Debbie Stabenow
United States Senate
Washington, D.C. 20510

Dear Senator Stabenow:

Thank you for your letter of March 10, 2017, to Scott Pruitt, Administrator of the U.S. Environmental Protection Agency, expressing concern about the agency's Fiscal Year 2018 President's Budget, to be submitted to Congress in May, for the Great Lakes Restoration Initiative program.

The EPA is working towards implementing the President's budget based on the framework provided by his blueprint. The agency can effectively serve the taxpayers and protect the environment. While many in Washington insist on greater spending, the EPA is focused on greater value and real results. The agency will partner with the states to ensure a thoughtful approach is used to maximize every dollar to protect our air, land, and water. However, the EPA is unable to comment further on the FY 2018 President's Budget proposal until it is submitted to Congress and publically released.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact James Blizzard, in the EPA's Office of Congressional and Intergovernmental Relations, at blizzard.james@epa.gov, or (202) 564-1695.

Sincerely,

David A. Bloom
Acting Chief Financial Officer

MICHAEL F. BENNET
COLORADO

COMMITTEE
AGRICULTURE, NUTRITION, AND FORESTRY

FINANCE

HEALTH, EDUCATION, LABOR
AND PENSIONS

AL-17-000-6410
Incoming

# United States Senate

WASHINGTON, DC 20510-0609

WASHINGTON, DC

COLORADO

March 15, 2017

Mr. Kevin S. Minoli
Acting General Counsel
Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

Dear Mr. Minoli:

I write to inquire about your Agency's regulations, guidance, processes, and standards for implementing the Freedom of Information Act (FOIA). As you know, FOIA provides vital transparency and access to information for the American people.

The FOIA Improvement Act of 2016 requires agencies to adopt a presumption of openness, withholding information "only if . . . disclosure would harm an interest protected by an exemption" or "disclosure is prohibited by law."[1] I would appreciate your assistance in confirming that your Agency is in full compliance with the FOIA, including the new requirements of the 2016 Act.

I would appreciate if you could please identify and explain what changes your Agency has made to the way it implements FOIA, including any updated or new regulations, guidance, processes, procedures, standard operating procedures, bulletins, or notices. In particular, please also identify and explain any changes your Agency has made to comply with the recent changes to the FOIA. For these materials, please identify the date on which changes were made and the manner in which they differ from prior implementation materials. Please also provide training materials for Agency employees on complying with the FOIA, as well as any written instructions provided to individuals who are involved in searches for responsive records to FOIA requests.

In addition, I wish to inquire about what effect proposed budget cuts may have on your Agency's FOIA responses. Please provide information on your Agency's funding and staffing for FOIA operations for each of the past five fiscal years, and any projection available on how proposed budget cuts would affect funding and staffing in FY2018. Please also provide statistics on the number of FOIA requests your Agency received and processed in FY2016, as well as its FOIA backlog, for each of the past five fiscal years.

[1] FOIA Improvement Act of 2016 § 2 (Pub. L. No. 114–185)

Finally, moving forward, I would appreciate that you notify my office any time you make changes to your FOIA guidance, processes, or standards.

Thank you for your attention to this matter.

Sincerely,

Michael F. Bennet

AL-17-000-3722
Incoming

# United States Senate

WASHINGTON, DC 20510

January 25, 2017

The Honorable Donald Trump
President of the United States of America
The White House
1600 Pennsylvania Ave, NW
Washington, DC 20500

Dear Mr. President:

We are gravely troubled by reports about the recent directive to all federal agencies to silence communications with the public and Members of Congress. The American people expect an open, transparent and honest government, and your actions are not only contrary to that expectation, they promote a long lasting culture of fear among federal employees and prevent them from following their mission to openly serve the American public. Additionally, these actions undermine trust in our Federal government and do little to support your "drain the swamp" pledge to "make the government honest again."[1]

According to reports, your Administration's Beach Team[2] has directed the Environmental Protection Agency (EPA) and the Departments of Transportation, Agriculture[3], Health and Human Services and Interior with memos that impose a gag order on career federal employees. These memos instructed employees to, among other things, immediately cease releasing any public-facing documents, ban the release of photos and press releases to the public and terminate the use of social media. According to reports and an emailed memo, EPA employees were instructed to remove the website's climate change page containing links to scientific research on global warming, and the Beach Team targeted lists of EPA employees with pending speaking engagements for review.[4] In addition, in some instances the Beach Team specifically directed employees not to send any correspondence to public officials, including Members of Congress and state and local officials.

As Members of Congress, we wanted to ensure that you are aware that it is against the law to interfere with federal employees communicating with Congress.[5] It is also against the law

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[1] https://www.donaldjtrump.com/press-releases/trump-pledges-to-drain-the-swamp
[2] Politico Pro, Trump restricts communications from health agencies, January 24, 2017
https://www.apnews.com/55d484c19c28463e95c3b7c674d20bab https://www.buzzfeed.com/dinograndoni/trump-usda?utm_term=.jk05K5jPAB#.dcalxlbPg5
http://www.reuters.com/article/us-usa-trump-epa-climatechange-idUSKBN15906G?feedType=RSS&feedName=domesticNews&utm_medium=Social&utm_source=Twitter
[3] Reports have since stated that the Department of Agriculture has rescinded the gag order:
http://thehill.com/homenews/administration/316015-agriculture-department-lifts-order-for-lockdown-on-its-research-arm
[4] https://www.politicopro.com/f/?id=00000159-d107-dc1f-a37d-d95fed210001
[5] 5 U.S.C. § 7211 and 18 U.S.C. § 1505

to retaliate against career federal officials for following lawful policy directives.[6] These recent actions, combined with your previous attempts as President-elect to solicit names of Energy Department employees who worked on climate change initiatives and State Department officials who worked on women's and gender issues are deeply troubling.

The agencies targeted by this latest directive are responsible for billions of dollars of taxpayer funded public research. This research helps find solutions to problems that affect Americans every day. Targeting the scientists at these agencies and prohibiting them from sharing the results of this research with the broader public is irresponsible and serves only to undermine the integrity and public trust in the federal government. Furthermore, these actions, particularly at the EPA, fly in the face of the Agency's current scientific integrity policy,[7] which prohibits scientists, managers and other Agency leadership from suppressing, altering or otherwise impeding the timely release of scientific findings or conclusions. Previous Republican and Democratic administrations have protected the free flow of information and the sharing of agencies' views with the public.

Given your commitment to the rule of law and peaceful transition of power, we respectfully ask that any directives are immediately reversed and that you ensure that the dedicated federal civil servants of this country receive the respect they deserve and are immediately made aware of their clear protections under the law.

Sincerely,

Edward J. Markey
United States Senator

Thomas R. Carper
United States Senator

Ron Wyden
United States Senator

Bernard Sanders
United States Senator

Patrick Leahy
United States Senator

Tom Udall
United States Senator

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[6] 5 U.S.C. § 2302(b)(8)
[7] https://www.epa.gov/sites/production/files/2014-02/documents/scientific_integrity_policy_2012.pdf

Richard Blumenthal
United States Senator

Elizabeth Warren
United States Senator

Tammy Baldwin
United States Senator

Cory A. Booker
United States Senator

Maria Cantwell
United States Senator

Kirsten Gillibrand
United States Senator

AL17-000-3726

# United States Senate

WASHINGTON, DC 20510

January 26, 2017

President Donald J. Trump
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear Mr. President:

We write with alarm that the Environmental Protection Agency (EPA) has suspended all of its grants and contracts, which provide vital resources dedicated to air and water quality monitoring and improvement, the remediation of sites contaminated by toxic materials, and a variety of other activities that keep Americans and their families healthy and safe. We urge you to immediately reverse this troubling action.

Time and time again, you have promised Americans that you would keep their air clean and their water safe. In November 2015, you called into MSNBC's Morning Joe and said, "I want to make sure we have clean air and clean water." Last May, when you presented your "America First Energy Plan" in North Dakota, you told Americans that "from an environmental standpoint, my priorities are very simple: clean air and clean water." And your White House website declares: "President Trump will refocus the EPA on its essential mission of protecting our air and water."

The suspension of EPA's grants and contracts does the exact opposite of your stated intention—it puts the air Americans breathe and the water we drink at risk. EPA's grants and contracts support billions of dollars' worth of research and development funding, clean-up of toxic Superfund sites, local air and water quality monitoring and testing, assessments of risks to human health from environmental hazards, measures to enhance water security, radioactive and hazardous waste removal, radiation protection, and containment assessments for underground fuel storage tanks. Moreover, if this suspension applies to existing contracts, re-starting them could prove to be an exceedingly expensive waste of taxpayer funds.

We additionally note that EPA awards most grants on a competitive basis, which must remain merit-based and free from political influence. This action seems likely to result in the opposite outcome. We urge you to immediately lift the suspension that was placed on the EPA's grants and contracts. We also ask for your prompt responses to the following requests for information:

1) Please provide a copy of the document that directed this suspension.
2) Please provide a list of all grants, contracts and other awards that have been suspended under this directive, including the date, recipient and amount of the grant, contract or other award. Some press reports have indicated that this suspension may be temporary; please also indicate which grants, contracts and other awards are expected to be suspended indefinitely, and when funding for the rest will be reinstated.

3) For any existing contract that has been suspended, please provide an estimate of the costs associated with re-starting it, as well as the legal basis for its suspension.
4) Please direct the EPA to provide us with a copy of any and all documents related to the decision to suspend contracts, grants and other awards (including any and all written or electronic correspondence, audiotapes, electronic records, videotapes, photographs, telephone messages, voice mail messages, e-mails, facsimiles, daily agendas and calendars, information about meetings and/or discussions, whether in-person or over the telephone, agendas, minutes and a list of participants for those meetings and/or discussions, and transcripts and notes of any such meetings and/or discussions).
5) Who approved this action, both within EPA and at the White House?

Sincerely,

Edward J. Markey
U.S. Senator

Thomas R. Carper
U.S. Senator

Jeffrey A. Merkley
U.S. Senator

Kirsten Gillibrand
U.S. Senator

Bernard Sanders
U.S. Senator

Cc: Acting Administrator Catherine McCabe

AL-17-000-3436
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

JAN 17 2017

THE ADMINISTRATOR

The Honorable Ron Johnson
Chairman
Committee on Homeland Security
and Governmental Affairs
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

I am pleased to file the enclosed amended charter for the Environmental Protection Agency Science Advisory Board in accordance with the provisions of the Federal Advisory Committee Act, 5 U.S.C. App. 2. If you have any questions or require additional information, please contact me or your staff may contact Christina Moody in EPA's Office of Congressional and Intergovernmental Relations at moody.christina@epa.gov or (202) 564-0260.

Sincerely,

Gina McCarthy

Enclosure

AL17-000-3724
Incoming
FYI

# Congress of the United States
Washington, DC 20515

January 17, 2017

President-Elect Donald Trump
Trump Tower
725 Fifth Avenue
New York, NY 10022

Dear President-Elect Trump,

We respectfully request that you allocate robust funding in the Fiscal Year 2018 budget request for programs that address an increasing problem around the country: harmful algal blooms (HABs). These naturally occurring phenomena are increasing in regularity, severity, and toxicity across the country, but unfortunately our understanding of when and where and with what intensity they will occur remains inadequate. We strongly support investments in science and research to increase our capacity to accurately forecast HABs and to improve our understanding of their impacts on human health. The benefits of being able to accurately forecast HABs include protecting economic activity, the health of U.S. citizens, and the environment.

HABs occur in all 50 states and cause a myriad of negative impacts on the lives of Americans. Some recent examples of the impacts include the following: the toxins associated with the so-called algae "blob," which stretched from Southern California to Alaska during the summer of 2015, shut down hundreds of miles of shellfish and crab fisheries, costing coastal communities tens of millions of dollars; a state of emergency was declared in Martin, St. Lucie, Lee, and Palm Beach counties in Florida due to the guacamole-like thick green slime of algal blooms, which led over 50% of surveyed tourists who drive the area's economy to say that they would vacation elsewhere; and in 2014 in Toledo, Ohio, where drinking water was shut off for 3 days for over 400,000 people when microcystin from the massive algal bloom in Lake Erie was detected in the municipal water system.

While federal agencies have conducted limited research to understand HABs, our comprehension of their occurrences and impacts remains limited. A coordinated study released this year from the Environmental Protection Agency (EPA), U.S. Geological Survey (USGS), and the National Oceanic and Atmospheric Administration (NOAA) revealed that from a single sampling of all lakes nationwide, 39% contained toxins that originated from HABs. A follow-up study using a nationally representative subset of lakes took daily samples over the course of a year. This effort revealed that toxins were present at some point during the year in 78% of the lakes. While these results are alarming, it is more frightening to note that these studies also highlighted the fact that the detection methods we have relied upon in fresh, brackish, and salt water were inadequate to discover the various types of toxins that algal blooms produce.

To make tangible progress toward understanding and addressing the threats HABs pose to human health and our economy, we ask that you prioritize a strong and coordinated federal response in this year's budget request with robust funding allocated for HAB-related work.

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We look forward to your response and to partnering with you to mitigate the impacts of HABs on the American people.

Sincerely,

Marcy Kaptur
Member of Congress

David P. Joyce
Member of Congress

Sean Duffy
Member of Congress

Tim Ryan
Member of Congress

Carol Miller
Member of Congress

Darren M. Soto
Member of Congress

John Katko
Member of Congress

Peter A. DeFazio
Member of Congress

Suzanne Bonamici
Member of Congress

Mia Love
Member of Congress

William R. Keating
Member of Congress

Louise M. Slaughter
Member of Congress

Ileana Ros-Lehtinen
Member of Congress

Brian J. Mast
Member of Congress

Mike Quigley
Member of Congress

Eleanor Holmes Norton
Member of Congress

Bob Gibbs
Member of Congress

Joyce Beatty
Member of Congress

Ted Deutch
Member of Congress

Bill Posey
Member of Congress

Jim Renacci
Member of Congress

Carol Shea-Porter
Member of Congress

Jason Chaffetz
Member of Congress

Robert C. "Bobby" Scott
Member of Congress

James R. Langevin
Member of Congress

Bill Huizenga
Member of Congress

Derek Kilmer
Member of Congress

Brian Higgins
Member of Congress

Mark Takano
Member of Congress

Kathy Castor
Member of Congress

Betty McCollum
Member of Congress

Mike Kelly
Member of Congress

Barbara Lee
Member of Congress

Seth Moulton
Member of Congress

John Conyers, Jr.
Member of Congress

Marcia L. Fudge
Member of Congress

Debbie Dingell
Member of Congress

Robert E. Latta
Member of Congress

Charlie Crist
Member of Congress

Sander M. Levin
Member of Congress

John Yarmuth
Member of Congress

Elizabeth H. Esty
Member of Congress

Jack Bergman
Member of Congress

Ron Kind
Member of Congress

Chellie Pingree
Member of Congress

Bill Johnson
Member of Congress

Peter Welch
Member of Congress

AL-17-000-3729
Incoming

# Congress of the United States
Washington, DC 20515

January 26, 2017

President Donald J. Trump
The White House
1600 Pennsylvania Ave, N.W.
Washington, D.C. 20500

President Trump:

As Members of the United States House of Representatives Appropriations Subcommittee that funds the Environmental Protection Agency, we are deeply distressed that your transition team has ordered the EPA to freeze grants and contracts and that it has prohibited EPA staff from communicating with elected officials and state and local grant recipients.

As you are well aware, Congress appropriated funding for these grants and contracts so that EPA can carry out its vital mission to protect the health of the American people and our environment. Nearly half of the EPA budget goes to grants and contracts to the States, Tribes, non-profits, educational institutions, and others to advance human health and environmental safeguards. To halt funding for the vital work of these public and private institutions is unprecedented and unacceptable. This action is counter to the intent of Congress, which holds and exercises the power to direct such funds.

The Administration failed to notify Congress and the state environmental agencies of its freeze on EPA grant and contract funds and has refused to respond to state agency inquiries. State agencies are an essential partner in protecting public health and the environment. The Administration's deliberate communication blackout is unacceptable and must be reversed.

In order for Congress to better understand the impact of these actions on the funding for which we have oversight jurisdiction, we ask that you provide the following information:

- A complete list of the grants and contracts that were frozen under this action and their corresponding recipients.
- Any communications sent to EPA employees instituting this freeze and restricting their communication.
- A summary of any findings resulting from the team's review and their plans going forward for the grants and contracts.

Furthermore, we will be requesting that the U.S. Government Accountability Office review whether the Administration's actions run afoul of the Impoundment Control Act of 1974 and other appropriations law.

PRINTED ON RECYCLED PAPER

Sincerely,

Betty McCollum
Member of Congress

Nita M. Lowey
Member of Congress

Chellie Pingree
Member of Congress

Derek Kilmer
Member of Congress

Marcy Kaptur
Member of Congress

Cc: Don Benton, Senior White House Advisor, EPA Transition Team

Rodney P. Frelinghuysen, Chairman, House Appropriations Committee

Ken Calvert, Chairman, House Appropriations Interior, Environment, and Related Agencies Subcommittee

AL-17-000-3728
incoming

# Congress of the United States
Washington, DC 20515

January 26, 2017

President Donald J. Trump
1600 Pennsylvania Ave, NW
Washington, D.C. 20502

President Trump,

This week media reports indicated the administration issued instructions to the Environmental Protection Agency (EPA) related to an imposition of a "blanket" communications suspension on agency staff. Furthermore, press reports alluded to the administration's issuance of a temporary suspension on EPA task orders and work assignments. On behalf of Hoosier families, and state and local officials, we write to confirm the veracity of these reports and how these actions may affect residents in our state, particularly in East Chicago, Indiana.

We understand the challenges of the transition. However, we maintain significant reservations that a potential suspension on communications, task orders, and work assignments could unintentionally prevent EPA employees from continuing to address an ongoing public health and safety crisis in East Chicago, which forced hundreds of Hoosier families from their homes last year.

The EPA and Department of Housing and Urban Development (HUD) have been working to protect families living on land contaminated from decades of industrial lead processing work. East Chicago Calumet residents who live on or near the USS Lead Superfund site rely upon the dissemination of information out of both EPA and HUD, as well as the expeditious remediation of this contaminated area.

We urge the administration to clarify these reports. It is critical to East Chicago families that federal government agencies are able to share public health and safety information and continue their cleanup work unabated.

Thank you for your attention to this matter.

Sincerely,

Todd C. Young
Member of Congress

Peter J. Visclosky
Member of Congress

Joe Donnelly
Member of Congress

PRINTED ON RECYCLED PAPER

17-000-3708
Incoming

SHELDON WHITEHOUSE
RHODE ISLAND

COMMITTEE
ARMED
BUDGET
GOVERNMENT AND PUBLIC WORKS
HEALTH, EDUCATION, LABOR, AND PENSIONS
JUDICIARY

# United States Senate

WASHINGTON, DC 20510-3905

http://whitehouse.senate.gov
202-224-2921
TTY (202) 224-7746
170 Westminster Street, Suite 1100
Providence, RI 02903
401-453-5294

January 27, 2017

Kevin Minoli
Designated Agency Ethics Official
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Mr. Minoli:

I write for an update on procedures EPA has put in place to ensure that all new Agency employees are following federal laws and regulations governing conflicts of interest, and that appropriate safeguards have been put in place to protect the prerogatives of the Agency in litigation in which EPA is a party, EPA has DOJ representation, and in ongoing criminal and civil enforcement matters. These conflicts may be especially acute and involve issues of legal ethics and professional responsibility when new Agency employees are attorneys who have represented clients in litigation against EPA. Specifically, I have the following questions:

> As of today, are any individuals who are not EPA employees, including but not limited to members of the Trump transition team, receiving briefings on ongoing litigation in which EPA is a party, EPA has DOJ representation, or criminal or civil enforcement matters? If so, who are these individuals, why are they receiving briefings, and what safeguards have been put in place to ensure compliance with all federal conflict of interest laws and regulations?
>
> What are the names and titles of Schedule C appointees at EPA who have been brought on since January 20, 2017?
>
> On what date did each of these Schedule C appointees receive required ethics trainings and/or briefings?
>
> What steps have been taken to determine whether any Schedule C appointee have covered relationships pursuant to 5 C.F.R. 2635.502(b)?
>
> What steps have been taken to ensure that Schedule C appointees are not participating personally and substantially, including through briefings, in particular matters involving specific parties with which they have a covered relationship?
>
> Have any waivers been granted to this recusal requirement? If so, please specify the individuals receiving the waiver, the particular matter to which the waiver applies, and the reasons for granting the waiver.

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Are there any other political appointees not otherwise listed above currently receiving briefings or participating in particular matters at EPA? If so, who are these individuals, what is their role at EPA, and what safeguards have been put in place to ensure compliance with all federal conflict of interest laws and regulations?

Thank you for your ongoing efforts to protect the integrity of the EPA. Given the Environment and Public Works Committee is currently considering the nomination of Scott Pruitt as EPA Administrator, I request answers to these questions by the close of business, Tuesday, January 31st.

Sincerely,

Sheldon Whitehouse
United States Senator

Cc: Catherine McCabe, Acting Administrator, Environmental Protection Agency
Arthur A. Elkins Jr., Inspector General, Environmental Protection Agency
Walter M. Shaub, Jr., Director, U.S. Office of Government Ethics

17-000-3708
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
Washington D C 20460

OFFICE OF
GENERAL COUNSEL

JAN 31 2017

The Honorable Sheldon Whitehouse
United States Senate
530 Hart Senate Office Building
Washington, DC 20510

Dear Senator Whitehouse:

Thank you for your letter of January 27, 2017, in which you asked for an update on the procedures that the United States Environmental Protection Agency (EPA) follows to ensure that all new employees are aware of the federal ethics laws and regulations.

ETHICS BRIEFINGS
As required by 5 C.F.R. § 2638.304, all new employees must have initial ethics training. Effective January 1, 2017, this training can be offered quarterly, so an entering employee may receive the initial ethics briefing anytime within his or her initial ninety days at the Agency. In addition, pursuant to recently revised 5 C.F.R. § 2638.305, an incoming Administrator will be required to have an ethics briefing to discuss individual immediate ethics obligations. At the Agency's election, this training may be combined with the new employee ethics training.

WHAT THE EPA HAS DONE
To familiarize incoming political appointees with their ethics obligations and to assess any potential conflicts of interest, the EPA provided new employee ethics orientation sessions to incoming political appointees. Those briefings meet the requirements of 5 C.F.R. § 2638.304.

During the briefings, the EPA explained that the individuals will need to file public financial disclosure reports, the OGE 278, through INTEGRITY in accordance with 5 C.F.R. § 2638.203, within thirty days of entering federal service. See 5 C.F.R.§ 2635.204. The EPA also inquired about ownership interests and any spousal employment to identify potential financial conflicts pursuant to 18 U.S.C. § 208, and about covered relationships to identify potential impartiality concerns pursuant to 5 C.F.R. § 2635, Subpart E.

The individuals to whom the EPA has provided in-person ethics orientation sessions are:

| | | |
|---|---|---|
| Bangerter, Layne | Temporary Transitional Schedule C authority (provisional appointment) | January 16, 2017 |
| Benton, Don | Temporary Transitional Non-Career SES authority (provisional appointment) | January 18, 2017 |
| Davis, Patrick | Temporary Transitional Schedule C authority (temporary appointment) | January 16, 2017 |
| Ericksen, Doug | Temporary Transitional Schedule C authority (temporary appointment) | January 18, 2017 |
| Greaves, Holly | Temporary Transitional Non-Career SES authority (provisional appointment) | January 18, 2017 |
| Konkus, John | Temporary Transitional Schedule C authority | January 27, 2017 |
| Kreutzer, David | Temporary Transitional Schedule C authority (provisional appointment) | January 17, 2017 |
| Munoz, Charles | Temporary Transitional Schedule C authority (provisional appointment) | January 18, 2017 |
| Schwab, Justin | Temporary Transitional Schedule C authority (provisional appointment) | January 16, 2017 |
| Schnare, David | Temporary Transitional Non-Career SES authority (provisional appointment) | January 18, 2017 |
| Sugiyama, George | Temporary Transitional Schedule C authority (provisional appointment) | January 17, 2017 |

These individuals are the only political appointees currently at the EPA. Other than routine coordination with the Department of Justice, the Office of General Counsel has not briefed individuals who are not employees of the EPA on matters currently in litigation.

Following the initial ethics briefing, the Senior Counsel for Ethics summarized the ethics advice given based upon each person's individual situation in an email, including, where necessary, any areas of potential conflict or impartiality concerns. Then, beginning the week of January 23, 2017, after the individuals became employees of the EPA, she began to formalize ethics advice to them, including instructions on seeking authorization for outside activities where necessary. For the incoming political appointees who are attorneys, the EPA has reminded them about their own obligations under their state bar rules. No waivers or impartiality determinations have been issued to any of the incoming political appointees.

On Saturday, January 28, 2017, President Donald J. Trump signed an executive order that set forth additional ethics restrictions for his appointees. The EPA will review that order and provide additional training to the political appointees already at the EPA, as necessary, and ensure that they sign the President's pledge.

We appreciate your continued interest in ensuring that the EPA provides effective ethics advice and counseling to our employees. If you have further questions, you may contact me, minoli.kevin@epa.gov or (202) 564-8064, or Justina Fugh, Senior Counsel for Ethics, fugh.justina@epa.gov or (202) 564-1786, and please copy Christina Moody of the EPA's Office of Congressional and Intergovernmental Relations, moody.christina@epa.gov or (202) 564-0260.

Sincerely yours,

Kevin S. Minoli
Designated Agency Ethics Official
Acting General Counsel

17-000-3348 ~~3123~~
Incoming

# United States Senate

WASHINGTON, DC 20510

January 12, 2017

Kevin Minoli
Designated Agency Ethics Official
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Mr. Minoli:

We are in receipt of the Office of Government Ethics [OGE] certified financial disclosure report [Form 278] of Edward Scott Pruitt, and Mr. Pruitt's letter to you outlining the steps he will take to avoid conflicts of interest should he be confirmed as Administrator of the Environmental Protection Agency [EPA]. We are concerned that his representations to date have been incomplete. Without a fuller disclosure of financial and political relationships, EPA may not have sufficient information to evaluate whether Mr. Pruitt should be recused from many matters about which a reasonable person would question his impartiality. We are also concerned that his ethics agreement does not fully address how legal conflicts of interest arising from his representation of the State of Oklahoma in litigation against EPA will be resolved.

With respect to Mr. Pruitt's financial conflicts of interest and his Form 278 disclosures, Mr. Pruitt represents he will not participate personally and substantially in particular matters involving: Southern Baptists Theological Seminary, the Windows Ministry Incorporated, and the Rule of Law Defense Fund [RLDF]. In the attached letter we are sending today to OGE, we have raised concerns that this accounting does not include sufficient detail to allow OGE or EPA to fully assess conflicts of interest arising from his solicitation of funds for 527 and 501(c)(4) organizations, some of which may continue to operate during his tenure as EPA Administrator, should he be confirmed.

For example, RLDF can receive unlimited contributions from individuals, corporations, or partnerships and need not disclose the identity of its donors because it is organized under section 501(c)(4) of the Internal Revenue Code. The RLDF has previously contributed to section 527 political action committees [PACs] like the Republican Attorney Generals Association, effectively laundering the identity of donors whose money ended up funding overtly political purposes. What safeguards will EPA put in place to guard against Mr. Pruitt's involvement in matters involving regulated entities that contribute either publicly or anonymously to PACs and 501(c)(4) organizations with which he has had a prior relationship? In other words, what assurances will we have that regulated entities did not and will not make political contributions in exchange for favorable treatment by him as Administrator? Reporting in the *New York Times* and elsewhere has documented the real risk of pay-to-play arrangements with this nominee.

With respect to conflicts of interest arising from his position as Attorney General of the State of Oklahoma, Mr. Pruitt makes little more than pro forma representations that he will seek your authorization for a one-year period of time concerning matters in which the State of Oklahoma is a party or represents a party. As you may be aware, Mr. Pruitt has brought multiple lawsuits against EPA on behalf of the State of Oklahoma, many of which remain in active litigation with

entities that have contributed large sums of money to RAGA and other PACs with which Mr. Pruitt is affiliated.

- Could you provide us a complete list of matters that in your opinion will require your authorization?
- What factors will you use to assess whether authorization will be granted? What factors will you use to determine how broadly any recusal, if required, must be drawn? For example, Mr. Pruitt has challenged EPA's carbon pollution standards for power plants. Assuming that a recusal would be required in that matter, would it be limited to decisions regarding the litigation, or to other matters considered by the Office and Air and Radiation?
- Mr. Pruitt has agreed to not participate in any particular matter involving the RLDF without prior authorization. RLDF's activities and donors are largely secret. Without more extensive disclosures about RLDF and Mr. Pruitt's role in it, how will you determine whether a particular matter involves the RLDF?
- The ethics agreement entered into by former EPA Administrator Carol Browner included a clear and permanent recusal of her participation in any EPA matter in which the State of Florida was involved as a party and she was involved personally and substantially as Secretary of the Florida Department of Environmental Regulation. Our understanding of Mr. Pruitt's ethics agreement is that he has made no such unequivocal pledge. Why has EPA concluded that a more lenient arrangement for Mr. Pruitt's conflicts is appropriate?
- Mr. Pruitt has agreed to seek your authorization for a one-year period of time. Is it your understanding that any recusal you may require of Mr. Pruitt would be limited to this one-year period? If so, how will you account for his participation in matters after that one-year period where the conflict still exists, like litigation that he has brought against the agency that has not settled or been decided by that time?
- Mr. Pruitt has sued EPA on behalf of the State of Oklahoma. Before authorizing him to participate in EPA decisions involving Oklahoma, how will you determine whether Mr. Pruitt has obtained consent from his client to be released from ethical obligations he may have to it?
- Many of Mr. Pruitt's lawsuits have involved multi-state coalitions. Presumably he has entered into joint prosecution agreements with his co-plaintiffs. Have you reviewed, or will you review, these agreements to assess whether Mr. Pruitt has a "covered relationship" with other states or parties in those lawsuits? Is it your opinion that he would also have to obtain consent from his co-plaintiffs to participate in matters in which EPA's position is adverse to those states?
- It is a general principle of legal ethics that an attorney may not disclose privileged information without the client's consent. Furthermore, in multi-party litigation when two or more clients with a common interest in litigation agree to exchange otherwise privileged information concerning the matter, the communication is privileged as against third persons. Have any provisions been put in place to prevent the unauthorized disclosure by Mr. Pruitt of confidential client information, either from the State of Oklahoma or other state-plaintiffs in Mr. Pruitt's litigation?

- Pursuant to 42 U.S.C. § 7601(d), the authority of the Administrator to issue rules related to topics listed in 42 U.S.C. § 7607(d) is not delegable. How will you address a situation where you determine Mr. Pruitt has a conflict of interest with respect to a rule covering one of these topics?
- If a recusal is determined appropriate in any matter, has the nominee agreed to forgo any briefings during the period of the recusal?
- Under what obligation is Mr. Pruitt to follow determinations made by you concerning his recusals and waivers? If he chooses not to follow your determinations, what recourse is available for EPA?

We are committed to protecting the integrity of the EPA. All Americans should have confidence that EPA's decisions are made transparently, without favor to political donors, and by an Administrator who is committed to protecting the prerogatives and mission of the agency, not those suing it. The EPW Committee has scheduled Mr. Pruitt's confirmation hearing for January 18th. Accordingly, we respectfully request responses to these questions prior to the date of the hearing.

Sincerely,

Thomas R. Carper
United States Senator

Sheldon Whitehouse
United States Senator

Benjamin L. Cardin
United States Senator

Bernard Sanders
United States Senator

Jeffrey A. Merkley
United States Senator

Kirsten Gillibrand
United States Senator

Cory A. Booker
United States Senator

Edward J. Markey
United States Senator

Tammy Duckworth
United States Senator

Enclosure: letter to Walter M. Shaub, Jr., Director of the U.S. Office of Government Ethics

CC: Justina Fugh, Senior Counsel for Ethics Office of General Counsel, U.S. Environmental Protection Agency

17-000-3348
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
Washington, D.C. 20460

JAN 16 2017

OFFICE OF
GENERAL COUNSEL

The Honorable Thomas R. Carper
United States Senate
513 Hart Senate Office Building
Washington, DC 20510

Dear Senator Carper:

This letter responds to your inquiry of January 12, 2017, requesting specific information regarding the ethics review of E. Scott Pruitt, who has been nominated by President-elect Trump to be the Administrator of the United States Environmental Protection Agency (EPA).

Pursuant to the Ethics in Government Act of 1978 (amended by the Ethics Reform Act of 1989 and the Honest Leadership and Open Government Act of 2007), the EPA ethics team reviewed the public financial disclosure report submitted by Mr. Pruitt. We interacted with his surrogates to ensure that he reported all information necessary and required as set forth in the Ethics in Government Act. See "Contents of Report" at 5 U.S.C. app. §102 and in 5 C.F.R. Part 2634, Subpart C. Based on his submission, the EPA certified the public financial disclosure report on January 4, 2017, and forwarded it to the Office of Government Ethics (OGE), which certified it later that same day. Our certification of the report means that "the individual submitting [it] is in compliance with applicable laws and regulations." See 5 U.S.C. app. §106. In addition to certifying the report, the EPA and OGE also approved the language of Mr. Pruitt's ethics agreement, which conformed to the requirements of 5 C.F.R. Part 2634, Subpart H, Ethics Agreements, and the OGE-issued Nominee Ethics Agreement Guide (2014).

Federal ethics laws and regulations define the assets that are to be considered when assessing whether an employee or nominee has a financial conflict of interest. This assessment considers Mr. Pruitt's direct or imputed assets, which are defined to be his own interests, those of his spouse, minor child, general partner, any organization or entity for whom he serves as officer, director, trustee, general partner or employee, or any person with whom he is negotiating for or has an arrangement concerning prospective employment. See 5 C.F.R. § 2640.103(d). An employee's obligation to recuse himself from a particular matter or obtain a waiver pursuant to 18 U.S.C. §208(b) is based upon consideration of these defined interests. Interests or potential interests beyond those included in the definition are not considered and, therefore, cannot form the basis of an obligation *under federal ethics laws* to recuse oneself. For example, your letter asks whether the EPA considered potential "conflicts of interest arising from [Mr. Pruitt's] solicitation of funds for 527 and 501(c)(4) organizations." The assets of a 527 organization are

not owned directly by Mr. Pruitt or any of his imputed interests, so are, therefore, outside of the bounds of our review. Although Mr. Pruitt himself had a campaign committee for his own political campaigns for office, the EPA received confirmation from his surrogates that he is neither compensated by nor can he direct funds to himself. Further, he is not liable for the campaign's debt and is not owed any money. Mr. Pruitt's surrogates, in an email message from Mr. Adam Raviv, Special Counsel, WilmerHale, dated December 22, 2016, assured the EPA that if confirmed, the "committee will not raise additional money during his service and its only activity will be to settle any liabilities remaining from before his confirmation." We note that, as a federal employee, Mr. Pruitt would be prohibited under the Hatch Act. 5 U.S.C. § 7324, from soliciting any funds whatsoever for any partisan political campaign, group or election.

QUESTION #1: Could you provide us a complete list of matters that in your opinion will require your authorization?[1]

ANSWER #1: Upon appointment, Mr. Pruitt will become an employee of the United States Environmental Protection Agency and subject to, among other things, the Standards of Ethical Conduct for Employees of the Executive Branch, 5 C.F.R. Part 2635, and the conflict of interest statutes codified in Title 18 of the United States Code. The obligation to seek authorization to participate in a specific party matter to avoid a loss of impartiality of the employee originates from 5 C.F.R. § 2635.502(a), which states:

> Where an employee knows that a particular matter involving specific parties is likely to have a direct and predictable effect on the financial interest of a member of his household, or knows that a person with whom he has a covered relationship is or represents a party to such matter, and where the employee determines that the circumstances would cause a reasonable person with knowledge of the relevant facts to question his impartiality in the matter, the employee should not participate in the matter unless he has informed the agency designee of the appearance problem and received authorization from the agency designee in accordance with paragraph (d) of this section.

The regulation, which includes a definitions section, specifies that an employee has a covered relationship with, among others, "[a]ny person for whom the employee has, within the last year, served as officer, director, trustee, general partner, agent, attorney, consultant, contractor, or employee." 5 C.F.R. § 2635.502(b)(iv). As set forth in the ethics agreement, Mr. Pruitt has identified that for a period of one year after his resignation from his position as the Attorney General of the State of Oklahoma, he will have a covered relationship with the State of Oklahoma and has agreed to seek authorization prior to participating in any specific party matter in which the State of Oklahoma is a party or represents a party. Similarly, he has identified the Southern Baptist Theological Seminary, Windows Ministry Incorporated, and the Rule of Law

[1] This response differs from the long-standing agency practice of answering questions in a comprehensive narrative in light of the unique nature of the confirmation process and the importance of the federal ethics requirements to that process. In order to facilitate the approach taken, this response includes the wording of the questions contained in your letter verbatim.

Defense Fund as organizations with which he will have a covered relationship for one year from the date he resigns or resigned from his positions with those entities, and has agreed during the time he has a covered relationship with any organization to seek authorization prior to participating in any specific party matter in which any organization in which he has served as director or officer is a party or represents a party.

It is not possible to proactively identify a complete list of specific party matters that could exist across the entire agency that involve the State of Oklahoma or any of the three organizations, nor would it be possible to do so for many other employees who have covered relationships with a state or organization that the EPA interacts on a fairly regular basis. Instead, the employee ensures compliance with the ethics requirements by proactively identifying the persons with which the employee has a covered relationship and then seeking authorization each time the employee seeks to participate in a specific party matter where one of those persons is a party or represents a party.

QUESTION #2: What factors will you use to assess whether authorization will be granted? What factors will you use to determine how broadly any recusal, if required, must be drawn? For example, Mr. Pruitt has challenged EPA's carbon pollution standards for power plants. Assuming that a recusal would be required in that matter, would it be limited to decisions regarding the litigation, or to other matters considered by the Office and Air and Radiation?

ANSWER #2: For the purposes of the impartiality considerations under the Standards of Ethical Conduct, the factors the EPA's Designated Agency Ethics Official will take into consideration are set forth at 5 C.F.R. § 2635.502(d)(1) - (6):

> Factors which may be taken into consideration include:
>
> (1) The nature of the relationship involved;
>
> (2) The effect that resolution of the matter would have upon the financial interests of the person involved in the relationship;
>
> (3) The nature and importance of the employee's role in the matter, including the extent to which the employee is called upon to exercise discretion in the matter;
>
> (4) The sensitivity of the matter;
>
> (5) The difficulty of reassigning the matter to another employee; and
>
> (6) Adjustments that may be made in the employee's duties that would reduce or eliminate the likelihood that a reasonable person would question the employee's impartiality.

Should a recusal be necessary, that would prohibit participation in that specific party matter in any way, but a recusal in one specific party matter would not itself prevent participating on other specific party matters in which the "covered relationship" is a party or represents a party, or extend to matters of general applicability. Pursuant to the impartiality rules, any court case is considered a specific party matter. Thus, if the State of Oklahoma is a party or represents a party in a particular piece of litigation, Mr. Pruitt's ethics agreement includes a commitment by him to seek authorization to participate personally and substantially in that litigation. Should Mr. Pruitt

seek authorization to participate in any litigation in which a person with whom he has a covered relationship is a party or represents a party, as stated above, the EPA Designated Agency Ethics Official would consider the factors set forth at 5 C.F.R. § 2635.502(d)(1) - (6) for purposes of compliance with the federal ethics rules. Beyond the federal ethics requirements, as an attorney, Mr. Pruitt would also be subject to the rules of any relevant state bar. Those rules, however, are in addition to, and beyond the scope of, the federal ethics review and requirements discussed in this letter.

QUESTION #3: Mr. Pruitt has agreed to not participate in any particular matter involving the RLDF without prior authorization. RLDF's activities and donors are largely secret. Without more extensive disclosures about RLDF and Mr. Pruitt's role in it, how will you determine whether a particular matter involves the RLDF?

ANSWER #3: Federal ethics requirements apply first to the employee himself, and so Mr. Pruitt has agreed that, for the period of time for which he has a covered relationship with the Rule of Law Defense Fund (RLDF), he will seek authorization prior to participating in any specific party matter in which RLDF is a party or represents a party. Once he becomes a federal employee, Mr. Pruitt will have a continuing obligation to comply with the commitments made in his ethics agreement and the federal ethics requirements. In order to have an obligation to seek authorization to participate personally and substantially in a matter, RLDF must be a party or represent a party in a specific party matter. If RLDF has an interest in a specific party matter but is not itself a party or representing a party in that matter, the federal ethics requirements would not obligate Mr. Pruitt to seek authorization prior to participating in that specific party matter.

QUESTION #4: The ethics agreement entered into by former EPA Administrator Carol Browner included a clear and permanent recusal of her participation in any EPA matter in which the State of Florida was involved as a party and she was involved personally and substantially as Secretary of the Florida Department of Environmental Regulation. Our understanding of Mr. Pruitt's ethics agreement is that he has made no such unequivocal pledge. Why has EPA concluded that a more lenient arrangement for Mr. Pruitt's conflicts is appropriate?

ANSWER #4: In assisting Mr. Pruitt with his ethics agreement, the EPA followed federal ethics requirements and the most recent Ethics Agreement Guide published by the Office of Government Ethics (OGE) in 2014. Both the EPA and OGE certified Mr. Pruitt's ethics agreement as complying with all federal ethics requirements and conforming to the template set forth in OGE's Guide. Each ethics agreement is specific to the individual who is signing the agreement, and so consistency with the agreement of a former EPA Administrator is not a requirement for the agreement to be in compliance with the federal ethics rules. While the question indicated Mr. Pruitt's ethics agreement differs from the ethics agreement entered into by former Administrator Carol Browner in 1997, Mr. Pruitt's ethics agreement is very similar to the agreement entered into by former Administrator Lisa Jackson in 2009. Those comparisons do not demonstrate compliance or non-compliance with the federal ethics requirements.

QUESTION #5: Mr. Pruitt has agreed to seek your authorization for a one-year period of time. Is it your understanding that any recusal you may require of Mr. Pruitt would be limited to this one-year period? If so, how will you account for his participation in matters after that one-year period where the conflict still exists, like litigation that he has brought against the agency that has not settled or been decided by that time?

ANSWER #5: As explained above, the regulations define a person with whom an employee has a covered relationship to include "[a]ny person for whom the employee has, *within the last year*, served as officer, director, trustee, general partner, agent, attorney, consultant, contractor, or employee." 5 C.F.R. § 2635.502(b)(iv) (italics added). After one year, the covered relationship with the former employer under the federal ethics rules no longer exists. At that point in time and into the future, there is no obligation under the federal ethics rules to seek authorization to participate in the relevant specific party matters, and any disqualification on participating in those specific party matters is no longer in effect. An employee may voluntarily continue to recuse himself from such specific party matters after that point, but is not obligated to do so by the federal ethics requirements. Again, this letter discusses only Mr. Pruitt's obligations under the federal ethics laws and does not address other possible obligations such as compliance with state bar rules.

QUESTION #6: Mr. Pruitt has sued EPA on behalf of the State of Oklahoma. Before authorizing him to participate in EPA decisions involving Oklahoma, how will you determine whether Mr. Pruitt has obtained consent from his client to be released from ethical obligations he may have to it?

ANSWER #6: The federal ethics requirements ensure employees meet certain obligations on behalf of the interests of the federal government, as those interests are articulated in federal laws and regulations. Likewise, the EPA's ethics program is focused on ensuring compliance with those laws and regulations. To the extent Mr. Pruitt has ethical obligations to the State of Oklahoma or any other organization, ensuring compliance with those non-federal obligations is beyond the scope of the federal ethics requirements and the EPA's ethics program.

QUESTION #7: Many of Mr. Pruitt's lawsuits have involved multi-state coalitions. Presumably he has entered into joint prosecution agreements with his co-plaintiffs. Have you reviewed, or will you review, these agreements to assess whether Mr. Pruitt has a "covered relationship" with other states or parties in those lawsuits? Is it your opinion that he would also have to obtain consent from his co-plaintiffs to participate in matters in which EPA's position is adverse to those states?

ANSWER #7: As described above, the federal ethics regulations define persons with whom an employee has a covered relationship, and the impartiality standards do not consider that joint prosecution agreements give rise to any covered relationship with co-plaintiffs. Joint prosecution agreements would not be relevant to evaluating compliance with federal ethics requirements and the EPA has not reviewed any such possible agreements.

QUESTION #8: It is a general principle of legal ethics that an attorney may not disclose privileged information without the client's consent. Furthermore, in multi-party litigation when two or more clients with a common interest in litigation agree to exchange otherwise privileged information concerning the matter, the communication is privileged as against third persons. Have any provisions been put in place to prevent the unauthorized disclosure by Mr. Pruitt of confidential client information, either from the State of Oklahoma or other state plaintiffs in Mr. Pruitt's litigation?

ANSWER #8: The federal ethics requirements ensure employees meet certain obligations on behalf of the interests of the federal government, as those interests are articulated in federal laws and regulations. Likewise, the EPA's ethics program is focused on ensuring compliance with those laws and regulations. To the extent Mr. Pruitt has ethical obligations to the State of Oklahoma or any other state or organization, knowledge of such provisions and ensuring compliance with those non-federal obligations is beyond the scope of the federal ethics requirements and the EPA's ethics program.

QUESTION #9: Pursuant to 42 U.S.C. § 7601(d) (sic), the authority of the Administrator to issue rules related to topics listed in 42 U.S.C. § 7607(d) is not delegable. How will you address a situation where you determine Mr. Pruitt has a conflict of interest with respect to a rule covering one of these topics?

ANSWER #9: Should the federal ethics requirements preclude an Administrator from participating in a matter where the authority to take certain actions is defined by a statute or a regulation to rest with the Administrator, and where the statute or regulation specifically states that the authority may not be delegated, the Federal Vacancies Reform Act and other federal law provide a mechanism for another official of the EPA to perform such functions in an acting capacity. For example, if an Administrator is determined to have a conflict of interest and must be recused with respect to any such non-delegable statutory function or duty, he would be deemed unable to perform the function or duty and the Administrator position would be deemed "vacant" with respect to that function or duty. The Federal Vacancies Reform Act identifies the officials who would serve as the acting Administrator to perform the function or duty, and under Executive Reorganization #3 of 1970, the EPA Deputy Administrator acts as Administrator in the event of a vacancy in the office of Administrator.

QUESTION #10: If a recusal is determined appropriate in any matter, has the nominee agreed to forgo any briefings during the period of the recusal?

ANSWER #10: An employee who is recused from participation cannot be briefed on the same particular matter from which he is recused. In its advisory entitled "Effective Screening Arrangements for Recusal Obligations, DO-04-012 (June 1, 2004), the Office of Government Ethics wrote that:

> Ethics officials should also counsel employees regarding the scope of their recusals, including the kinds of actions that may constitute personal and substantial participation.

For example, employees with recusal obligations should not assign covered matters on an ad hoc basis. Participating in a decision concerning who should work on a matter, how a matter should be handled, or whether a matter should be acted upon, is a form of participation in the matter. Involvement in preliminary discussions, in interim evaluations, in review or approval at intermediate levels, or in supervision of subordinates working on a matter also amounts to personal and substantial participation. Recusal means no participation in any way, including briefings.

QUESTION #11: Under what obligation is Mr. Pruitt to follow determinations made by you concerning his recusals and waivers? If he chooses not to follow your determinations, what recourse is available for EPA?

ANSWER #11: Pursuant to the Ethics in Government Act at 5 U.S.C. app. §110, Mr. Pruitt is required to comply with his ethics agreement. Pursuant to 5 C.F.R. § 2634.802(b), he is required to comply with his ethics agreement within ninety days from the date of Senate confirmation. As an employee of the EPA, Mr. Pruitt will be subject to the Standards of Ethical Conduct set forth at 5 C.F.R. Part 2635, as well as the conflict of interest statutes codified in Title 18 of the United States Code, which include specific prohibitions against financial and representational conflict of interest.

As a Presidential nominee for a Senate-confirmed position, Mr. Pruitt is required to have one hour of initial ethics training which he may complete before or after his appointment, but not later than two months after his appointment. 5 C.F.R. § 2638.304(b)(1). In addition, he is required to have an ethics briefing to discuss his immediate ethics obligations. This new training requirement, which became effective on January 1, 2017, may be combined with the initial ethics training, but must occur no later than fifteen days after appointment. See 5 C.F.R. § 2638.305(b)(1). As an employee of the EPA, Mr. Pruitt will be subject to the Standards of Ethical Conduct for Employees of the Executive Branch, which includes the basic obligations of public service set forth at 5 C.F.R. § 2635.101(b)(1) - (12).

As the head of this agency, Mr. Pruitt will be "responsible for, and will exercise personal leadership in, establishing and maintaining an effective agency ethics program and fostering an ethical culture in the agency." 5 C.F.R. § 2638.107. In the event that an employee fails to meet the obligations of his or her ethics agreement, then the EPA may notify the Office of the Inspector General and/or the Office of Government Ethics. See 5 C.F.R. § 2635.101(b)(11), which requires employees to disclose waste, fraud, abuse and corruption to the proper authorities, and 5 C.F.R. § 2638.401, which gives the Office of Government Ethics the authority to take action with respect to deficiencies in an agency's ethics program.

In closing, thank you for your January 12, 2017, letter requesting specific information regarding the ethics review performed by the EPA with regard to the nomination of E. Scott Pruitt for the position of Administrator. The EPA recognizes the importance of the federal ethics requirements to the confirmation process, and is committed to working with the Congress, Mr. Pruitt, and future nominees to explain those requirements and how they apply to a particular situation.

Consistent with that commitment, Mr. Pruitt's representative requested a copy of the signed version of this response after it has been transmitted to you, and one will be provided to him.

If you have further questions, you may contact me at minoli.kevin@epa.gov or (202) 564-8064, or your staff may contact Justina Fugh, Senior Counsel for Ethics, at fugh.justina@epa.gov or (202) 564-1786 and copy Christina Moody of the EPA's Office of Congressional and Intergovernmental Relations, moody.christina@epa.gov or (202) 564-0260.

Sincerely,

Kevin S. Minoli
Designated Agency Ethics Official
Principal Deputy General Counsel

17-000-3723
incoming

# Congress of the United States
Washington, DC 20515

January 24, 2017

The Honorable Donald Trump
President of the United States
The White House
1600 Pennsylvania Avenue, NW
Washington, DC 20500

Dear Mr. President:

We write to request clarity on a reported freeze imposed on all new Environmental Protection Agency grants and contracts, and in particular, to inquire as to whether this decision applies to the funding Congress approved with strong bipartisan support to help address the City of Flint's drinking water crisis. We are concerned that your directive to halt all EPA grants and agreements may jeopardize much-needed federal funding, already passed by Congress, from quickly and directly reaching Flint families recovering from this crisis.

In December 2016, the Congress approved $100 million to help fix Flint's broken water infrastructure as part of the short-term spending bill (P.L. 114-254) and the necessary authorities to utilize this funding in the Water Infrastructure Improvements for the Nation Act (P.L.114-322). Throughout your campaign, which included a visit to Flint, you pledged to help the City and to take actions to prevent a similar crisis in any other community. Given these promises, and the enactment of legislation to provide funding to address Flint's water infrastructure, we would strongly oppose any actions by your Administration that result in delaying resources to Flint. Flint residents have not had access to safe drinking water in their homes for nearly three years and the community is counting on these and other funds to address this crisis. To that end, we would appreciate your prompt response to the following questions:

- Does the spending freeze on the Environmental Protection Agency prevent congressionally directed funding from being obligated to help address Flint's damaged drinking water infrastructure?
- Does the spending freeze apply to resources that the Environmental Protection Agency needs to oversee and enforce the Emergency Administrative Order issued last year to ensure the City's drinking water meets minimum federal drinking water standards?
- Does the spending freeze apply to funding that is needed by Environmental Protection Agency personnel or contractors that are engaged in ongoing testing of and providing technical assistance to Flint's drinking water supply?

Thank you for your expedited response to these inquiries.

PRINTED ON RECYCLED PAPER

Sincerely,

| | | |
|---|---|---|
| Debbie Stabenow<br>United States Senator | Gary C. Peters<br>United States Senator | Dan Kildee<br>Member of Congress |

Cc: Catherine McCabe, Acting Administrator, U.S. Environmental Protection Agency

MARK R. WARNER
VIRGINIA

17-000-3656
Incoming

COMMITTEES:
FINANCE
BANKING, HOUSING, AND URBAN AFFAIRS
BUDGET
INTELLIGENCE
RULES AND ADMINISTRATION

# United States Senate

WASHINGTON, DC 20510–4606

January 18, 2017

The Honorable Gina McCarthy
Administrator of the Environmental Protection Agency
Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Dear Secretary McCarthy,

As you are aware, agencies all across government have been working to implement the Digital Accountability and Transparency (DATA) Act of 2014 (Pub.L. 113–101), in advance of the May 9, 2017 statutory deadline. When fully implemented, the DATA Act will play an unprecedented role in improving the government's financial transparency and creating opportunities for better agency management. However, I write with concern regarding EPA's progress to date.

In 2016, I wrote twice to heads of each of the twenty-four CFO Act agencies requesting information regarding implementation activities. I am pleased that I have received both initial and updated Implementation Plans from most, including from yours. However, in reviewing these plans, discussing government-wide progress with officials from the Office of Management and Budget (OMB) and Department of the Treasury, along with examining reports of both the Government Accountability Office (GAO) and various inspectors general, I have some concerns about your Department's progress and subsequent ability to meet the upcoming deadline in May.

Lapses in DATA Act implementation, such as submission of inaccurate, incomplete, and especially poor quality data, can create government-wide complications. Data quality is an important signal of the extent to which agencies are complying with both the letter and spirit of the law. I understand that delays and changes to government-wide guidance may have hampered this effort in the past. However, comprehensive technical guidance was issued in April of 2016 by OMB. Thus, you now must move forward with deliberate speed to implement the law in the way that it was envisioned.

I am fully cognizant of the myriad challenges you face in implementing the DATA Act, and understand that the transition to a new administration poses an additional challenge. However, as we move into 2017, and enter the finals months leading to the implementation deadline, I urge you and your staff to continue to prioritize this essential effort, which will ultimately improve agency administration and governance at all levels.

If I can be of assistance in addressing implementation challenges at your agency, particularly during the transition in administration, please contact Rafi Martina on my staff at 202-224-2023 or Rafi_Martina@warner.senate.gov. I look forward to continuing to partner with your staff on this shared effort.

Sincerely,

Mark R. Warner
United States Senator

Cc: David A. Bloom
Deputy Chief Financial Officer

17-000-3654
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

MAY - 3 2017

OFFICE OF THE
CHIEF FINANCIAL OFFICER

The Honorable Mark R. Warner
Ranking Member
Subcommittee on Fiscal Responsibility and Economic Growth
Committee on Finance
United States Senate
Washington, D.C. 20510

Dear Senator Warner:

Thank you for your letter of March 31, 2017, to the U.S. Environmental Protection Agency Administrator Scott Pruitt inquiring into the EPA's Digital Accountability and Transparency Act of 2014 implementation plans. I appreciate the opportunity to describe the progress the agency has made to implement the DATA Act to meet the April 30, 2017 deadline.

Below are the EPA's responses to your questions regarding resources, implementation, and challenges.

1. While I understand that the President's Budget "Blueprint" release on March 16, 2017 did not specify DATA Act implementation funding at your agency, I am hopeful that the forthcoming budget proposal will do so. What resources do you anticipate your agency requiring to implement the law?

   Response: To date, the EPA expended $2,922,484 in extramural funding towards DATA Act implementation for hardware, software, implementation planning, requirements analysis, and development.

   In September 2015, the EPA provided an initial estimate based on August 2015 DATA Act Guidance, which contained total costs including contracts and payroll of approximately $5.2 million for FY 2016, $4.9 million for FY 2017, and $2.6 million for FY 2018 as a rough order of magnitude. In FY 2016, the additional funds requested were not appropriated. Upon receipt of the final DATA Act Policy Guidance received May 3, 2016, the EPA reviewed project efforts and revised previous estimates. For the remainder of FY 2017, in addition to the $2.9 million

expended to date, we will need $1.73 million, and have planned $1.452 million for FY 2018. The revised estimates are lower, more accurate, and based on the final guidance.

2. Most agencies are required to come into compliance with the law by May 2017. Do you anticipate meeting this deadline?

   Response: The EPA is on target to meet the April 30, 2017, deadline.

3. What challenges has your agency confronted to date, or do you anticipate confronting in implementing the law?

   Response: Data quality and reporting consistency are both challenges the EPA has regularly communicated to the Office of Management and Budget and the U.S. Department of the Treasury. To implement DATA Act, the EPA is validating data from three EPA sources (the agency's financial, contracts and grants management systems) and reconciling data with two external systems, which have different reporting cadences.

   Another challenge is the strict timeline for submitting the EPA's data to the Treasury DATA Act Broker on a quarterly basis. At the end of each fiscal quarter, the EPA has a small window of approximately three days to complete the review, reconciliation, and approval of the agency's spending data as it relates to the EPA's quarterly Government-wide Treasury Account Symbol report submission. During that time, the Office of the Chief Financial Officer or the Office of Administration and Resources Management may have to defer or re-prioritize other work to comply with the DATA Act.

   The EPA anticipates a long-term challenge in responding to inquiries from external stakeholders. Explaining the agency's spending data and any perceived discrepancies to an audience who may be unfamiliar with federal government contracts, grants, and accounting data will require knowledgeable personnel who are available to respond to these inquiries in a timely manner. Despite having established an internal communications process to handle DATA Act inquiries, the volume of requests is an unknown variable, which makes it more difficult to dedicate appropriate resources to accomplish this task.

4. How has implementation of the DATA Act fit in to your wider IT systems modernization efforts?

   Response: The EPA expanded its financial system reporting environment to include a new enterprise data quality tool to assist with verifying and reconciling the agency's spending data prior to file submission to the DATA Act Broker. The EPA will approve and certify its data before submitting to the Broker to reduce the back and forth for subsequent corrections.

   Concurrent to implementing DATA Act, the EPA has stood up a data governance body and created a data management plan that outlines a set of roles, process, and tools to manage effectively the relevant EPA systems and govern financial, mixed-financial and non-financial data.

5. As you move forward with implementation, what assistance from Congressional supports of the DATA Act would be most helpful to your agency?

Response: The EPA appreciates the Senator's support and recognition of agencies' DATA Act implementation efforts in the face of fiscal constraints; no assistance is required at this time.

Again, thank you for your interest in the EPA's DATA Act implementation. Please contact me or Ed Walsh of my staff at 202-564-4594 should you require any additional information on the EPA's implementation of this initiative.

Sincerely,

David A. Bloom
Acting Chief Financial Officer

R1-17-000-3584
incoming

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3400 DEFENSE PENTAGON
WASHINGTON, DC 20301-3400

ENERGY,
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RECEIVED
JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

Martin Suuberg
Commissioner
MA Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108

JAN 03 2017

Dear Commissioner Suuberg:

Thank you for your letter of September 23, 2016, to Mr. Mark Correll and me regarding the Air Force's ongoing environmental investigation of potential sources of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) at Joint Base Cape Cod (JBCC). I am also responding on behalf of Mr. Correll.

The Air Force is taking appropriate actions under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Air Force completed a preliminary assessment at JBCC and has begun the second step in the CERLCA process - the Site Inspection. During the Site Inspection, the Air Force will collect additional sampling data to help determine the nature and extent of PFOS and/or PFOA contamination. Throughout the CERCLA process, the Air Force will work in concert with the Massachusetts Department of Environmental Protection.

Testing of commercial crops is not a typical CERCLA action, and is unwarranted under CERCLA in this situation as ingestion of cranberries will not be a significant additional exposure pathway. EPA's drinking water health advisory for PFOA and PFOS already accounts for exposure pathways such as food intakes. Drinking water is the exposure pathway of concern and the Air Force will fully analyze the water and include the water results in the risk assessment required under CERCLA.

DoD does not have the expertise or authority to conduct a food safety investigation or to develop the type of food-specific interim guideline referenced in your letter. We note that the U.S. Food and Drug Administration oversees the safety of foods through the assessment of potential exposure and risk. You may wish to contact Brian Kehoe, FDA Director of Intergovernmental Affairs at brian.kehoe@fda.hhs.gov mail or 301-796-8913 for more information

Finally, your letter notes that the Commonwealth of Massachusetts would support financial compensation to cranberry growers, consistent with historic federal responses to JBCC-related impacts on the cranberry crop. As you know, the referenced compensation required specific Congressional authorizations for the 1997, 1998 and 1999 crop years. Similar statutory authority would be necessary for any determination that such compensation is appropriate under current circumstances.

As the Air Force gathers more data under the CERCLA process, we will honor our CERCLA obligations, including implementation of a remedial action if necessary.

Sincerely,

Maureen Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

cc:
The Honorable Elizabeth Warren, U.S. Senator
The Honorable Ed Markey, U.S. Senator
The Honorable Bill Keating, U.S. Representative
Monica Bharel, MD, Commissioner, MA Department of Public Health
John Lebeaux, Commissioner, MA Department of Agricultural Resources
Gina McCarthy, Administrator, U.S. Environmental Protection Agency
H. Curtis Spaulding, Administrator, New England Region, U.S. Environmental Protection Agency
Marylou Sudders, Secretary, Executive Office of Health and Human Services
Matthew A. Beaton, Secretary, Executive Office of Energy and Environmental Affairs
Brian Kehoe, U.S. Food and Drug Administration

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JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR JAN 23 2017

John Lebeaux
Commissioner
Massachusetts Department of Agricultural Resources
251 Causeway Street
Suite 500
Boston, MA 02114

Dear Commissioner Lebeaux:

Thank you for your letter of September 23, 2016, to Mr. Mark Correll and me regarding the Air Force's ongoing environmental investigation of potential sources of perfluorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) at Joint Base Cape Cod (JBCC). I am also responding on behalf of Mr. Correll.

The Air Force is taking appropriate actions under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Air Force completed a preliminary assessment at JBCC and has begun the second step in the CERLCA process - the Site Inspection. During the Site Inspection, the Air Force will collect additional sampling data to help determine the nature and extent of PFOS and/or PFOA contamination. Throughout the CERCLA process, the Air Force will work in concert with the Massachusetts Department of Environmental Protection.

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Sincerely,

Maureen Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

cc:
The Honorable Elizabeth Warren, U.S. Senator
The Honorable Ed Markey, U.S. Senator
The Honorable Bill Keating, U.S. Representative
Monica Bharel, MD, Commissioner, MA Department of Public Health
Martin Suuberg, Commissioner, MA Department of Environmental Protection
Gina McCarthy, Administrator, U.S. Environmental Protection Agency
H. Curtis Spaulding, Administrator, New England Region, U.S. Environmental Protection Agency
Marylou Sudders, Secretary, Executive Office of Health and Human Services
Matthew A. Beaton, Secretary, Executive Office of Energy and Environmental Affairs
Brian Kehoe, U.S. Food and Drug Administration

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JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

Monica Bharel, MD
Commissioner
Massachusetts Department of Public Health
250 Washington Street
Boston, Massachusetts 02108

JAN 03 2017

Dear Commissioner Bharel:

Thank you for your letter of September 23, 2016, to Mr. Mark Correll and me regarding the Air Force's ongoing environmental investigation of potential sources of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) at Joint Base Cape Cod (JBCC). I am also responding on behalf of Mr. Correll.

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Sincerely,

Maureen Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

cc:
The Honorable Elizabeth Warren, U.S. Senator
The Honorable Ed Markey, U.S. Senator
The Honorable Bill Keating, U.S. Representative
Martin Suuberg, Commissioner, MA Department of Environmental Protection
John Lebeaux, Commissioner, MA Department of Agricultural Resources
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Marylou Sudders, Secretary, Executive Office of Health and Human Services
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Brian Kehoe, U.S. Food and Drug Administration

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JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

Honorable Joseph Kennedy III
United States House of Representatives
Washington, DC 20015

JAN 03 2017

Dear Representative Kennedy:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

The Air Force is taking appropriate actions under the Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA). The Air Force completed a preliminary assessment at JBCC and has begun the second step in the CERLCA process - the Site Inspection. During the Site Inspection, the Air Force will collect additional sampling data to help determine the nature and extent of PFOS and/or PFOA contamination. Throughout the CERCLA process, the Air Force will work in concert with the Massachusetts Department of Environmental Protection.

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Sincerely,

Maureen Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

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WASHINGTON, DC 20301-3400

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JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

JAN 03 2017

Honorable Stephen Lynch
United States Senate
Washington, DC 20015

Dear Representative Lynch:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

The Air Force is taking appropriate actions under the Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA). The Air Force completed a preliminary assessment at JBCC and has begun the second step in the CERLCA process - the Site Inspection. During the Site Inspection, the Air Force will collect additional sampling data to help determine the nature and extent of PFOS and/or PFOA contamination. Throughout the CERCLA process, the Air Force will work in concert with the Massachusetts Department of Environmental Protection.

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Sincerely,

Maureen Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

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JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

Honorable Seth Moulton
United States House of Representatives
Washington, DC 20015

JAN 03 2017

Dear Representative Moulton:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

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As the Air Force gathers more data under the CERCLA process, we will honor our CERCLA obligations, including implementation of a remedial action if necessary.

Sincerely,

Ma[illegible] [illegible]ivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

RECEIVED
JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

JAN 03 2017

Honorable Katherine Clarks
United States House of Representatives
Washington, DC 20015

Dear Representative Clarks:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

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Sincerely,

Maureen Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

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AND ENVIRONMENT

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JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

Honorable Niki Tsongas
United States House of Representatives
Washington, DC 20015

JAN 03 2017

Dear Representative Tsongas:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

The Air Force is taking appropriate actions under the Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA). The Air Force completed a preliminary assessment at JBCC and has begun the second step in the CERLCA process - the Site Inspection. During the Site Inspection, the Air Force will collect additional sampling data to help determine the nature and extent of PFOS and/or PFOA contamination. Throughout the CERCLA process, the Air Force will work in concert with the Massachusetts Department of Environmental Protection.

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As the Air Force gathers more data under the CERCLA process, we will honor our CERCLA obligations, including implementation of a remedial action if necessary.

Sincerely,

M[illegible]ivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

RECEIVED
JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

JAN 03 2017

Honorable Michael Capuano
United States House of Representatives
Washington, DC 20015

Dear Representative Capuano:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

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Sincerely,

[illegible] ivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

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RECEIVED
JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

Honorable James McGovern
United States House of Representatives
Washington, DC 20015

JAN 03 2017

Dear Representative McGovern:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

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Sincerely,

Ma Sul in
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

RECEIVED
JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

JAN 03 2017

Honorable Bill Keating
United States House of Representatives
Washington, DC 20015

Dear Representative Keating:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms Ballentine.

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Sincerely,

Maureen Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

RECEIVED
JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

Honorable Elizabeth Warren
United States Senate
Washington, DC 20010

JAN 03 2017

Dear Senator Warren:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

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Sincerely,

Maureen Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

RECEIVED
JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

JAN 03 2017

Honorable Richard Neal
United States House of Representatives
Washington, DC 20015

Dear Representative Neal:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

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You requested the Air Force to sample the harvested cranberry fruit. Testing of commercial crops is not a typical CERCLA action, and is unwarranted under CERCLA in this situation as ingestion of cranberries will not be a significant additional exposure pathway. The U.S. Environmental Protection Agency's drinking water health advisory for PFOS and PFOA already accounts for exposure pathways such as food intake. Drinking water is the exposure pathway of concern and the Air Force will fully analyze the water and include the water results in the risk assessment required under CERCLA.

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As the Air Force gathers more data under the CERCLA process, we will honor our CERCLA obligations, including implementation of a remedial action if necessary.

Sincerely,

M. Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

ENERGY
INSTALLATIONS
AND ENVIRONMENT

RECEIVED
JAN 19 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

JAN 03 2017

Honorable Ed Markey
United States Senate
Washington, DC 20010

Dear Senator Markey:

Thank you for your November 16, 2016 letter to Ms. Miranda Ballentine and me concerning the occurrence of perfluoorooctane sulfonate (PFOS) and perflurooctanoic acid (PFOA) in cranberry bogs surrounding Joint Base Cape Cod (JBCC). I am also responding on behalf of Ms. Ballentine.

The Air Force is taking appropriate actions under the Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA). The Air Force completed a preliminary assessment at JBCC and has begun the second step in the CERLCA process - the Site Inspection. During the Site Inspection, the Air Force will collect additional sampling data to help determine the nature and extent of PFOS and/or PFOA contamination. Throughout the CERCLA process, the Air Force will work in concert with the Massachusetts Department of Environmental Protection.

You requested the Air Force to sample the harvested cranberry fruit. Testing of commercial crops is not a typical CERCLA action, and is unwarranted under CERCLA in this situation as ingestion of cranberries will not be a significant additional exposure pathway. The U.S. Environmental Protection Agency's drinking water health advisory for PFOS and PFOA already accounts for exposure pathways such as food intake. Drinking water is the exposure pathway of concern and the Air Force will fully analyze the water and include the water results in the risk assessment required under CERCLA.

DoD does not have the expertise nor authority to conduct a food safety investigation, or to develop the type of food-specific interim health-based guideline referenced in your letter. We note that the U.S. Food and Drug Administration (FDA) oversees the safety of foods through the assessment of potential exposure and risk. However, you may wish to contact Brian Kehoe, FDA Director of Intergovernmental Affairs at brian.kehoe@fda.hhs.gov mail or 301-796-8913 for more information.

As the Air Force gathers more data under the CERCLA process, we will honor our CERCLA obligations, including implementation of a remedial action if necessary.

Sincerely,

Ma[illegible] Sullivan
Deputy Assistant Secretary of Defense
(Environment, Safety and Occupational Health)

cc:
The Honorable Elizabeth Warren, U.S. Senator
The Honorable Ed Markey, U.S. Senator
The Honorable Richard Neal, U.S. Representative
The Honorable James McGovern, U.S. Representative
The Honorable Michael Capuano, U.S Representative
The Honorable Stephen Lynch, U.S. Representative
The Honorable Niki Tsongas, U.S. Representatives
The Honorable Joseph Kennedy III, U.S Representative
The Honorable Katherine Clarks, U. S. Representative
The Honorable Seth Moulton, U.S. Representative

Monica Bharel, MD, Commissioner, MA Department of Public Health
Martin Suuberg, Commissioner, MA Department of Environmental Protection
Gina McCarthy, Administrator, U.S. Environmental Protection Agency
H. Curtis Spalding, Administrator, New England Region, U.S. Environmental Protection Agency
Marylou Sudders, Secretary, Executive Office of Health and Human Services
Matthew A. Beaton, Secretary, Executive Office of Energy and Environmental Affairs
Brian Kehoe, U.S. Food and Drug Administration
John Lebeaux, MA Department of Agricultural Resources

RI-17-000-3902
incoming

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

OFFICE OF THE
REGIONAL ADMINISTRATOR

February 1, 2017

James P. McGovern
United State Congressman
438 Cannon Office Building House
Washington, D.C. 20515

Dear Congressman McGovern:

Thank you for your letter of January 10, 2017, supporting the Brownfields Grant Proposal from the City of Worcester. I appreciate your interest in the Brownfields Program and your support of the City of Worcester.

As you know, the Small Business Liability Relief and Brownfields Revitalization Act assist states and communities throughout the country in their efforts to revitalize and reclaim brownfields sites. This program is an excellent example of the success that is possible when people of all points of view work together to improve the environment and their communities.

Last year's application process was highly competitive with the Environmental Protection Agency (EPA) evaluating more than 650 grant proposals. From these proposals, the EPA announced the selection of approximately 218 grants.

The EPA's selection criteria for grant proposals are available in the *Proposal Guidelines for Brownfields Assessment and Cleanup Grants (October 2016)*, posted on our brownfields website at ***www.epa.gov/brownfields***. Each proposal will be carefully reviewed and evaluated by a selection panel that applies these objective criteria in this highly competitive program. Be assured that the grant proposal submitted by the City of Worcester will be given every consideration.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Kelsey O'Neil, at EPA's Office of Congressional Liaison or (617) 918-1003

Sincerely,

Deborah A. Szaro

Deborah A. Szaro
Acting Regional Administrator

JAMES P. McGOVERN
2ND DISTRICT, MASSACHUSETTS

COMMITTEE ON RULES

COMMITTEE ON AGRICULTURE

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12 EAST WORCESTER STREET, SUITE 1
WORCESTER, MA 01604
(508) 831-7356

94 PLEASANT STREET
NORTHAMPTON, MA 01060
(413) 341-8700

24 CHURCH STREET, ROOM 29
LEOMINSTER, MA 01453
(978) 466-3552

**Congress of the United States**
**House of Representatives**
**Washington, DC 20515–2102**

http://www.mcgovern.house.gov

Administrator Gina McCarthy
U.S. Environmental Protection Agency
Mail Code 1101A
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

RECEIVED
JAN 10 2017
OFFICE OF THE REGIONAL ADMINISTRATOR

Dear Administrator McCarthy:

I write to you today in support of the City of Worcester's application to the U.S. Environmental Protection Agency for a Fiscal Year 2017 Brownfields Assessment Grant. The Catalog of Federal Domestic Assistance (CFDA) number is 66.818. The City is seeking an Assessment Grant totaling $300,000 to perform Phase I and Phase II environmental assessments for hazardous substances and petroleum. The City of Worcester has a very successful Brownfields Program that has supported many instrumental projects including Gateway Park, the South Worcester Industrial Park, the former Telegram & Gazette building at 20 Franklin Street, the Loomworks housing project at 93 Grand Street and the Worcester Sports Center in the burgeoning Canal District. Most notably, the Gateway Park project received the 2007 EPA Brownfields Phoenix Award and was nationally recognized by the U.S. Department of Commerce as a brownfields success story.

Although industrial manufacturing is one of Worcester's greatest legacies, the city was left with many abandoned and blighted buildings in the wake of the Industrial Revolution. Environmental contamination of properties is a significant barrier to private investment and redevelopment opportunities in Worcester. These grants will be a critical addition to the City's brownfields toolkit. The City most recently received a Brownfields Assessment Grant in fiscal year 2009 through the American Recovery and Reinvestment Act, but those funds have been exhausted and the City has since been unsuccessful in obtaining the grant opportunities offered in fiscal years 2012 through 2016.

I respectfully request the full and fair consideration of the City of Worcester's application. If you have any questions please feel free to contact Kelly Brissette in my Worcester office at Kelly.brissette@mail.house.gov or 508-831-7356.

Sincerely,

James P. McGovern
U.S. Congressman
2nd Massachusetts District

Cc: Curt Spalding, Administrator
U.S. EPA, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

OFFICE OF THE
REGIONAL ADMINISTRATOR

February 1, 2017

James P. McGovern
United State Congressman
438 Cannon Office Building House
Washington, D.C. 20515

Dear Congressman McGovern:

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As you know, the Small Business Liability Relief and Brownfields Revitalization Act assist states and communities throughout the country in their efforts to revitalize and reclaim brownfields sites. This program is an excellent example of the success that is possible when people of all points of view work together to improve the environment and their communities.

Last year's application process was highly competitive with the Environmental Protection Agency (EPA) evaluating more than 650 grant proposals. From these proposals, the EPA announced the selection of approximately 218 grants.

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Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Kelsey O'Neil, at EPA's Office of Congressional Liaison or (617) 918-1003

Sincerely,

Deborah A. Szaro

Deborah A. Szaro
Acting Regional Administrator

JAMES P. McGOVERN
2ND DISTRICT, MASSACHUSETTS

COMMITTEE ON RULES

COMMITTEE ON AGRICULTURE

SENIOR DEMOCRATIC WHIP

AL-17-000-3273
Incoming

# Congress of the United States
## House of Representatives
Washington, DC 20515–2102

http://www.mcgovern.house.gov

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WASHINGTON, DC 20515–2102
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12 EAST WORCESTER STREET, SUITE 1
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94 PLEASANT STREET
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(978) 466–3552

Administrator Gina McCarthy
U.S. Environmental Protection Agency
Mail Code 1101A
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

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I respectfully request the full and fair consideration of the City of Worcester's application. If you have any questions please feel free to contact Kelly Brissette in my Worcester office at Kelly.brissette@mail.house.gov or 508-831-7356.

Sincerely,

James P. McGovern

James P. McGovern
U.S. Congressman
2nd Massachusetts District

Cc: Curt Spalding, Administrator
U.S. EPA, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

**FEB - 1 2017**

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE
NOW THE
OFFICE OF LAND AND
EMERGENCY MANAGEMENT

The Honorable James P. McGovern
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman McGovern:

Thank you for your letter to the U.S. Environmental Protection Agency, supporting the brownfields grant proposal from the city of Worcester, Massachusetts. I appreciate your interest in the Brownfields Program and your support of this proposal.

As you know, the Small Business Liability Relief and Brownfields Revitalization Act assists states and communities throughout the country in their efforts to revitalize and reclaim brownfields sites. This program is an excellent example of the success that is possible when people of all points of view work together to improve the environment and their communities.

Last year's application process was highly competitive with the EPA evaluating more than 650 grant proposals. From these proposals, the EPA announced the selection of approximately 218 grants.

The EPA's selection criteria for grant proposals are available in the *Proposal Guidelines for Brownfields Assessment and Cleanup Grants (October 2016)*, posted on our brownfields website at ***www.epa.gov/brownfields***. Each proposal will be carefully reviewed and evaluated by a selection panel that applies these objective criteria in this highly competitive program. Be assured that the grant proposal submitted by the city of Worcester will be given every consideration.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Raquel Snyder in the EPA's Office of Congressional and Intergovernmental Relations at snyder.raquel@epa.gov or at (202) 564-9586.

Sincerely,

Barry N. Breen
Acting Assistant Administrator
Office of Land and Emergency Management

AL-17-000-3196
incoming

# United States Senate

WASHINGTON, DC 20510

January 10, 2017

The Honorable Gina McCarthy
Administrator
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator McCarthy:

As you are aware, on September 9th 2016, the Environmental Protection Agency (EPA) proposed adding the Saint-Gobain Performance Plastics Site, located at 14 McCaffrey Street in Hoosick Falls, NY to the National Priorities List (NPL). We write today to urge the EPA to utilize all available resources in order to expedite the finalization of this proposed listing to the NPL. Finalizing this listing will allow the community to have access to vital federal resources that will help the community more adequately investigate and remediate the health and environmental risks caused by the widespread perfluorinated compound perfluorooctanoic acid (PFOA) contamination.

As you know, the Village of Hoosick Falls and Town of Hoosick, NY have been dealing with a public health emergency as a result of the PFOA contamination in the public drinking water. On November 25th, 2015 the EPA recommended that people not drink from the Hoosick Falls public drinking water supply or use the water for cooking, because of potential health risks. Since then the New York State Department of Environmental Conservation (DEC) has added the site to the State superfund list and the EPA has nominated the Saint-Gobain McCaffrey Street site to be added to the NPL. While we applaud the EPA for its actions to protect the public health in Hoosick Falls including releasing an updated health advisory for PFOA contamination and its proposed listing of the McCaffrey Street site for inclusion on the NPL, it is crucial that further and swift action is taken by the EPA to help resolve this ongoing public health crisis that has been so damaging to the community of Hoosick. We urge you to promptly finalize this site's inclusion on the NPL, which would further empower EPA to dedicate all of the available resources and expertise to the identification and clean-up of any PFOA and other toxic pollution.

The EPA is directed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to maintain a National Priorities List (NPL) in order to prioritize the clean-up of the most hazardous sites to human health and the environment across the country. It is of great importance that this proposed listing is finalized as soon as possible, as the addition of the site to the NPL is necessary to make federal Superfund appropriations available for establishing a federal-state partnership for long-term remedial action. Such a partnership would also provide the opportunity to complete a state and federal cost share agreement for clean-up, pursuant to Section 104 of CERCLA.

Again, we urge you to promptly finalize the Saint-Gobain McCaffrey Street listing on the EPA's NPL. This listing would accelerate the essential clean-up process for both the Village of Hoosick Falls and the Town of Hoosick and give the EPA immediate access to appropriated Superfund monies for cleanup of the PFOA contamination. We look forward to working with you on this important issue.

Sincerely,

Charles E. Schumer
United States Senator

Kirsten E. Gillibrand
United States Senator

AL-17-000-3196
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

FEB 16 2017

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE
NOW THE
OFFICE OF LAND AND
EMERGENCY MANAGEMENT

The Honorable Charles E. Schumer
United States Senate
Washington, D.C. 20510

Dear Senator Schumer:

Thank you for your letter of January 10, 2017, to the U.S. Environmental Protection Agency, requesting the EPA to finalize the listing of the Saint-Gobain Performance Plastics site on the Superfund National Priorities List (NPL) as expeditiously as possible.

The EPA's proposal of September 9, 2016, to add the Saint-Gobain Performance Plastics site to the NPL was followed by a 60-day public comment period. Since that time, the EPA has been reviewing the comments we received and assessing their impacts, if any, on the decision to list the site. We intend to make a final decision on the NPL listing in the next rulemaking.

I understand your concerns about the need for swift action in order to protect the health of the community. I want to assure you that the EPA will continue to work with the New York State Department of Environmental Conservation, the Village of Hoosick Falls, and the town of Hoosick to clean up the site as quickly as possible.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Carolyn Levine in the EPA's Office of Congressional and Intergovernmental Relations at levine.carolyn@epa.gov or at (202) 564-1859.

Sincerely,

Barry N. Breen
Acting Assistant Administrator
Office of Land and Emergency Management

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

FEB 16 2017

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE
NOW THE
OFFICE OF LAND AND
EMERGENCY MANAGEMENT

The Honorable Kirsten E. Gillibrand
United States Senate
Washington, D.C. 20510

Dear Senator Gillibrand:

Thank you for your letter of January 10, 2017, to the U.S. Environmental Protection Agency, requesting the EPA to finalize the listing of the Saint-Gobain Performance Plastics site on the Superfund National Priorities List (NPL) as expeditiously as possible.

The EPA's proposal of September 9, 2016, to add the Saint-Gobain Performance Plastics site to the NPL was followed by a 60-day public comment period. Since that time, the EPA has been reviewing the comments we received and assessing their impacts, if any, on the decision to list the site. We intend to make a final decision on the NPL listing in the next rulemaking.

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Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Carolyn Levine in the EPA's Office of Congressional and Intergovernmental Relations at levine.carolyn@epa.gov or at (202) 564-1859.

Sincerely,

Barry N. Breen
Acting Assistant Administrator
Office of Land and Emergency Management

AL-17-000-3725
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**WASHINGTON, D.C. 20460**

FEB - 9 2017

OFFICE OF
THE ADMINISTRATOR

The Honorable Mike R. Pence
President of the Senate
United States Senate
Washington, D.C. 20510

Dear Mr. President

I am pleased to submit the enclosed report entitled, "FY 2015 Superfund Five-Year Review Report to Congress," in accordance with the requirements of Section 121(c) of the Comprehensive Environmental Response, Compensation and Liability Act.

If you have questions please contact me, or your staff may contact Robin Richardson, Acting Associate Administrator for Congressional and Intergovernmental Relations at Richardson.RobinH@epa.gov or (202) 564-3358.

Sincerely,

Catherine R. McCabe
Acting Administrator

Enclosure

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# FY 2015 REPORT TO CONGRESS
## SUPERFUND FIVE-YEAR REVIEWS

**PURPOSE:**

The U.S. Environmental Protection Agency (EPA) is responsible for reviewing Superfund remedial actions at least every five years where hazardous substances, pollutants, or contaminants will remain on site above levels that allow for unlimited use and unrestricted exposure. EPA is also responsible for preparing a report to Congress on these reviews.

**BACKGROUND:**

Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, states:

> *"If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each 5 years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section 9604 or 9606 of the Title, the President shall take or require such action."*

CERCLA also requires that EPA report to Congress information regarding these sites for which the reviews are required. This report fulfills that requirement by providing a list of sites, information about sites where additional work is required, and contacts for additional information.

**FINDINGS:**

The attached table presents a list of statutory, policy and discretionary[1] five-year reviews that were conducted for non-Federal sites and Federal National Priorities List (NPL) sites, including the following:

- Non-Federal facility reviews due in FY 2015, currently completed;
- Federal facility reviews due in FY 2015, currently completed;
- Non-Federal and Federal facility reviews due in FY 2015, completed in a prior or later fiscal year;
- Non-Federal and Federal facility reviews due in prior fiscal years, completed in FY 2015; and

[1] Statutory reviews are carried out if both of the following conditions are true: 1) Upon completion of the remedial action, hazardous substances, pollutants, or contaminants will remain on site; and 2) the Record of Decision (ROD) for the site was signed on or after October 17, 1986, (effective date of the Superfund Amendments and Reauthorization Act – SARA) and the remedial action was selected under CERCLA §121. Policy reviews are carried out for the following types of actions: 1) a pre- or post-SARA remedial action that, upon completion, will not leave hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and unrestricted exposure but requires five years or more to complete; 2) a pre-SARA remedial action that leaves hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and unrestricted exposures; or 3) a removal-only site on the NPL where a removal action leaves hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and unrestricted exposure and where no remedial action has taken or will take place. Regions may also carry out a discretionary review, which is not required by the statute, but may be completed at the Region's discretion to help ensure the protectiveness of the remedy.

- Non-Federal and Federal facility reviews due in current or prior fiscal years, pending completion.

For non-Federal sites, a total of 245 sites required five-year reviews in FY 2015. One of these 245 reviews was completed early and is being counted as completed in FY 2015 for purposes of this report. All but five of the reviews due in FY 2015 are now complete. Another two reviews due in prior fiscal years were also completed in FY 2015, bringing the total number of completed non-Federal site five-year reviews to 242.

For Federal facility sites, a total of 33 sites required five-year reviews in FY 2015. One of these reviews was completed early and is being counted as completed in FY 2015 for purposes of this report. All but one of the reviews due in FY 2015 are now complete, bringing the total number of completed Federal NPL site five-year reviews to 32. As noted in the accompanying table, EPA did not concur on eight of the five-year reviews submitted by other agencies and did not receive a five-year review for one site. For these nine sites, EPA performed an independent assessment of the protectiveness.

In all, the total number of five-year reviews completed for both non-Federal and Federal NPL sites was 274. Based on the FY 2015 reviews, EPA has determined that seven sites (or portions of the sites) were "not protective". EPA deferred the "protectiveness" determination at 27 sites including five Federal facility sites. Recommendations to do additional work or study for each of these sites are tracked in the SEMS[2] database and, semi-annually, EPA headquarters monitors the progress in implementing these recommendations to resolve protectiveness-related issues at all sites.

For non-Federal sites, three reviews due in a prior fiscal year remain pending and EPA is working to complete them. For Federal NPL sites, no reviews due in prior fiscal years are pending. EPA expects that all pending reviews will be completed in the near future.

Summary copies of all five-year reviews, including those contained in this report, can be accessed publicly via the national Superfund web page (http://www.epa.gov/superfund/search-superfund-five-year-reviews). These reports contain detailed information regarding the effectiveness of the site remedy and assess whether human and/or ecological exposures are occurring. The information in these reports includes the protectiveness determinations that are ultimately selected and are reported in the associated table for each site. For additional information on any of the five-year reviews identified in this report, please contact the Office of Superfund Remediation and Technology Innovation at (703) 603-8960, or the Superfund Call Center at (703) 412-9810 or (800) 424-9346.

[2] In early FY 2014, the Superfund program transitioned its data from the CERCLIS database to the Superfund Enterprise Management System (SEMS).

# FY 2015 Superfund Five-Year Review Report to Congress

| Non-Federal Facility Reviews Due in FY 2015, Currently Completed | | | | | | |
|---|---|---|---|---|---|---|
| Region | Site Name | State | FYR Type | Fiscal Year Due | Date Complete | Protectiveness Determination[1] |
| 01 | ATLAS TACKCORP. | MA | Statutory | 2015 | 09/22/2015 | Short-Term Protective |
| 01 | BURGESS BROTHERS LANDFILL | VT | Statutory | 2015 | 09/23/2015 | Short-Term Protective |
| 01 | CANNON ENGINEERING CORP. (CEC) | MA | Statutory | 2015 | 09/22/2015 | Protective |
| 01 | CHARLES GEORGE RECLAMATION TRUST LANDFILL | MA | Statutory | 2015 | 06/24/2015 | Short-Term Protective |
| 01 | EASTLAND WOOLEN MILL | ME | Statutory | 2015 | 09/18/2015 | Short-Term Protective |
| 01 | GROVELAND WELLS | MA | Policy | 2015 | 06/29/2015 | Short-Term Protective |
| 01 | NEW BEDFORD | MA | Statutory | 2015 | 09/30/2015 | Will be Protective |
| 01 | NEW HAMPSHIRE PLATING CO. | NH | Statutory | 2015 | 12/30/2014 | Short-Term Protective |
| 01 | NORWOOD PCBS | MA | Statutory | 2015 | 12/18/2014 | Short-Term Protective |
| 01 | OLD SOUTHINGTON LANDFILL | CT | Statutory | 2015 | 09/28/2015 | Short-Term Protective |
| 01 | PINETTE'S SALVAGE YARD | ME | Statutory | 2015 | 09/23/2015 | Protective |
| 01 | PSC RESOURCES | MA | Statutory | 2015 | 09/21/2015 | Protective |
| 01 | RAYMARK INDUSTRIES, INC. | CT | Statutory | 2015 | 09/22/2015 | Protective |
| 01 | ROSE HILL REGIONAL LANDFILL | RI | Statutory | 2015 | 09/16/2015 | Short-Term Protective |
| 01 | SACO MUNICIPAL LANDFILL | ME | Statutory | 2015 | 09/08/2015 | Short-Term Protective |
| 01 | SOLVENTS RECOVERY SERVICE OF NEW ENGLAND | CT | Statutory | 2015 | 09/24/2015 | Will be Protective |
| 01 | SOMERSWORTH SANITARY LANDFILL | NH | Statutory | 2015 | 09/23/2015 | Short-Term Protective |
| 01 | STAMINA MILLS, INC. | RI | Policy | 2015 | 09/09/2015 | Short-Term Protective |
| 01 | TROY MILLS LANDFILL | NH | Statutory | 2015 | 09/18/2015 | Short-Term Protective |
| 01 | WEST KINGSTON TOWN DUMP/URI DISPOSAL AREA | RI | Statutory | 2015 | 08/13/2015 | Short-Term Protective |
| 02 | ASBESTOS DUMP | NJ | Statutory | 2015 | 09/18/2015 | Protective |
| 02 | BARCELONETA LANDFILL | PR | Statutory | 2015 | 09/17/2015 | Protective |
| 02 | BATAVIA LANDFILL | NY | Statutory | 2015 | 09/30/2015 | Protective |
| 02 | CARROLL & DUBIES SEWAGE DISPOSAL | NY | Policy | 2015 | 08/31/2015 | Protective |
| 02 | CHEMSOL, INC. | NJ | Statutory | 2015 | 09/29/2015 | Short-Term Protective |
| 02 | CIRCUITRON CORP. | NY | Policy | 2015 | 01/12/2015 | Protective |
| 02 | COLESVILLE MUNICIPAL LANDFILL | NY | Statutory | 2015 | 05/26/2015 | Short-Term Protective |
| 02 | DOVER MUNICIPAL WELL 4 | NJ | Statutory | 2015 | 09/23/2015 | Protective |
| 02 | ELLIS PROPERTY | NJ | Policy | 2015 | 09/29/2015 | Short-Term Protective |
| 02 | FMC CORP. (DUBLIN ROAD LANDFILL) | NY | Statutory | 2015 | 09/30/2015 | Protective |
| 02 | GENERAL MOTORS (CENTRAL FOUNDRY DIVISION) | NY | Statutory | 2015 | 09/28/2015 | Will be Protective |
| 02 | GENZALE PLATING CO. | NY | Statutory | 2015 | 09/30/2015 | Protective |
| 02 | GLOBAL SANITARY LANDFILL | NJ | Statutory | 2015 | 07/20/2015 | Short-Term Protective |
| 02 | HELEN KRAMER LANDFILL | NJ | Policy | 2015 | 09/29/2015 | Short-Term Protective |
| 02 | HERCULES, INC. (GIBBSTOWN PLANT) | NJ | Statutory | 2015 | 04/01/2015 | Short-Term Protective |
| 02 | HERTEL LANDFILL | NY | Statutory | 2015 | 09/28/2015 | Protective |
| 02 | IMPERIAL OIL CO., INC./CHAMPION CHEMICALS | NJ | Statutory | 2015 | 07/20/2015 | Protective |
| 02 | JACKSON TOWNSHIP LANDFILL | NJ | Statutory | 2015 | 06/22/2015 | Protective |
| 02 | JIS LANDFILL | NJ | Statutory | 2015 | 01/12/2015 | Protective |
| 02 | KING OF PRUSSIA | NJ | Policy | 2015 | 06/11/2015 | Protective |
| 02 | LI TUNGSTEN CORP. | NY | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 02 | MATTIACE PETROCHEMICAL CO., INC. | NY | Policy | 2015 | 09/22/2015 | Short-Term Protective |
| 02 | MONROE TOWNSHIP LANDFILL | NJ | Statutory | 2015 | 10/23/2014 | Protective |
| 02 | ONONDAGA LAKE | NY | Statutory | 2015 | 10/08/2014 | Will be Protective |
| 02 | ONONDAGA LAKE | NY | Statutory | 2015 | 09/24/2015 | Will be Protective |
| 02 | ONONDAGA LAKE | NY | Statutory | 2015 | 09/25/2015 | Will be Protective |
| 02 | PULVERIZING SERVICES | NJ | Statutory | 2015 | 01/26/2015 | Protective |
| 02 | RAMAPO LANDFILL | NY | Statutory | 2015 | 02/26/2015 | Short-Term Protective |
| 02 | ROCKAWAY TOWNSHIP WELLS | NJ | Policy | 2015 | 09/28/2015 | Short-Term Protective |
| 02 | VOLNEY MUNICIPAL LANDFILL | NY | Statutory | 2015 | 08/31/2015 | Protective |
| 02 | YORK OIL CO. | NY | Statutory | 2015 | 12/29/2014 | Short-Term Protective |
| 02 | PETER COOPER (GOWANDA) | NY | Statutory | 2015 | 04/01/2015 | Protective |
| 03 | ATLANTIC WOOD INDUSTRIES, INC. | VA | Statutory | 2015 | 05/22/2015 | Not Protective |
| 03 | BALLY GROUND WATER CONTAMINATION | PA | Statutory | 2015 | 06/05/2015 | Short-Term Protective |
| 03 | BERKLEY PRODUCTS CO. DUMP | PA | Statutory | 2015 | 09/23/2015 | Protectiveness Deferred |
| 03 | BERKS LANDFILL | PA | Statutory | 2015 | 07/26/2015 | Protective |
| 03 | BUSH VALLEY LANDFILL | MD | Statutory | 2015 | 07/28/2015 | Protective |
| 03 | COMMODORE SEMICONDUCTOR GROUP | PA | Policy | 2015 | 08/28/2015 | Will be Protective |
| 03 | DELAWARE SAND & GRAVEL LANDFILL | DE | Statutory | 2015 | 08/28/2015 | Short-Term Protective |
| 03 | E.I. DU PONT DE NEMOURS & CO., INC. (NEWPORT PIGMENT PLANT LANDFILL) | DE | Statutory | 2015 | 04/14/2015 | Protectiveness Deferred |
| 03 | FIRST PIEDMONT CORP. ROCK QUARRY (ROUTE 719) | VA | Statutory | 2015 | 02/03/2015 | Short-Term Protective |
| 03 | H & H INC., BURN PIT | VA | Policy | 2015 | 06/23/2015 | Short-Term Protective |
| 03 | HAVERTOWN PCP | PA | Statutory | 2015 | 09/28/2015 | Short-Term Protective |
| 03 | HELLERTOWN MANUFACTURING CO. | PA | Statutory | 2015 | 04/27/2015 | Short-Term Protective |
| 03 | HUNTERSTOWN ROAD | PA | Statutory | 2015 | 09/10/2015 | Short-Term Protective |

| Region | Site Name | State | FYR Type | Fiscal Year Due | Date Complete | Protectiveness Determination[1] |
|---|---|---|---|---|---|---|
| 03 | KANE & LOMBARD STREET DRUMS | MD | Statutory | 2015 | 05/18/2015 | Short-Term Protective |
| 03 | KEYSTONE SANITATION LANDFILL | PA | Statutory | 2015 | 09/15/2015 | Short-Term Protective |
| 03 | L.A. CLARKE & SON | VA | Statutory | 2015 | 08/29/2015 | Short-Term Protective |
| 03 | LEHIGH ELECTRIC & ENGINEERING CO. | PA | Policy | 2015 | 02/03/2015 | Will be Protective |
| 03 | MALVERN TCE | PA | Statutory | 2015 | 09/25/2015 | Short-Term Protective |
| 03 | MCADOO ASSOCIATES | PA | Statutory | 2015 | 07/08/2015 | Short-Term Protective |
| 03 | MODERN SANITATION LANDFILL | PA | Statutory | 2015 | 03/04/2015 | Short-Term Protective |
| 03 | MW MANUFACTURING | PA | Statutory | 2015 | 08/14/2015 | Short-Term Protective |
| 03 | NCR CORP. (MILLSBORO PLANT) | DE | Statutory | 2015 | 06/30/2015 | Will be Protective |
| 03 | NORTH PENN - AREA 12 | PA | Policy | 2015 | 09/27/2015 | Short-Term Protective |
| 03 | OSBORNE LANDFILL | PA | Statutory | 2015 | 08/28/2015 | Protective |
| 03 | PRICE BATTERY LEAD SMELTER | PA | Statutory | 2015 | 08/03/2015 | Short-Term Protective |
| 03 | PUBLICKER INDUSTRIES INC. | PA | Statutory | 2015 | 12/30/2014 | Protective |
| 03 | RECTICON/ALLIED STEEL CORP. | PA | Policy | 2015 | 05/11/2015 | Protective |
| 03 | SAUNDERS SUPPLY CO. | VA | Policy | 2015 | 12/29/2014 | Short-Term Protective |
| 03 | STRASBURG LANDFILL | PA | Statutory | 2015 | 04/27/2015 | Protective |
| 03 | SUSSEX COUNTY LANDFILL NO. 5 | DE | Statutory | 2015 | 02/25/2015 | Protective |
| 03 | TYBOUTS CORNER LANDFILL | DE | Policy | 2015 | 07/31/2015 | Short-Term Protective |
| 03 | U.S. TITANIUM | VA | Statutory | 2015 | 03/24/2015 | Short-Term Protective |
| 03 | VIENNA TETRACHLOROETHENE | WV | Policy | 2015 | 12/22/2014 | Short-Term Protective |
| 03 | WHITMOYER LABORATORIES | PA | Statutory | 2015 | 04/20/2015 | Will be Protective |
| 04 | AGRICO CHEMICAL CO. | FL | Statutory | 2015 | 05/11/2015 | Protective |
| 04 | AQUA-TECH ENVIRONMENTAL INC (GROCE LABS) | SC | Statutory | 2015 | 09/29/2015 | Protectiveness Deferred |
| 04 | BROWN'S DUMP | FL | Statutory | 2015 | 01/22/2015 | Will be Protective |
| 04 | CAROLINA TRANSFORMER CO. | NC | Policy | 2015 | 09/16/2015 | Short-Term Protective |
| 04 | CARRIER AIR CONDITIONING CO. | TN | Policy | 2015 | 09/23/2015 | Short-Term Protective |
| 04 | CHARLES MACON LAGOON AND DRUM STORAGE | NC | Policy | 2015 | 04/28/2015 | Short-Term Protective |
| 04 | CHEMFORM, INC. | FL | Policy | 2015 | 09/29/2015 | Short-Term Protective |
| 04 | DAVIS PARK ROAD TCE | NC | Statutory | 2015 | 06/01/2015 | Protective |
| 04 | FCX, INC. (WASHINGTON PLANT) | NC | Policy | 2015 | 09/29/2015 | Short-Term Protective |
| 04 | HIPPS ROAD LANDFILL | FL | Policy | 2015 | 05/11/2015 | Protective |
| 04 | ICG ISELIN RAILROAD YARD | TN | Statutory | 2015 | 12/01/2014 | Protective |
| 04 | JACKSONVILLE ASH SITE | FL | Statutory | 2015 | 01/22/2015 | Will be Protective |
| 04 | JFD ELECTRONICS/CHANNEL MASTER | NC | Policy | 2015 | 09/24/2015 | Short-Term Protective |
| 04 | MACALLOY CORPORATION | SC | Statutory | 2015 | 09/16/2015 | Short-Term Protective |
| 04 | MADISON COUNTY SANITARY LANDFILL | FL | Statutory | 2015 | 08/25/2015 | Protectiveness Deferred |
| 04 | MONSANTO CORP. (AUGUSTA PLANT) | GA | Policy | 2015 | 08/20/2015 | Protective |
| 04 | NORTH HOLLYWOOD DUMP | TN | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 04 | NORTHWEST 58TH STREET LANDFILL | FL | Statutory | 2015 | 09/16/2015 | Protective |
| 04 | PARA-CHEM SOUTHERN, INC. | SC | Statutory | 2015 | 09/23/2015 | Short-Term Protective |
| 04 | PEAK OIL CO./BAY DRUM CO. | FL | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 04 | PIONEER SAND CO. | FL | Policy | 2015 | 12/09/2014 | Short-Term Protective |
| 04 | SANFORD GASIFICATION PLANT | FL | Statutory | 2015 | 12/10/2014 | Short-Term Protective |
| 04 | SANGAMO WESTON, INC./TWELVE-MILE CREEK/LAKE HARTWELL PCB CONTAMINATION | SC | Statutory | 2015 | 03/25/2015 | Protective |
| 04 | SCRDI DIXIANA | SC | Policy | 2015 | 09/29/2015 | Short-Term Protective |
| 04 | SHERWOOD MEDICAL INDUSTRIES | FL | Statutory | 2015 | 12/08/2014 | Short-Term Protective |
| 04 | STANDARD AUTO BUMPER CORP. | FL | Statutory | 2015 | 07/28/2015 | Short-Term Protective |
| 04 | STAUFFER CHEMICAL CO (TAMPA) | FL | Statutory | 2015 | 07/28/2015 | Protective |
| 04 | STAUFFER CHEMICAL CO. (TARPON SPRINGS) | FL | Statutory | 2015 | 05/04/2015 | Protective |
| 04 | TOWNSEND SAW CHAIN CO. | SC | Policy | 2015 | 07/07/2015 | Protective |
| 04 | TRIANA/TENNESSEE RIVER | AL | Policy | 2015 | 02/12/2015 | Protective |
| 04 | UNITED METALS, INC. | FL | Statutory | 2015 | 10/08/2014 | Short-Term Protective |
| 04 | WEYERHAEUSER CO PLYMOUTH WOOD TRTNG PT | NC | Statutory | 2015 | 06/02/2015 | Short-Term Protective |
| 04 | WRIGLEY CHARCOAL PLANT | TN | Statutory | 2015 | 09/22/2015 | Protectiveness Deferred |
| 04 | YELLOW WATER ROAD | FL | Statutory | 2015 | 07/28/2015 | Protective |
| 05 | ADAM'S PLATING | MI | Statutory | 2015 | 06/24/2015 | Protectiveness Deferred |
| 05 | AMOCO CHEMICALS (JOLIET LANDFILL) | IL | Statutory | 2015 | 09/23/2015 | Short-Term Protective |
| 05 | BELVIDERE MUNICIPAL LANDFILL | IL | Statutory | 2015 | 05/13/2015 | Protective |
| 05 | BETTER BRITE PLATING CO. CHROME AND ZINC SHOPS | WI | Statutory | 2015 | 11/18/2014 | Short-Term Protective |
| 05 | CHEM CENTRAL | MI | Statutory | 2015 | 11/07/2014 | Short-Term Protective |
| 05 | CHEM-DYNE | OH | Policy | 2015 | 09/21/2015 | Short-Term Protective |
| 05 | CITY DISPOSAL CORP. LANDFILL | WI | Statutory | 2015 | 02/23/2015 | Short-Term Protective |
| 05 | COLUMBUS OLD MUNICIPAL LANDFILL #1 | IN | Statutory | 2015 | 05/06/2015 | Protective |
| 05 | CROSS BROTHERS PAIL RECYCLING (PEMBROKE) | IL | Statutory | 2015 | 08/04/2015 | Short-Term Protective |
| 05 | DELAVAN MUNICIPAL WELL #4 | WI | Policy | 2015 | 08/17/2015 | Short-Term Protective |
| 05 | DEPUE/NEW JERSEY ZINC/MOBIL CHEMICAL CORP | IL | Statutory | 2015 | 06/24/2015 | Short-Term Protective |
| 05 | DUELL & GARDNER LANDFILL | MI | Statutory | 2015 | 03/02/2015 | Protective |
| 05 | FISHER-CALO | IN | Policy | 2015 | 08/24/2015 | Protectiveness Deferred |

| Region | Site Name | State | FYR Type | Fiscal Year Due | Date Complete | Protectiveness Determination[1] |
|---|---|---|---|---|---|---|
| 05 | GALEN MYERS DUMP/DRUM SALVAGE | IN | Statutory | 2015 | 05/18/2015 | Protectiveness Deferred |
| 05 | GALESBURG/KOPPERS CO. | IL | Statutory | 2015 | 09/15/2015 | Short-Term Protective |
| 05 | H.O.D. LANDFILL | IL | Statutory | 2015 | 09/24/2015 | Short-Term Protective |
| 05 | HI-MILL MANUFACTURING CO. | MI | Statutory | 2015 | 09/25/2015 | Short-Term Protective |
| 05 | IONIA CITY LANDFILL | MI | Statutory | 2015 | 07/07/2015 | Protective |
| 05 | KENTWOOD LANDFILL | MI | Statutory | 2015 | 10/20/2014 | Short-Term Protective |
| 05 | KYSOR INDUSTRIAL CORP. | MI | Statutory | 2015 | 08/31/2015 | Short-Term Protective |
| 05 | LAKELAND DISPOSAL SERVICE, INC. | IN | Statutory | 2015 | 05/20/2015 | Short-Term Protective |
| 05 | LEMBERGER LANDFILL, INC. | WI | Statutory | 2015 | 07/13/2015 | Protective |
| 05 | LEMBERGER TRANSPORT & RECYCLING | WI | Statutory | 2015 | 07/13/2015 | Protective |
| 05 | LEMON LANE LANDFILL | IN | Statutory | 2015 | 05/18/2015 | Protective |
| 05 | MARION (BRAGG) DUMP | IN | Statutory | 2015 | 08/12/2015 | Short-Term Protective |
| 05 | MASTER DISPOSAL SERVICE LANDFILL | WI | Statutory | 2015 | 04/16/2015 | Short-Term Protective |
| 05 | MIAMI COUNTY INCINERATOR | OH | Statutory | 2015 | 06/09/2015 | Protective |
| 05 | MICHIGAN DISPOSAL SERVICE (CORK STREET LANDFILL) | MI | Statutory | 2015 | 09/29/2015 | Short-Term Protective |
| 05 | MOSS-AMERICAN CO., INC. (KERR-MCGEE OIL CO.) | WI | Policy | 2015 | 03/18/2015 | Short-Term Protective |
| 05 | NINTH AVENUE DUMP | IN | Statutory | 2015 | 06/03/2015 | Short-Term Protective |
| 05 | NL INDUSTRIES/TARACORP/GOLDEN AUTO | MN | Policy | 2015 | 12/16/2014 | Short-Term Protective |
| 05 | NORTHERN ENGRAVING CO. | WI | Statutory | 2015 | 04/02/2015 | Short-Term Protective |
| 05 | PENTA WOOD PRODUCTS | WI | Statutory | 2015 | 01/23/2015 | Short-Term Protective |
| 05 | PINE BEND SANITARY LANDFILL | MN | Statutory | 2015 | 02/03/2015 | Protective |
| 05 | PMC GROUNDWATER | MI | Statutory | 2015 | 12/19/2014 | Short-Term Protective |
| 05 | RASMUSSEN'S DUMP | MI | Statutory | 2015 | 03/25/2015 | Short-Term Protective |
| 05 | REILLY TAR & CHEMICAL CORP. (DOVER PLANT) | OH | Statutory | 2015 | 04/30/2015 | Short-Term Protective |
| 05 | REILLY TAR & CHEMICAL CORP. (INDIANAPOLIS PLANT) | IN | Statutory | 2015 | 01/27/2015 | Protective |
| 05 | ROCKWELL INTERNATIONAL CORP. (ALLEGAN PLANT) | MI | Statutory | 2015 | 04/28/2015 | Will be Protective |
| 05 | SAUK COUNTY LANDFILL | WI | Statutory | 2015 | 08/06/2015 | Short-Term Protective |
| 05 | SPICKLER LANDFILL | WI | Statutory | 2015 | 05/27/2015 | Short-Term Protective |
| 05 | ST. REGIS PAPER CO. | MN | Policy | 2015 | 07/27/2015 | Not Protective |
| 05 | STURGIS MUNICIPAL WELLS | MI | Policy | 2015 | 06/25/2015 | Short-Term Protective |
| 05 | THERMO-CHEM, INC. | MI | Statutory | 2015 | 05/08/2015 | Short-Term Protective |
| 05 | TIPPECANOE SANITARY LANDFILL, INC. | IN | Statutory | 2015 | 09/17/2015 | Short-Term Protective |
| 05 | TOMAH MUNICIPAL SANITARY LANDFILL | WI | Statutory | 2015 | 01/09/2015 | Protective |
| 05 | U.S. AVIEX | MI | Policy | 2015 | 11/24/2014 | Short-Term Protective |
| 05 | WAITE PARK WELLS | MN | Statutory | 2015 | 05/27/2015 | Protectiveness Deferred |
| 05 | WAUSAU GROUNDWATER CONTAMINATION | WI | Policy | 2015 | 04/09/2015 | Protectiveness Deferred |
| 05 | WINDOM DUMP | MN | Statutory | 2015 | 04/21/2015 | Short-Term Protective |
| 06 | AMERICAN CREOSOTE WORKS, INC. (WINNFIELD PLANT) | LA | Statutory | 2015 | 05/15/2015 | Short-Term Protective |
| 06 | BAILEY WASTE DISPOSAL | TX | Statutory | 2015 | 09/25/2015 | Protective |
| 06 | BIO-ECOLOGY SYSTEMS, INC. | TX | Policy | 2015 | 05/28/2015 | Protective |
| 06 | CRYSTAL CHEMICAL CO. | TX | Statutory | 2015 | 09/25/2015 | Short-Term Protective |
| 06 | GULF STATE UTILITIES-NORTH RYAN STREET | LA | Statutory | 2015 | 08/25/2015 | Short-Term Protective |
| 06 | HUDSON REFINERY | OK | Statutory | 2015 | 02/27/2015 | Protective |
| 06 | JACKSONVILLE MUNICIPAL LANDFILL | AR | Statutory | 2015 | 07/21/2015 | Protective |
| 06 | NORTH RAILROAD AVENUE PLUME | NM | Statutory | 2015 | 07/31/2015 | Protectiveness Deferred |
| 06 | MOUNTAIN PINE PRESSURE TREATING | AR | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 06 | PREWITT ABANDONED REFINERY | NM | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 06 | ROGERS ROAD MUNICIPAL LANDFILL | AR | Statutory | 2015 | 07/21/2015 | Protective |
| 06 | RSR CORPORATION | TX | Statutory | 2015 | 08/31/2015 | Short-Term Protective |
| 06 | SAND SPRINGS PETROCHEMICAL COMPLEX | OK | Statutory | 2015 | 07/03/2015 | Protective |
| 06 | SHERIDAN DISPOSAL SERVICES | TX | Statutory | 2015 | 08/18/2015 | Protective |
| 06 | SOL LYNN/INDUSTRIAL TRANSFORMERS | TX | Policy | 2015 | 09/30/2015 | Protectiveness Deferred |
| 06 | SOUTH VALLEY | NM | Statutory | 2015 | 07/03/2015 | Short-Term Protective |
| 06 | SOUTHERN SHIPBUILDING | LA | Statutory | 2015 | 08/13/2015 | Protective |
| 06 | TAR CREEK (OTTAWA COUNTY) | OK | Policy | 2015 | 09/29/2015 | Protective |
| 06 | TEX-TIN CORP. | TX | Statutory | 2015 | 09/25/2015 | Short-Term Protective |
| 06 | UNITED CREOSOTING CO. | TX | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 07 | 10TH STREET SITE | NE | Statutory | 2015 | 07/14/2015 | Short-Term Protective |
| 07 | 29TH & MEAD GROUND WATER CONTAMINATION | KS | Statutory | 2015 | 09/21/2015 | Protectiveness Deferred |
| 07 | BRUNO CO-OP ASSOCIATION/ASSOCIATED PROPERTIES | NE | Policy | 2015 | 08/31/2015 | Protective |
| 07 | CHEROKEE COUNTY | KS | Statutory | 2015 | 09/15/2015 | Short-Term Protective |
| 07 | FINDETT CORP. | MO | Statutory | 2015 | 09/25/2015 | Short-Term Protective |
| 07 | FULBRIGHT LANDFILL | MO | Statutory | 2015 | 09/25/2015 | Short-Term Protective |
| 07 | IOWA CITY FMGP | IA | Statutory | 2015 | 02/13/2015 | Protective |
| 07 | LABOUNTY | IA | Statutory | 2015 | 07/22/2015 | Protectiveness Deferred |
| 07 | LAWRENCE TODTZ FARM | IA | Statutory | 2015 | 09/25/2015 | Protectiveness Deferred |
| 07 | PARKVIEW WELL | NE | Policy | 2015 | 06/17/2015 | Protective |
| 07 | RIVERFRONT | MO | Statutory | 2015 | 11/17/2014 | Protectiveness Deferred |
| 07 | SHAW AVENUE DUMP | IA | Statutory | 2015 | 08/21/2015 | Protectiveness Deferred |

| Region | Site Name | State | FYR Type | Fiscal Year Due | Date Complete | Protectiveness Determination[1] |
|---|---|---|---|---|---|---|
| 07 | SHELLER-GLOBE CORP. DISPOSAL | IA | Statutory | 2015 | 06/29/2015 | Protective |
| 08 | ANACONDA CO. SMELTER | MT | Statutory | 2015 | 09/25/2015 | Not Protective |
| 08 | FRENCH GULCH | CO | Discretionary | 2015 | 09/30/2015 | Short-Term Protective |
| 08 | IDAHO POLE CO. | MT | Statutory | 2015 | 09/30/2015 | Protectiveness Deferred |
| 08 | JACOBS SMELTER | UT | Statutory | 2015 | 09/30/2015 | Not Protective |
| 08 | LIBBY ASBESTOS SITE | MT | Statutory | 2015 | 06/22/2015 | Protective |
| 08 | LIBBY GROUND WATER CONTAMINATION | MT | Statutory | 2015 | 09/25/2015 | Short-Term Protective |
| 08 | SAND CREEK INDUSTRIAL | CO | Statutory | 2015 | 09/30/2015 | Protective |
| 08 | SUMMITVILLE MINE | CO | Statutory | 2015 | 09/30/2015 | Not Protective |
| 08 | URAVAN URANIUM PROJECT (UNION CARBIDE CORP.) | CO | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 09 | APPLIED MATERIALS | CA | Policy | 2015 | 09/25/2015 | Protective |
| 09 | CTS PRINTEX, INC. | CA | Policy | 2015 | 09/22/2015 | Protective |
| 09 | DEL AMO | CA | Statutory | 2015 | 09/24/2015 | Protectiveness Deferred |
| 09 | DEL MONTE CORP. (OAHU PLANTATION) | HI | Statutory | 2015 | 09/14/2015 | Protective |
| 09 | DEL NORTE PESTICIDE STORAGE | CA | Statutory | 2015 | 06/19/2015 | Protective |
| 09 | FRESNO MUNICIPAL SANITARY LANDFILL | CA | Statutory | 2015 | 09/25/2015 | Short-Term Protective |
| 09 | HEWLETT-PACKARD (620-640 PAGE MILL ROAD) | CA | Policy | 2015 | 09/30/2015 | Short-Term Protective |
| 09 | INTERSIL INC./SIEMENS COMPONENTS | CA | Policy | 2015 | 09/22/2015 | Short-Term Protective |
| 09 | J.H. BAXTER & CO. | CA | Statutory | 2015 | 09/25/2015 | Protective |
| 09 | LIQUID GOLD OIL CORP. | CA | Statutory | 2015 | 09/03/2015 | Short-Term Protective |
| 09 | LORENTZ BARREL & DRUM CO. | CA | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 09 | MOUNTAIN VIEW MOBILE HOME ESTATES | AZ | Statutory | 2015 | 09/29/2015 | Protective |
| 09 | NINETEENTH AVENUE LANDFILL | AZ | Statutory | 2015 | 09/28/2015 | Protective |
| 09 | OPERATING INDUSTRIES, INC., LANDFILL | CA | Statutory | 2015 | 09/25/2015 | Short-Term Protective |
| 09 | PEMACO MAYWOOD | CA | Statutory | 2015 | 09/25/2015 | Protective |
| 09 | PHOENIX-GOODYEAR AIRPORT AREA | AZ | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 09 | SOUTH BAY ASBESTOS AREA | CA | Statutory | 2015 | 09/10/2015 | Protective |
| 09 | SOUTHERN CALIFORNIA EDISON CO. (VISALIA POLE YARD) | CA | Statutory | 2015 | 07/21/2015 | Protective |
| 09 | MONTROSE CHEMICAL CORP (DUAL SITE GROUNDWATER OU) | CA | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 10 | COAL CREEK AKA ROSS ELECTRIC | WA | Statutory | 2015 | 08/26/2015 | Short-Term Protective |
| 10 | COMMENCEMENT BAY, NEAR SHORE/TIDE FLATS | WA | Statutory | 2015 | 12/01/2014 | Will be Protective |
| 10 | EASTERN MICHAUD FLATS CONTAMINATION | ID | Statutory | 2015 | 09/28/2015 | Not Protective |
| 10 | HARBOR ISLAND (LEAD) | WA | Statutory | 2015 | 09/23/2015 | Short-Term Protective |
| 10 | KETCHIKAN PULP COMPANY | AK | Statutory | 2015 | 09/21/2015 | Protective |
| 10 | MIDWAY LANDFILL | WA | Statutory | 2015 | 09/23/2015 | Protectiveness Deferred |

**Federal Facility Reviews Due in FY 2015, Currently Completed**

| Region | Site Name | State | FYR Type | Fiscal Year Due | Date Complete | Protectiveness Determination[1] |
|---|---|---|---|---|---|---|
| 01 | BRUNSWICK NAVAL AIR STATION | ME | Statutory | 2015 | 09/29/2015 | Protective |
| 01 | FORT DEVENS | MA | Statutory | 2015 | 09/23/2015 | Short-Term Protective |
| 01 | LORING AIR FORCE BASE | ME | Statutory | 2015 | 09/30/2015 | Short-Term Protective |
| 01 | NEWPORT NAVAL EDUCATION & TRAINING CENTER | RI | Statutory | 2015 | 12/09/2014 | Protective |
| 02 | FORT DIX (LANDFILL SITE) | NJ | Statutory | 2015 | 09/17/2015 | Protective |
| 02 | GRIFFISS AIR FORCE BASE (11 AREAS) | NY | Statutory | 2015 | 09/09/2015 | Protective |
| 02 | PLATTSBURGH AIR FORCE BASE | NY | Statutory | 2015 | 11/19/2014 | Protective |
| 02 | ASBESTOs DUMP (OU3) | NJ | Statutory | 2015 | 07/31/2015 | Protective |
| 03 | FORT DETRICK AREA B GROUNDWATER | MD | Discretionary | 2015 | 12/05/2014 | Protectiveness Deferred[2] |
| 03 | ST. JULIENS CREEK ANNEX (U.S. NAVY) | VA | Statutory | 2015 | 05/15/2015 | Short-Term Protective |
| 04 | ANNISTON ARMY DEPOT (SOUTHEAST INDUSTRIAL AREA) | AL | Statutory | 2015 | 09/22/2015 | Protectiveness Deferred |
| 04 | CAMP LEJEUNE MILITARY RES. (USNAVY) | NC | Statutory | 2015 | 09/16/2015 | Short-Term Protective |
| 04 | HOMESTEAD AIR FORCE BASE | FL | Statutory | 2015 | 09/29/2015 | Short-Term Protective[2] |
| 04 | MILAN ARMY AMMUNITION PLANT | TN | Statutory | 2015 | 09/24/2015 | Will be Protective |
| 04 | PARRIS ISLAND MARINE CORPS RECRUIT DEPOT | SC | Statutory | 2015 | 09/15/2015 | Short-Term Protective[2] |
| 04 | USN AIR STATION CECIL FIELD | FL | Statutory | 2015 | 09/22/2015 | Short-Term Protective[2] |
| 05 | SAVANNA ARMY DEPOT ACTIVITY | IL | Statutory | 2015 | 07/10/2015 | Will be Protective |
| 06 | CAL WEST METALS (USSBA) | NM | Statutory | 2015 | 06/29/2015 | Protective |
| 06 | LEE ACRES LANDFILL (USDOI) | NM | Statutory | 2015 | 11/26/2014 | Short-Term Protective[2] |
| 07 | CORNHUSKER ARMY AMMUNITION PLANT | NE | Statutory | 2015 | 08/13/2015 | Protective |
| 07 | LAKE CITY ARMY AMMUNITION PLANT (NORTHWEST LAGOON) | MO | Statutory | 2015 | 09/07/2015 | Short-Term Protective |
| 07 | WELDON SPRING FORMER ARMY ORDNANCE WORKS | MO | Statutory | 2015 | 09/30/2015 | Short-Term Protective[2] |
| 08 | ELLSWORTH AIR FORCE BASE | SD | Statutory | 2015 | 09/30/2015 | Protectiveness Deferred[2] |
| 08 | F.E. WARREN AIR FORCE BASE | WY | Statutory | 2015 | 02/10/2015 | Will be Protective |
| 09 | CONCORD NAVAL WEAPONS STATION | CA | Statutory | 2015 | 09/29/2015 | Protectiveness Deferred[3] |
| 09 | MATHER AIR FORCE BASE (AC&W DISPOSAL SITE) | CA | Statutory | 2015 | 09/30/2015 | Protectiveness Deferred |
| 09 | MOFFETT FIELD NAVAL AIR STATION | CA | Statutory | 2015 | 09/28/2015 | Short-Term Protective |

| Region | Site Name | State | FYR Type | Fiscal Year Due | Date Complete | Protectiveness Determination[1] |
|---|---|---|---|---|---|---|
| 09 | NAVAL COMPUTER AND TELECOMMUNICATIONS AREA MASTER STATION EASTERN | HI | Statutory | 2015 | 09/24/2015 | Short-Term Protective |
| 09 | NORTON AIR FORCE BASE (LNDFLL #2) | CA | Policy | 2015 | 09/30/2015 | Short-Term Protective |
| 09 | TRACY DEFENSE DEPOT (USARMY) | CA | Statutory | 2015 | 09/29/2015 | Short-Term Protective |
| 09 | YUMA MARINE CORPS AIR STATION | AZ | Statutory | 2015 | 09/21/2015 | Protective |
| 10 | FREMONT NATIONAL FOREST/WHITE KING AND LUCKY LASS URANIUM MINES (USDA) | OR | Statutory | 2015 | 09/23/2015 | Protective |
| 10 | PORT HADLOCK DETACHMENT (USNAVY) | WA | Statutory | 2015 | 09/23/2015 | Short-Term Protective |

**Non-Federal and Federal Facility Reviews Due in FY 2015, Completed in a Prior or Later Fiscal Year**

| Region | Site Name | State | FYR Type | Fiscal Year Due | Date Complete | Protectiveness Determination[1] |
|---|---|---|---|---|---|---|
| 03 | ARROWHEAD ASSOCIATES, INC./SCOVILL CORP. | VA | Statutory | 2015 | 1/5/2016 | Not Protective |
| 07 | PEOPLES NATURAL GAS CO. | IA | Statutory | 2015 | 12/11/2015 | Short-Term Protective |
| 07 | OBEE ROAD | KS | Statutory | 2015 | 12/16/2015 | Protectiveness Deferred |
| 10 | AMERICAN LAKE GARDENS/MCCHORD AFB* | WA | Statutory | 2015 | 09/28/2012 | Short-Term Protective |

* Denotes a Federal facility site where not expressly indicated

**Non-Federal and Federal Facility Reviews Due in Prior Fiscal Years, Completed in FY 2015**

| Region | Site Name | State | FYR Type | Fiscal Year Due | Date Complete | Protectiveness Determination[1] |
|---|---|---|---|---|---|---|
| 02 | LAWRENCE AVIATION INDUSTRIES, INC. | NY | Statutory | 2014 | 07/20/2015 | Short-Term Protective |
| 02 | UPPER DEERFIELD TOWNSHIP SANITARY LANDFILL | NJ | Statutory | 2014 | 9/30/2015 | Protectiveness Deferred |

* Denotes a Federal facility site where not expressly indicated

**Non-Federal and Federal Facility Reviews Due in Current or Prior Fiscal Years, Pendin**

| Region | Site Name | State | FYR Type | Fiscal Year Due |
|---|---|---|---|---|
| 02 | LANG PROPERTY | NJ | Policy | 2015 |
| 02 | ROCKY HILL MUNICIPAL WELL | NJ | Policy | 2015 |
| 02 | MONTGOMERY TOWNSHIP HOUSING DEVELOPMENT | NJ | Policy | 2015 |
| 07 | ELECTRO-COATINGS, INC. | IA | Policy | 2015 |
| 08 | SMELTERTOWN SITE | CO | Statutory | 2015 |
| 08 | CENTRAL CITY, CLEAR CREEK | CO | Statutory | 2014 |
| 08 | UPPER TENMILE CREEK MINING AREA | MT | Statutory | 2013 |
| 08 | ASARCO, INC. (GLOBE PLANT) | CO | Statutory | 2014 |
| 10 | UMATILLA ARMY DEPOT (LAGOONS)* | OR | Statutory | 2015 |

* Denotes a Federal facility site where not expressly indicated

[1] For all sites that require a five-year review, a separate protectiveness determination is generally made for each portion or operable unit (OU) of the site. The determination that is considered "least protective" is used as the general determination for the review in this report. For example, if one operable unit is protective but another operable unit has protectiveness deferred, the determination for the entire review will be protectiveness deferred.

Protective - The remedy is protective of human health and the environment in the short- and long-term.

Short-Term Protective - The remedy is protective of human health and the environment in the short-term. This statement is generally used when the remedy is currently protective but requires further actions or institutional controls to remain protective in the long-term.

Will Be Protective - The remedy is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled. This statement is generally used for remedies that are under construction.

Protectiveness Deferred - A protectiveness determination of the remedy cannot be made until further information is obtained. Generally, reviews that include this determination identify both the actions and timeframe necessary to obtain the information so a protectiveness determination can be made through an addendum to the five-year review report.

Not Protective - The remedy is not protective of human health and/or the environment. For example, a new exposure pathway may be identified or a remedy may not be able to meet a new cleanup level. Generally, reviews that include this determination identify actions that need to be taken to ensure protectiveness.

[2] EPA did not concur on the FYR report as provided by the federal agency and issued an independent assessment of the protectiveness of the remedy.

- Region 3, Fort Detrick Area B Groundwater: EPA did not concur on the draft five-year review report and issued an independent assessment of the protectiveness. EPA issued a deferred protectiveness because the report did not have sufficient information regarding the groundwater long term monitoring plan

- Region 4, Homestead Air Force Base: EPA did not concur on the draft FYR report as submitted and issued an independent assessment. EPA concurred on the protectiveness statement of short-term protective as submitted, but the draft document did not address additional EPA and state comments.

- Region 4, Parris Island Marine Corps Recruit Depot. EPA did not concur on the draft FYR report as submitted and issued an independent assessment EPA concurred on the protectiveness statement of short-term protective as submitted, but the draft document did not address additional EPA and state comments.

- Region 4, USN Air Station Cecil Field: EPA did not concur on the draft FYR report as submitted and issued an independent assessment EPA concurred on the protectiveness statement of short-term protective as submitted, but the draft document did not address additional EPA and state comments.

- Region 6, Lee Acres Landfill: EPA did not concur on the draft five-year review report as submitted and issued an independent assessment. EPA concurred on the protectiveness statement of short term protective as submitted, but the draft document did not address all of EPA's comments

- Region 7, Weldon Springs Ordnance Works: EPA did not concur on the draft five-year review report and issued an independent assessment of the protectiveness EPA issued a short term protectiveness statement due to the draft report not addressing EPA's concerns regarding additional soil contamination.

- Region 7, Lake City Army Ammunition Plant: EPA did not concur on the draft five-year review report as submitted and issued an independent assessment EPA concurred on the protectiveness statement of short-term protectiveness as submitted but the draft document did not address all of EPA's comments

- Region 8, Ellsworth Air Force Base: EPA did not concur on the draft FYR report as submitted and issued an independent assessment of the protectiveness. EPA issued a protectiveness statement of protectiveness deferred due to the lack of information related to a potential exposure pathway.

[3] EPA did not receive a FYR report and issued an independent assessment of the protectiveness of the remedy

- Region 9, Concord Naval Weapons Station (Military Ocean Terminal Concord): EPA did not receive a draft five –year review report by the statutory due date and therefore issued an independent assessment of the protectiveness. Because there was insufficient information and data, EPA issued a deferred protectiveness and requested a draft of the report.

AL-17-000-4526
incoming

# Congress of the United States
Washington, DC 20515

February 17, 2017

Ms. Catherine McCabe
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Mr. Kevin Minoli
Acting General Counsel
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Mr. Donald Benton
White House Liaison
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Acting Administrator McCabe, Mr. Minoli, and Mr. Benton:

Under section 108(b) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Environmental Protection Agency (EPA or the Agency) on December 1, 2016, signed proposed requirements on the hardrock mining industry for demonstrating financial responsibility. The Proposed Rule, "Financial Responsibility Requirements Under CERCLA §108(b) for Classes of Facilities in the Hardrock Mining Industry," was published in the Federal Register on January 11, 2017 (82 Fed. Reg. 3388). In the Proposed Rule EPA established a 60-day comment period which ends on March 13, 2017. We write to request an extension of that deadline.

The Committees on Energy and Commerce and Transportation and Infrastructure have jurisdiction over CERCLA and the Committee on Natural Resources has jurisdiction over laws that impact the hardrock mining industry. All of the Committees have a direct interest in the Proposed Rule.

We write to request a minimum 120-day extension of the deadline to submit comments, or at least until July 10, 2017. The Proposed Rule is a significant rulemaking that will have a considerable impact on the mining industry. EPA's Regulatory Impact Analysis estimates that the financial responsibility amount for the regulated industry is $7.1 billion. Furthermore, the

Proposed Rule is extremely technical, the rulemaking docket contains over 200,000 documents, and the proposal includes a complex statistical model that EPA developed to calculate financial assurance obligations.

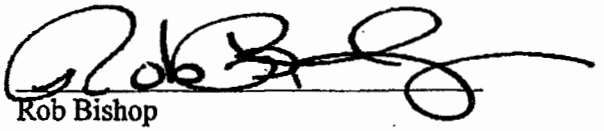
Despite numerous Congressional requests during the process of preparing the Proposed Rule, EPA declined to share critical information about the development of the statistical model with Congress, the States, the regulated industry, and other stakeholders. As such, the statistical model for calculating financial assurance – which is the crux of the rule – was developed by EPA with no input from States, industry experts, or stakeholders. The rulemaking docket has quadrupled since the Proposed Rule's publication date and now contains over 2,300 technical documents to support the Proposed Rule. It is obvious that the 60-day comment period set by EPA is wholly inadequate to evaluate the proposal and the voluminous supporting information and to prepare meaningful public comments.

While we recognize the importance of financial assurance, we are especially concerned about the transparency of the process and that EPA failed to adequately seek public input during preparation of the Proposed Rule and in particular, the statistical model. We are also particularly concerned about whether EPA sufficiently considered the issue of preemption and whether the 108(b) rule is duplicative of existing federal and state programs. We understand that EPA compiled summaries of all 50 states' mine bonding requirements to get a general understanding of the types of requirements applicable under other programs and that EPA made assurances that key documents would be made available in the docket. Notably, EPA put the summaries in the docket this week – almost a month after the start of the 60-day comment period.

We understand that EPA is currently under a court order in the U.S. Court of Appeals for the District of Columbia Circuit to finalize a rule by December 1, 2017. However, the Court's order explicitly allows EPA to request an extension of deadline to finalize the rule. In August, 2016 Chairman Upton and Chairman Bishop requested that EPA slow down the rulemaking process in order to allow meaningful public participation. EPA refused and published the Proposed Rule in December, 2016 according to the Court's original deadline. We hereby reiterate the request that EPA seek leave of the Court to extend the December 1, 2017 deadline to promulgate a final rule. We also request that in the meantime, EPA extend the comment period on the Proposed Rule until at least July, 10, 2017. Thank you for your prompt response to this request.

Sincerely,

Greg Walden
Chairman
Committee on Energy and Commerce



Rob Bishop
Chairman
Committee on Natural Resources

Bill Shuster
Chairman
Committee on Transportation and
Infrastructure

cc: The Honorable Frank Pallone, Jr., Ranking Member
Committee on Energy and Commerce

The Honorable Raúl M. Grijalva, Ranking Member
Committee on Natural Resources

The Honorable Peter A. DeFazio, Ranking Member
Committee on Transportation and Infrastructure

Attachment

## RESPONDING TO COMMITTEE DOCUMENT REQUESTS

*In responding to the document request, please apply the instructions and definitions set forth below:*

## INSTRUCTIONS

1. In complying with this request, you should produce all responsive documents that are in your possession, custody, or control or otherwise available to you, regardless of whether the documents are possessed directly by you.

2. Documents responsive to the request should not be destroyed, modified, removed, transferred, or otherwise made inaccessible to the Committee.

3. In the event that any entity, organization, or individual named in the request has been, or is currently, known by any other name, the request should be read also to include such other names under that alternative identification.

4. Each document should be produced in a form that may be copied by standard copying machines.

5. When you produce documents, you should identify the paragraph(s) and/or clause(s) in the Committee's request to which the document responds.

6. Documents produced pursuant to this request should be produced in the order in which they appear in your files and should not be rearranged. Any documents that are stapled, clipped, or otherwise fastened together should not be separated. Documents produced in response to this request should be produced together with copies of file labels, dividers, or identifying markers with which they were associated when this request was issued. Indicate the office or division and person from whose files each document was produced.

7. Each folder and box should be numbered, and a description of the contents of each folder and box, including the paragraph(s) and/or clause(s) of the request to which the documents are responsive, should be provided in an accompanying index.

8. Responsive documents must be produced regardless of whether any other person or entity possesses non-identical or identical copies of the same document.

9. The Committee requests electronic documents in addition to paper productions. If any of the requested information is available in machine-readable or electronic form (such as on a computer server, hard drive, CD, DVD, back up tape, or removable computer media such as thumb drives, flash drives, memory cards, and external hard drives), you should immediately consult with Committee staff to determine the appropriate format in which to produce the information. Documents produced in electronic format should be organized, identified, and indexed electronically in a manner comparable to the organizational structure called for in (6) and (7) above.

10. If any document responsive to this request was, but no longer is, in your possession, custody, or control, or has been placed into the possession, custody, or control of any third party and cannot be provided in response to this request, you should identify the document (stating its date, author, subject and recipients) and explain the circumstances under which the document ceased to be in your possession, custody, or control, or was placed in the possession, custody, or control of a third party.

11. If any document responsive to this request was, but no longer is, in your possession, custody or control, state:

a. how the document was disposed of;
b. the name, current address, and telephone number of the person who currently has possession, custody or control over the document;
c. the date of disposition;
d. the name, current address, and telephone number of each person who authorized said disposition or who had or has knowledge of said disposition.

12. If any document responsive to this request cannot be located, describe with particularity the efforts made to locate the document and the specific reason for its disappearance, destruction or unavailability.

13. If a date or other descriptive detail set forth in this request referring to a document, communication, meeting, or other event is inaccurate, but the actual date or other descriptive detail is known to you or is otherwise apparent from the context of the request, you should produce all documents which would be responsive as if the date or other descriptive detail were correct.

14. The request is continuing in nature and applies to any newly discovered document, regardless of the date of its creation. Any document not produced because it has not been located or discovered by the return date should be produced immediately upon location or discovery subsequent thereto.

15. All documents should be bates-stamped sequentially and produced sequentially. In a cover letter to accompany your response, you should include a total page count for the entire production, including both hard copy and electronic documents.

16. Two sets of the documents should be delivered to the Committee, one set to the majority staff in Room 316 of the Ford House Office Building and one set to the minority staff in Room 564 of the Ford House Office Building. You should consult with Committee majority staff regarding the method of delivery prior to sending any materials.

17. In the event that a responsive document is withheld on any basis, including a claim of privilege, you should provide the following information concerning any such document: (a) the reason the document is not being produced; (b) the type of document; (c) the general subject matter; (d) the date, author and addressee; (e) the relationship of the author and addressee to each

other; and (f) any other description necessary to identify the document and to explain the basis for not producing the document. If a claimed privilege applies to only a portion of any document, that portion only should be withheld and the remainder of the document should be produced. As used herein, "claim of privilege" includes, but is not limited to, any claim that a document either may or must be withheld from production pursuant to any statute, rule, or regulation.

18. If the request cannot be complied with in full, it should be complied with to the extent possible, which should include an explanation of why full compliance is not possible.

19. Upon completion of the document production, you should submit a written certification, signed by you or your counsel, stating that: (1) a diligent search has been completed of all documents in your possession, custody, or control which reasonably could contain responsive documents; (2) documents responsive to the request have not been destroyed, modified, removed, transferred, or otherwise made inaccessible to the Committee since the date of receiving the Committee's request or in anticipation of receiving the Committee's request, and (3) all documents identified during the search that are responsive have been produced to the Committee, identified in a privilege log provided to the Committee, as described in (17) above, or identified as provided in (10), (11) or (12) above.

## DEFINITIONS

1. The term "document" means any written, recorded, or graphic matter of any nature whatsoever, regardless of how recorded, and whether original or copy, including but not limited to, the following: memoranda, reports, expense reports, books, manuals, instructions, financial reports, working papers, records, notes, letters, notices, confirmations, telegrams, receipts, appraisals, pamphlets, magazines, newspapers, prospectuses, interoffice and intra-office communications, electronic mail ("e-mail"), instant messages, calendars, contracts, cables, notations of any type of conversation, telephone call, meeting or other communication, bulletins, printed matter, computer printouts, invoices, transcripts, diaries, analyses, returns, summaries, minutes, bills, accounts, estimates, projections, comparisons, messages, correspondence, press releases, circulars, financial statements, reviews, opinions, offers, studies and investigations, questionnaires and surveys, power point presentations, spreadsheets, and work sheets. The term "document" includes all drafts, preliminary versions, alterations, modifications, revisions, changes, and amendments to the foregoing, as well as any attachments or appendices thereto. The term "document" also means any graphic or oral records or representations of any kind (including, without limitation, photographs, charts, graphs, voice mails, microfiche, microfilm, videotapes, recordings, and motion pictures), electronic and mechanical records or representations of any kind (including, without limitation, tapes, cassettes, disks, computer server files, computer hard drive files, CDs, DVDs, back up tape, memory sticks, recordings, and removable computer media such as thumb drives, flash drives, memory cards, and external hard drives), and other written, printed, typed, or other graphic or recorded matter of any kind or nature, however produced or reproduced, and whether preserved in writing, film, tape, electronic format, disk, videotape or otherwise. A document bearing any notation not part of the original text is considered to be a separate document. A draft or non-identical copy is a separate document within the meaning of this term.

2. The term "documents in your possession, custody or control" means (a) documents that are in your possession, custody, or control, whether held by you or your past or present agents, employees, or representatives acting on your behalf; (b) documents that you have a legal right to obtain, that you have a right to copy, or to which you have access; and (c) documents that have been placed in the possession, custody, or control of any third party.

3. The term "communication" means each manner or means of disclosure, transmission, or exchange of information, in the form of facts, ideas, opinions, inquiries, or otherwise, regardless of means utilized, whether oral, electronic, by document or otherwise, and whether face-to-face, in a meeting, by telephone, mail, e-mail, instant message, discussion, release, personal delivery, or otherwise.

4. The terms "and" and "or" should be construed broadly and either conjunctively or disjunctively as necessary to bring within the scope of this request any information which might otherwise be construed to be outside its scope. The singular includes the plural number, and vice versa. The masculine includes the feminine and neuter genders.

5. The terms "person" or "persons" mean natural persons, firms, partnerships, associations, limited liability corporations and companies, limited liability partnerships, corporations, subsidiaries, divisions, departments, joint ventures, proprietorships, syndicates, other legal, business or government entities, or any other organization or group of persons, and all subsidiaries, affiliates, divisions, departments, branches, and other units thereof.

6. The terms "referring" or "relating," with respect to any given subject, mean anything that constitutes, contains, embodies, reflects, identifies, states, refers to, deals with, or is in any manner whatsoever pertinent to that subject.

7. The terms "you" or "your" mean and refers to

For government recipients:

"You" or "your" means and refers to you as a natural person and the United States and any of its agencies, offices, subdivisions, entities, officials, administrators, employees, attorneys, agents, advisors, consultants, staff, or any other persons acting on your behalf or under your control or direction; and includes any other person(s) defined in the document request letter.

AL-17-000-4526
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

MAY - 3 2017

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

NOW THE
OFFICE OF LAND AND
EMERGENCY MANAGEMENT

The Honorable Greg Walden
Chairman, Committee on Energy and Commerce
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for your letter to extend the public comment period for the proposed *Financial Responsibility Requirements under CERCLA Section 108(b) for Classes of Facilities in the Hardrock Mining Industry* rule which was published in the *Federal Register* on January 11, 2017 (*see* 82 FR 3388).

We appreciate your interest in this proposed rule. The U.S. Environmental Protection Agency extended the comment period, and comments on the proposed rule are now due by July 11, 2017.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Carolyn Levine in the EPA's Office of Congressional and Intergovernmental Relations at levine.carolyn@epa.gov or at (202) 564-1859.

Sincerely,

Barry N. Breen
Acting Assistant Administrator
Office of Land and Emergency Management

AL-17-000-5101
Incoming

# Congress of the United States
Washington, DC 20515

February 21, 2017

Acting Administrator Catherine McCabe
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Acting Administrator McCabe:

We write to express our grave concern about a recent report in The Record that the Environmental Protection Agency (EPA) has determined there are elevated levels of toxic and hazardous compounds in the Hackensack River. This report underscores the need for immediate action to protect the health of our waterway and the safety of our constituents. As a result, we urge the EPA to work with the New Jersey Department of Environmental Protection (DEP) to finalize review of the site so it can be determined if this site should be added to the Superfund National Priorities List, which is a critical step to determining the extent of and parties responsible for contaminating the Hackensack River and an appropriate cleanup plan can be developed.

According to the report, sediment samples collected by the EPA and DEP contained as many as 20 or more contaminants affecting 22 miles of the Hackensack River. These alarming samples confirm your agency's previous finding of elevated levels of cadmium, lead, mercury, dioxin and PCBs in the river. We are concerned about the high levels of contaminants that have been detected throughout the riverbed because they have been found in recreational areas. Additionally, we are uneased that the EPA has spent $40 million since 2008 to study mercury contamination in Berry's Creek, a six-mile tributary of the Hackensack that has among the highest levels of mercury ever recorded in a freshwater ecosystem in the United States, and we have yet to see a cleanup plan developed.

As you know, it is the EPA's responsibility to enforce federal clean water standards and protect residents from dangerous pollutants. Until this contaminated sediment is removed from the river, swimming will remain prohibited, and residents will be unable to enjoy eating fish and crabs from the river. In addition to the serious threat to public health that these contaminants pose, the Lower Hackensack River filters into the Meadowlands, a key spawning and nursery area for fish and an important habitat for numerous state-listed threatened and endangered species.

The Hackensack River is in desperate need of attention and plays a key role to our local economy and ecosystem. That is why we remain deeply concerned about the potential impact of the EPA's federal hiring freeze on environmental projects like the Hackensack River that are in urgent need of attention. We urge the EPA to dedicate resources to expedite the review of the river and determine the best plan to protect the health and safety of our constituents and recover this important river.

Thank you for your attention to this matter and we look forward to working with you to protect the health and safety of our constituents.

Sincerely,

Josh Gottheimer
MEMBER OF CONGRESS

Bill Pascrell, Jr.
MEMBER OF CONGRESS

CC: Bob Martin, Commissioner of the New Jersey Department of Environmental Protection

PRINTED ON RECYCLED PAPER

JOHN J. FASO
19TH DISTRICT, NEW YORK

1616 LONGWORTH HOUSE OFFICE BUILDING
(202) 225-5614

AL-17-000-4906
Incoming

# Congress of the United States
## House of Representatives
Washington, DC 20515-3219

February 17, 2017

The Honorable Scott E. Pruitt
Administrator, Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, D.C. 20460

Dear Administrator Pruitt,

I would like to offer my congratulations on your confirmation as Administrator of the Environmental Protection Agency. Over the next several years, I look forward to working with you on many important issues, including one in the 19th Congressional District in New York that is currently under review by the EPA.

On September 9, 2016, the EPA proposed to add the Saint-Gobain Performance Plastics Site, 14 McCaffrey Street, Hoosick Falls ("McCaffrey Street site") to the Superfund National Priorities List (NPL). A year earlier, in November 2015, the EPA had advised the Village that Hoosick Falls municipal water should not be used for drinking and cooking and recommended that alternate water be provided for users of municipal water. The EPA's action came after water quality tests revealed that the municipal water contained perfluorooctaonic acid (PFOA) levels far in excess of recommended levels.

When the EPA advised the Village to stop using the water for drinking and cooking in 2015, water tests indicated that the municipal water contained PFOA levels above 600 parts per trillion (ppt). At that time, the EPA had established a provisional health advisory level for PFOA of 400 ppt for short-term exposure. In 2016, the EPA established a long-term exposure guideline for PFOA in drinking water of 70 ppt.

The Village of Hoosick Falls is a small community of 3,600 residents. When local residents raised concerns about water quality to their local officials, those officials took necessary steps to raise these concerns with appropriate state and federal officials. Unfortunately, officials were slow to appropriately address the Village's concerns. Only after the EPA made its recommendation in 2015 did the appropriate state and federal agencies begin to address the Village's needs.

It is my understanding that the McCaffrey Street site meets the necessary requirements to be designated on the NPL and that such designation could occur as soon as March 2017. The local residents support placing the McCaffrey Street site on the NPL and I write to offer my support for such a designation. Even after designation, however, it is imperative that state and federal agencies, including the EPA, work together with local officials and residents to ensure the contamination is remediated and that citizens' health and safety is protected.

Again, congratulations on your nomination and confirmation. I look forward to working with you on this issue as well as many others. Please do not hesitate to contact me if you believe I can be of assistance.

Sincerely,

John J. Faso
Member of Congress
19th District of New York

AL-17-000-4906
FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

APR - 4 2017

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

NOW THE
OFFICE OF LAND AND
EMERGENCY MANAGEMENT

The Honorable John Faso
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Faso:

Thank you for your letter of February 17, 2017, to U.S. Environmental Protection Agency Administrator Scott Pruitt, requesting EPA to finalize the listing of the Saint-Gobain Performance Plastics site on the Superfund National Priorities List (NPL) as expeditiously as possible.

The EPA's proposal of September 9, 2016, to add the Saint-Gobain Performance Plastics site to the NPL was followed by a 60-day public comment period. Since that time, EPA has been reviewing the comments we received and assessing their impacts, if any, on the decision to list the site. We intend to make a final decision on the NPL listing in the next rulemaking.

I understand your concerns about the need for swift action in order to protect the health of the community. I want to assure you that the EPA will continue to work with the New York State Department of Environmental Conservation, the Village of Hoosick Falls, and the Town of Hoosick to clean up the site as quickly as possible.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Carolyn Levine in the EPA's Office of Congressional and Intergovernmental Relations at levine.carolyn@epa.gov or at (202) 564-1859.

Sincerely,

Barry N. Breen
Acting Assistant Administrator
Office of Land and Emergency Management

# Congress of the United States

Washington, DC 20515

AL-17-000-6357
Incoming

March 10, 2017

The Honorable Scott Pruitt
Administrator, U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W., Mail Code 1101A
Washington, D.C. 20460

Administrator Pruitt:

We write to convey our strong support for the Brownfields program within the U.S. Environmental Protection Agency ("EPA") and seek assurances that the Trump Administration will continue to support this demonstrably successful program. We support this program and are concerned about a recent press report[1] signaling the Trump Administration's plans to eliminate Federal funding for the program.

As you are aware, EPA's Brownfields program has been a catalyst for redevelopment and revitalization in communities across the United States. The bipartisan successes of this program have hinged on the Federal government's commitment to assist communities in reclaiming these vacant or underutilized properties, so that they may contribute to the environmental health and economic growth of the communities where they are located.

The Brownfields program is highly successful. In fact, the Honorable Mathy Stanislaus, former Assistant Administrator of EPA's Office of Land and Emergency Management, testified before the Subcommittee on Water Resources and Environment last Congress that, "on average, approximately $18 in private and public funding is leveraged for every grant dollar expended by EPA's Brownfields program."[2] Further, as of 2015, the Brownfields program leveraged approximately 106,000 jobs and $23.3 billion in cleanup and redevelopment through brownfields project funding since the creation of the program.

We recently read in *The Washington Post* that the White House's 2018 budget blueprint will eliminate dozens of programs, including "grants to clean up brownfields."[3] This is concerning to us, particularly given that there are estimated to be more than 450,000 brownfields in the U.S., and there are communities around the country that would benefit from your continued support for EPA's brownfields program.

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[1] Eilperin, Juliet and Dennis, Brady., "White House eyes plan to cut EPA staff by one-fifth, eliminating key programs", *The Washington Post*, March 1, 2017, https://www.washingtonpost.com/news/energy-environment/wp/2017/03/01/white-house-proposes-cutting-epa-staff-by-one-fifth-eliminating-key-programs/?hpid=hp_rhp-top-table-main_epa-210pm%3Ahomepage%2Fstory&utm_term=.ae81ec839d7f.

[2] *Hearing on Helping Revitalize American Communities Through the Brownfields Program* before the Subcommittee on Water Resources and Environment, House, 114th Cong. 2 (2015).

[3] Eilperin and Dennis, "White House eyes plan to cut EPA staff by one-fifth, eliminating key programs," March 1, 2017.

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In light of this news report, can you confirm the continuing support of this Administration for Federal funding of both the Brownfields categorical and competitive grants program, as has been offered by every Administration since the program's inception? Further, if the Trump Administration intends to eliminate Federal funding for Brownfield grants, please include in your response your justification for doing so, and how this decision is likely to impact the redevelopment of Brownfields in cities and towns across the country.

We respectfully request your reply to these questions no later than Friday, March 17, 2017.

Thank you for your consideration of this request, and for your continued commitment to creating safer and healthier communities across the United States.

Sincerely,

PETER DeFAZIO
Ranking Member
Committee on Transportation and Infrastructure

FRANK PALLONE, JR.
Ranking Member
Committee on Energy and Commerce

GRACE F. NAPOLITANO
Ranking Member
Subcommittee on Water Resources
and Environment

PAUL TONKO
Ranking Member
Subcommittee on Environment
and the Economy

ELIZABETH ESTY
Vice Ranking Member
Committee on Transportation and Infrastructure

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FR

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

MAY 17 2017

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

The Honorable Frank Pallone, Jr.
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Pallone:

Thank you for your letter of March 10, 2017, to the U.S. Environmental Protection Agency, expressing your strong support for the EPA's Brownfields Program.

The agency works carefully to measure the results the Brownfields program has achieved. To achieve its environmental results and economic benefits, the Brownfields program leverages funding and job training programs providing a win-win for communities.

Again, thank you for your letter. If you have further questions, please contact me or your staff may contact Raquel Snyder in the EPA's Office of Congressional and Intergovernmental Relations at Snyder.Raquel@epa.gov or at (202) 564-9586.

Sincerely,

Barry N. Breen
Acting Assistant Administrator

CORY GARDNER
COLORADO

AL-17-000-6350
Incoming

# United States Senate

COMMITTEES:
BUDGET
COMMERCE, SCIENCE, AND TRANSPORTATION
ENERGY AND NATURAL RESOURCES
FOREIGN RELATIONS

March 9, 2017

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Pruitt:

Thank you for the commitment during your Senate confirmation process that you will make sure those affected in Colorado by the Environmental Protection Agency's (EPA) Gold King Mine spill are compensated. I write today to ask that you visit the area and for the Administration to conduct public meetings in Southwest Colorado in order to hear from communities that were impacted by the spill in August 2015.

On August 5, 2015, the EPA spilled approximately three million gallons of toxic waste into Cement Creek and the Animas River in Colorado, which flowed downstream through New Mexico, Utah, the Southern Ute Indian Reservation, and the Navajo Nation. EPA Administrator Gina McCarthy stated that the EPA took full responsibility for the disaster, but refused to fully reimburse the affected states, local and tribal governments for response costs, which is contrary to Section 5004 of the Water Infrastructure Improvements for the Nation Act passed last Congress. In January, the EPA also denied the 73 personal injury and economic and business loss claims filed under the Federal Tort Claims Act regarding the spill.

We share the goal of making communities whole from this EPA-born spill. I believe you visiting Southwest Colorado and the EPA conducting a public forum would serve as a great opportunity to hear from these communities directly.

Thank you for your consideration and I look forward to your prompt response.

Sincerely,

Cory Gardner
United States Senator