13-NH-01C

COPY

OMB Number: 4040-0004
Expiration Date: 03/31/2012

## Application for Federal Assistance SF-424

| * 1. Type of Submission: | * 2. Type of Application: | * If Revision, select appropriate letter(s): |
|---|---|---|
| ☐ Preapplication | ☒ New | |
| ☒ Application | ☐ Continuation | * Other (Specify): |
| ☐ Changed/Corrected Application | ☐ Revision | |

| * 3. Date Received: | 4. Applicant Identifier: |
|---|---|
| 06/13/2013 | DUNS No. 0428280250000 |

| 5a. Federal Entity Identifier: | 5b. Federal Award Identifier: |
|---|---|
| | |

**State Use Only:**

| 6. Date Received by State: | 7. State Application Identifier: |
|---|---|
| | 02-6000618W |

**8. APPLICANT INFORMATION:**

* a. Legal Name: State of New Hampshire, Department of Environmental Services

| * b. Employer/Taxpayer Identification Number (EIN/TIN): | * c. Organizational DUNS: |
|---|---|
| 02-6000618W | 0428280250000 |

**d. Address:**

| | |
|---|---|
| * Street1: | 29 Hazen Drive |
| Street2: | |
| * City: | Concord |
| County/Parish: | Merrimack |
| * State: | NH: New Hampshire |
| Province: | |
| * Country: | USA: UNITED STATES |
| * Zip / Postal Code: | 03302-0095 |

**e. Organizational Unit:**

| Department Name: | Division Name: |
|---|---|
| NH Dept. of Env. Services | Water |

**f. Name and contact information of person to be contacted on matters involving this application:**

| | | | |
|---|---|---|---|
| Prefix: | Ms. | * First Name: | Sandy |
| Middle Name: | | | |
| * Last Name: | Crystall | | |
| Suffix: | | | |

Title: Water Quality Planning Specialist

Organizational Affiliation:

| * Telephone Number: | 603-271-2471 | Fax Number: | 603-271-6588 |
|---|---|---|---|

* Email: Sandra.Crystall@des.nh.gov

## Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

A: State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Environmental Protection Agency

**11. Catalog of Federal Domestic Assistance Number:**

66.461

CFDA Title:

Regional Wetland Program Development Grants

*** 12. Funding Opportunity Number:**

EPA-REG1-13-14

* Title:

FY13 and FY14 Region 01 Wetland Program Development Grants

**13. Competition Identification Number:**

NONE

Title:

**14. Areas Affected by Project (Cities, Counties, States, etc.):**

Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Advancing Wetland Assessment, Classification in Permit Review in New Hampshire

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

## Application for Federal Assistance SF-424

**16. Congressional Districts Of:**

* a. Applicant: NH
b. Program/Project: State

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

**17. Proposed Project:**

* a. Start Date: 10/01/2013
* b. End Date: 09/30/2014

**18. Estimated Funding ($):**

| | |
|---|---|
| * a. Federal | 400,000.00 |
| * b. Applicant | 133,563.00 |
| * c. State | 0.00 |
| * d. Local | 0.00 |
| * e. Other | 0.00 |
| * f. Program Income | 0.00 |
| * g. TOTAL | 533,563.00 |

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☒ a. This application was made available to the State under the Executive Order 12372 Process for review on 06/13/2013.

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☐ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

**21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

**Authorized Representative:**

Prefix: Mrs.
* First Name: Susan
Middle Name: A.
* Last Name: Carlson
Suffix:

* Title: Chief Financial Officer

* Telephone Number: 603-271-1881
Fax Number: 603-271-6588

* Email: Susan.Carlson@des.nh.gov

* Signature of Authorized Representative: Lori Sommer
* Date Signed: 06/13/2013

## SECTION B - BUDGET CATEGORIES

| 6. Object Class Categories | GRANT PROGRAM, FUNCTION OR ACTIVITY (1) Wetland Program Development Grant Track 1 | (2) | (3) | (4) | Total (5) |
|---|---|---|---|---|---|
| a. Personnel | $ 170,203.00 | $ | $ | $ | $ 170,203.00 |
| b. Fringe Benefits | 122,289.00 | | | | 122,289.00 |
| c. Travel | 2,974.00 | | | | 2,974.00 |
| d. Equipment | 4,150.00 | | | | 4,150.00 |
| e. Supplies | 1,625.00 | | | | 1,625.00 |
| f. Contractual | 11,700.00 | | | | 11,700.00 |
| g. Construction | 0.00 | | | | |
| h. Other | 198,181.00 | | | | 198,181.00 |
| i. Total Direct Charges (sum of 6a-6h) | 511,122.00 | | | | $ 511,122.00 |
| j. Indirect Charges | 22,441.00 | | | | $ 22,441.00 |
| k. TOTALS (sum of 6i and 6j) | $ 533,563.00 | $ | $ | $ | $ 533,563.00 |
| | | | | | |
| 7. Program Income | $ | $ | $ | $ | $ |

Authorized for Local Reproduction

Standard Form 424A (Rev. 7- 97)
Prescribed by OMB (Circular A -102) Page 1A

# BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 06/30/2014

## SECTION A - BUDGET SUMMARY

| Grant Program Function or Activity (a) | Catalog of Federal Domestic Assistance Number (b) | Estimated Unobligated Funds | | New or Revised Budget | | |
|---|---|---|---|---|---|---|
| | | Federal (c) | Non-Federal (d) | Federal (e) | Non-Federal (f) | Total (g) |
| 1. Wetland Program Development Grant Track 1 | 66.461 | $ | $ | $ 400,000.00 | $ 133,563.00 | $ 533,563.00 |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
| 5. Totals | | $ | $ | $ 400,000.00 | $ 133,563.00 | $ 533,563.00 |

Standard Form 424A (Rev. 7- 97)
Prescribed by OMB (Circular A -102) Page 1

## SECTION C - NON-FEDERAL RESOURCES

| (a) Grant Program | (b) Applicant | (c) State | (d) Other Sources | (e)TOTALS |
|---|---|---|---|---|
| 8. Wetland Program Development Grant (Track 1) | $ 133,563.00 | $ | $ | $ 133,563.00 |
| 9. | | | | |
| 10. | | | | |
| 11. | | | | |
| 12. TOTAL (sum of lines 8-11) | $ 133,563.00 | $ | $ | $ 133,563.00 |

## SECTION D - FORECASTED CASH NEEDS

| | Total for 1st Year | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
|---|---|---|---|---|---|
| 13. Federal | $ 238,472.00 | $ 34,061.00 | $ 68,137.00 | $ 68,137.00 | $ 68,137.00 |
| 14. Non-Federal | $ 89,523.00 | 12,789.00 | 25,578.00 | 25,578.00 | 25,578.00 |
| 15. TOTAL (sum of lines 13 and 14) | $ 327,995.00 | $ 46,850.00 | $ 93,715.00 | $ 93,715.00 | $ 93,715.00 |

## SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

| (a) Grant Program | FUTURE FUNDING PERIODS (YEARS) | | | |
|---|---|---|---|---|
| | (b)First | (c) Second | (d) Third | (e) Fourth |
| 16. Wetland Program Development Grant (Track 1) | $ 161,528.00 | $ | $ | $ |
| 17. | | | | |
| 18. | | | | |
| 19. | | | | |
| 20. TOTAL (sum of lines 16 - 19) | $ 161,528.00 | $ | $ | $ |

## SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:

22. Indirect Charges:

23. Remarks:

Authorized for Local Reproduction

Standard Form 424A (Rev. 7- 97)
Prescribed by OMB (Circular A -102) Page 2

## SECTION C - NON-FEDERAL RESOURCES

| | (a) Grant Program | (b) Applicant | (c) State | (d) Other Sources | (e)TOTALS |
|---|---|---|---|---|---|
| 8. | Maritime Program Development Grant (Phase 2) | $ 123,563.00 | $ | $ | $ 123,563.00 |
| 9. | | | | | |
| 10. | | | | | |
| 11. | | | | | |
| 12. TOTAL (sum of lines 8-11) | | $ 123,563.00 | $ | $ | $ 123,563.00 |

## SECTION D - FORECASTED CASH NEEDS

| | Total for 1st Year | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
|---|---|---|---|---|---|
| 13. Federal | $ 238,472.00 | $ 74,083.00 | $ 64,127.00 | $ | $ 60,287.00 |
| 14. Non-Federal | $ 69,024.00 | $ 12,748.00 | $ 20,576.00 | $ 26,370.00 | $ 23,370.00 |
| 15. TOTAL (sum of lines 13 and 14) | $ 307,496.00 | $ 86,830.00 | $ 84,703.00 | $ 87,216.00 | $ 83,657.00 |

## SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

| | (a) Grant Program | FUTURE FUNDING PERIODS (YEARS) | | | |
|---|---|---|---|---|---|
| | | (b) First | (c) Second | (d) Third | (e) Fourth |
| 16. | Maritime Program Development Grant (Phase 2) | $ 123,563.00 | $ | $ | $ |
| 17. | | | | | |
| 18. | | | | | |
| 19. | | | | | |
| 20. TOTAL (sum of lines 16 - 19) | | $ 123,563.00 | $ | $ | $ |

## SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges: | 22. Indirect Charges:

23. Remarks:

Authorized for Local Reproduction

Standard Form 424A (Rev. 7- 97)
Prescribed by OMB (Circular A -102) Page 2

Tracking Number: GRANT11821780 Funding Opportunity Number: 2014_MEC1_01-01 Received Date: 2013-06-11T14:30:24-04:00

**FY13-14 Region 1 Wetland Program Development Grants**
**EPA-REG1-WPDG-2014 – Track One**

**Project Title: Advancing Wetland Assessment, Classification, and Permit Review in New Hampshire**

**Applicant:** New Hampshire Department of Environmental Services (DES)
DUNS # 042828025

**Core Elements**: Monitoring and Assessment; Regulatory; Wetland-Specific Water Quality Standards

**NH Wetland Program Plan (NHWPP) Elements and Actions Addressed**:

- NHWPP Element 1: Regulation and Enforcement: Actions: c and d
- NHWPP Element 2: Restoration and Protection: Actions: 2a
- NHWPP Element 3: Wetland Data/Monitoring and Assessment/WQS: Actions 3a, 3c, 3d
- NHWPP Element 5: Outreach and Education: Action 5d

**Contact:** DES 29 Hazen Dr, PO Box 95, Concord, NH 03301

Sandy Crystall, PWS
Watershed Management Bureau
Tel (603) 217-2471: Fax: (603) 271-7894
sandra.crystall@des.nh.gov

**Geographic Location:** State of New Hampshire

**Total Project Cost:** $ 533,563 **Federal Grant Request:** $ 400,000 **Match:** $133,563

**Abstract:** The DES and its partners will undertake activities from the 2011 NH Wetland Program Plan (NHWPP) that build on recent work and support program improvements. DES will apply Maine's wetland biomonitoring protocols for macroinvertebrates at freshwater fringing wetlands in New Hampshire and apply Maine's statistical model to improve our ability to assess wetlands for aquatic life support. DES will determine the appropriateness of using model results to assess water quality in New Hampshire following the biological condition gradient (BCG) approach (Davies and Jackson 2006). Based on the sampling and macroinvertebrate assessment, DES will prepare outreach materials to inform local decision makers about the consequences of land use decisions on wetlands quality.

To maximize the results of monitoring and assessment and improve the protection of high-quality wetlands, DES with our partner, NH Natural Heritage Bureau (NHB), will conduct several projects to fill gaps in knowledge concerning the aquatic bed natural communities, and develop criteria to enable evaluation of all wetlands with the Ecological Integrity Assessment (EIA). Additionally, NHB will review existing data to rank threats to wetland communities. The result of these projects will inform permitting decisions, the mitigation program, and other conservation programs.

Finally, DES will pursue several recommendations identified during the evaluation of the Wetlands Program's existing regulatory framework, permit application requirements, and application review processes conducted under a prior grant. Although many short-term recommendations and changes to clarify requirements and streamline the processes have been implemented, several recommended actions require research and staff time to implement.

**B. Project Description**

In recent years, New Hampshire has made significant progress to improve its regulatory program (e.g., permitting, mitigation, enforcement, and outreach) and to develop a wetlands monitoring and assessment program with the ultimate goal of implementing wetland-specific water quality standards. This proposal includes several projects aimed at advancing these efforts: Project 1) <u>Evaluate the applicability of Maine's macroinvertebrate model for wetlands assessment in NH</u>. Maine has developed a linear discriminant statistical model which uses macroinvertebrate data to evaluate biological condition of wetlands and determine attainment of narrative aquatic life criteria. DES will apply Maine's protocols and model to predict the attainment class and condition of wetlands. At the same sites, DES will apply one or more vegetation-based rapid assessment

methods, such as the USA RAM (rapid assessment method) or the EIA, and Floristic Quality Assessment (FQA), to provide additional validation of the macroinvertebrate assessment results.

Projects 2-5) Develop criteria and classification information to support wetland assessment and wetland conservation status and apply new tools on existing data to improve knowledge of resources. These projects develop new information or reassess existing information with new standardized assessment tools, including improving knowledge on the aquatic bed systems that will be sampled, developing wetland-system specific criteria to enable evaluation of wetland condition with the EIA, applying the NatureServe Conservation Status Assessment Rank for each of the 27 wetland system types, and applying the Level 2 EIA method to existing wetland system records.

Project 6) Improve the requirements for and technical review of wetland permit applications. Defining standard procedures for technical review of applications against general and project-specific criteria for permitting, including how applicants and DES technical staff should evaluate the function and quality of wetlands affected and identify and minimize potential impacts to sensitive, rare, and valuable resources, in particular.

Project 7) Develop new Memorandums of Agreement (MOAs) with sister programs and agencies. This effort will define standard procedures for applicants and Wetlands technical staff to coordinate with these other entities on technical issues. New MOAs will provide mutual understanding and better guidelines for determining when consultation is necessary, how such consultation should occur, and how the findings of consultation can be documented and shared.

**1. National Priority Area: Consistency with the NHWPP**

The 2011 NHWPP provides a framework for enhancing protection of wetlands and aquatic resources statewide. The activities included in this proposed workplan are drawn specifically from the NHWPP and build on past work to better assess the condition of wetland resources and

strengthen our regulatory program to ensure protection of high quality wetlands, restoration of wetlands in poor condition, and overall improvement to water quality in the state. Table 1 provides information about the applicable parts of the NHWPP as they relate to the specific tasks.

**2. Project Need**

New Hampshire has been applying several rapid methods to evaluate wetland condition. DES participated in EPA's National Wetland Condition Assessment in 2011, and DES and NHB applied four rapid methods concurrently at 32 sites in 2012. These efforts have contributed to an increased understanding about how well these methods represent wetland condition or functions and values. However, with these methods alone, it is difficult to make assessments of water quality and support of aquatic life. A key need identified in multi-stakeholder meetings on the wetland-specific water quality standards is selecting or developing an assessment method and criteria that link closely with aquatic life support and thus result in appropriate wetland water quality assessments.

With the data that will be provided by following Maine's protocols, rapid assessments, and model output, and better understanding of the aquatic bed natural communities, New Hampshire will be closer to being able to develop appropriate water quality standards to assess the condition of its wetlands. This information will also contribute to evaluating the success of mitigation and restoration projects (such as dam removal, which needs a formal assessment tool), targeting conservation and restoration efforts, and providing needed outreach in the form of science-based information useful to guide local decision makers.

Determining which ecosystems are thriving and which are rare or declining is crucial for targeting protection strategies towards areas in greatest need, and this is the basis for the classification and natural community system and ranking work to be done by NHB.

The program and process improvements undertaken over the past several years have streamlined work processes and provided for greater emphasis on resource protection, but required substantial time commitment from wetlands technical staff. Clear, standard procedures for technical review will improve consistency and ensure that important issues are evaluated for all projects, and also help guide applicants to design better, lower impact projects.

**3. Regional Priority Area**

Dual effects of climate change and direct anthropogenic stress have been cited as the most likely to alter hydrological and geochemical processes (Moore, et al 1997). This proposal reflects recommendations to improve data on anthropogenic stressors and improve scientific knowledge regarding the distribution and abundance of aquatic flora and fauna. This project will provide data on which to base future assessments of the biotic effects of climate change.

**4. Environmental Results: Outputs, Outcomes, and Tracking**

The activities described in the project description section and Table 1 (later on) provide additional detail on tasks, outputs, and outcomes.

**4. i. Outputs:** Testing of Maine's wetland biomonitoring protocols and assessment criteria will produce:

- A report on wetlands assessment results applying Maine's protocols and statistical model and comparing it with FQA and EIA or other rapid assessment method(s) concurrently used to assess fringing wetlands
- A determination of the appropriateness of applying Maine's model in New Hampshire
- A document that transfers science-based work to land use decisions

The NHB projects to classify and rank wetland condition will contribute to New Hampshire's ability to better protect high-quality wetland resources and identify opportunities for restoration.

- Report on aquatic bed natural communities in lakes and pond, those habitats being sampled in another task
- Wetland type-specific criteria available for all wetland types when applying the EIA

The improvements to the wetlands application and technical review process will provide:

- New checklists to structure and guide the technical evaluation of permit applications, including improved assessment of wetland function and quality
- Guidance for technical staff on the use of GIS-based data and other technical resources (e.g., aerial photos) in the evaluation of permit applications
- New MOAs with sister programs and agencies defining the process for applicants and Wetlands technical staff to better coordinate to identify and resolve important impacts and issues associated with proposed projects

**4. ii. Outcomes (Project Objectives):** Overall environmental improvements resulting from this project include:

- Tools to facilitate development of wetland-specific water quality standards that work with the NH regulatory framework to protect and restore NH's wetlands
- Improved ability to report on wetland condition for a subset of the state's wetlands in a future New Hampshire 305(b)/303(d) integrated report
- Greater minimization and avoidance of impacts from proposed development projects, particularly for high-quality and sensitive resources, through improved technical review procedures to identify such potential impacts and better inter-program and inter-agency coordination in evaluating permit applications
- Improved protection for NH's highest quality wetland resources

**4. iii. Link to EPA's 2011-2015 Strategic Plan:** The outputs and outcomes listed support the EPA Strategic Plan Goal 2: Objective 2.2: Protect and restore watersheds and aquatic ecosystems. By conducting this project, DES and its partner NHB, are focusing on "biological and functional measures, and assessment of wetland condition." By establishing clear standards for documenting resources proposed for impacts in the permitting process, the end result is better protection of high value wetlands.

**4. iv. Tracking:** DES utilizes a database, the Measures Tracking and Reporting System (MTRS) to define and track its workplan(s), including specific Activities, Tasks, and Deliverables. Task leaders will use and update MTRS quarterly on progress on individual deliverables. The DES Task Manager will track work progress by the NHB and report on its progress in MTRS. Additionally site-specific monitoring data will be entered into DES's Environmental Monitoring Database to inform program decisions and manage the data regarding the condition of our surface water resources.

**5. Project Tasks/Milestone Schedule/Detailed Budget Workplan**

Table 1 identifies the proposed tasks, approach, key staff and organizations, and the projected start and end date, milestones and budget for each task. DES will serve as the overall manager for the grant. DES staff will participate in the NHB-led projects as well to facilitate cross-agency communication of the resulting products.

The table below provides the estimated hours and budget by EPA class for each year based on the projected schedule of work.

## Budget Tables

### Oct 2013-Sept 2014

| EPA Budget Class | EPA Grant | Match | Combined |
|---|---|---|---|
| Personnel | $80,865 | $33,218 | $114,083 |
| Fringe Benefits | $62,538 | $19,430 | $81,968 |
| Travel | $1,000 | $0 | $1,000 |
| Equipment | $4,150 | $0 | $4,150 |
| Supplies | $1,000 | $0 | $1,000 |
| Contractual | $4,000 | $0 | $4,000 |
| Construction | $0 | $0 | $0 |
| Other | $73,791 | $32,962 | $106,753 |
| **Sub-Total Direct Charges** | **$227,344** | **$85,610** | $312,954 |
| Indirect Charges | $11,128 | $3,914 | $15,042 |
| **Totals** | **$238,472** | **$89,524** | **$327,996** |

### Oct 2014-Sept 2015

| EPA Budget Class | EPA Grant | Match | Combined |
|---|---|---|---|
| Personnel | $39,779 | $16,341 | $56,120 |
| Fringe Benefits | $30,763 | $9,558 | $40,321 |
| Travel | $1,974 | $0 | $1,974 |
| Equipment | $0 | $0 | $0 |
| Supplies | $625 | $0 | $625 |
| Contractual | $7,700 | $0 | $7,700 |
| Construction | $0 | $0 | $0 |
| Other | $75,213 | $16,215 | $91,428 |
| **Sub-Total Direct Charges** | **$156,054** | $42,114 | $198,168 |
| Indirect Charges | $5,474 | $1,925 | $7,399 |
| **Totals** | **$161,528** | $44,039 | **$205,567** |

**Match Funds/In-kind Support:** DES and our grant partner NHB, listed within the "Other" budget class above, will devote substantial non-Federally-funded staff time as match toward the proposed projects valued at over $133,000, representing 25.03% of the total project cost. The Maine DEP biomonitoring program will provide substantial technical support at no cost to DES.

## Table 1. Project Tasks, Products, Milestone Schedule*, Budget, Key Staff, and NHWPP Actions Addressed

*Assumes grant is awarded and accepted by the NH Governor and Executive Council by October 1, 2013.

| Task Description & Method | Products (Outputs) / Objectives (Outcomes) | Timeline | Key Staff |
|---|---|---|---|
| **1. Apply Maine's biomonitoring methods and statistical modeling for aquatic macroinvertebrates to NH**<br>1.A. Prepare for Sampling<br>i. Evaluate level 1 wetland assessment to identify wetlands to sample that represent a gradient of condition<br>ii. Develop sampling plan that reflects biomonitoring protocols and concurrent application of Level 2 methods, USA RAM and FQA,<br>iii. Develop QAPP<br>iii. Train field personnel on field protocols<br>**Budget: $46,993 ($43,627 grant)**<br>**Hours: 770 (68% Yr 1)** | **Products:**<br>▪ List of wetlands to evaluate<br>▪ Sampling plan & QAPP<br>▪ Staff are trained on Maine's biomonitoring protocols (and other field methods)<br>**Objectives:**<br>▪ Sample wetlands representing a range of conditions<br>▪ Quality assurance<br>**NHWPP actions: 3a.2, 3a.3, 3a.4, 3c.1, 3c.2, 3c.3** | Jan-May 2014 &<br>Jan-May 2015 | Sandy Crystall<br>Ken Edwardson<br>NHB : Bill Nichols<br>Maine DEP-Jeanne DiFranco |
| 1.B. **Conduct Sampling**<br>Conduct reconnaissance and sampling of fringing wetlands (macroinvertebrates, water, and RAM/FQA) (Level 2 and 3)<br>**Budget: $43,309 ($38,890 grant)**<br>**Hours: 700 (50% Yr 1)**<br>**Equipment/supplies/travel: $11,208** | **Products:**<br>▪ Macroinvertebrate and water sampling results, RAM(s) and plant species data, human disturbance assessment<br>**Objectives:**<br>▪ Confirm wetlands to sample and access to sites<br>▪ Collect data to assess wetland<br>**NHWPP actions: 3a.2, 3a.3, 3a.4, 3c.1, 3c.2** | May-July 2014 &<br>May-July 2015 | Sandy Crystall<br>Sandi Mattfeldt |

| | | | |
|---|---|---|---|
| 1.C. **Post-sampling processing and analysis and report**<br>i. Process and identify macroinvertebrate samples (contractor) (After issuance of RFP for macroinvertebrate processing & ID contractor and contracting process has been completed)<br>ii. Run data through Maine's linear discriminant model<br>iii. Analyze output and check appropriateness through analyses of raw data from reference sites in both states<br>iii. Report on results and outcome of using Maine's model after second field season<br>iv. Transfer of information to the public<br><br>**Total Budget: $111,380 ($105,920 grant)**<br>**Hours: 1,688 (57% Yr 1)**<br>**Contractor: $11,700** | **Products:**<br>▪ Macroinvertebrate identification data for input to Maine's model<br>▪ Classification of macroinvertebrate data by BCG tier<br>▪ Report summarizing the activities, data, analyses and a recommendation on the appropriateness of Maine's model for NH<br>▪ Public information materials on relationship of wetland condition to land use based on assessment results<br>**Objectives:**<br>▪ Samples are accurately identified<br>▪ Validate use of Maine's model in New Hampshire<br>▪ Identify potential to use Maine's protocols and model for development of wetland-specific water quality standards in New Hampshire<br>▪ Changes in local land use policy to provide for better protection of water quality by increased protection of wetlands and identification of restoration opportunities<br>**NHWPP actions: 3a.2, 3a.3, 3a.4, 3c.1, 3c.2, 5d.2** | 2014-2015<br><br>final report: May 2016 | Sandy Crystall<br><br>Macro-invertebrate ID contractor<br><br>Maine DEP staff<br><br>Phil Trowbridge |
| 2. **Research, sampling, and natural community classification for freshwater aquatic bed systems in NH**<br><br>Conduct surveys of aquatic beds, analyze existing data for NH, research, and review classifications from other states in the region<br><br>**Total Budget: $46,368 ($36,373 grant)**<br>**Hours: 100 (DES) (50% Yr 1)**<br>**Includes $30,000 for NHB** | **Products:**<br>▪ Report on classification of aquatic bed systems and natural communities<br>**Objectives:**<br>▪ Inform macroinvertebrate sampling and EIA/FQA in aquatic bed communities<br><br>**NHWPP actions: 2c.3, 2d.2** | 2013-2015 | Sandy Crystall<br><br>NHB: Bill Nichols |

| | | | |
|---|---|---|---|
| **3. Rank specifications and assessments**<br><br>**i. Develop wetland system rank specifications** to support application of EIA for all NH wetlands<br><br>ii. Apply **the Conservation Status Assessment Rank** for each of the 27 wetland system types in New Hampshire<br><br>**Total Budget: $66,710 ($ 52,716 grant)**<br>**Hours: 200 (DES) (50% Yr 1)**<br>**Includes $40,000 for NHB** | **Products:**<br>▪ Summary report and wetland system-specific criteria for evaluating condition as part of EIA<br>▪ Summary report on the assignment of a conservation status rank with supporting documentation for each of the 27 wetland system types in NH based on the NatureServe Method<br>**Objectives:**<br>▪ Increased ability to monitor and assess condition of all wetlands in NH<br>▪ Improved identification of critical wetlands for protection and wetlands appropriate for restoration/mitigation<br>▪ Improved ability to inform conservation planning using objective and defensible Conservation Status Ranks<br>**NHWPP actions: 2a.1, 2c.3, 3c.2, 3d.2** | 2013-2014 | Sandy Crystall<br><br>NHB: Bill Nichols, Pete Bowman, & Sara Cairns |
| **4. Apply Level 2 EIA method to existing wetland system records** in NHB's Biotics database<br><br>Apply objective and science-based method for evaluating wetland system condition for existing records<br><br>**Total Budget: $39,361 ($31,365 grant)**<br>**Hours: 100 (DES) (60% Yr 1)**<br>**Includes $25,000 for NHB** | **Products:**<br>▪ Summary report on the existing wetland system records to which the Level 2 EIA were applied<br>**Objectives:**<br>▪ Higher quality information to inform permit decisions<br>▪ Improved ability to inform conservation planning<br><br>**NHWPP actions: 2d.3; 3c2** | 2013-2015 | Sandy Crystall<br><br>NHB: Bill Nichols & Pete Bowman |

| | | | |
|---|---|---|---|
| **5. Update wetland system classification and keys, develop wetland system fact sheets** and other outreach materials, and presentations<br><br>Develop fact sheets for each of the 27 wetland system types in New Hampshire<br><br>Outreach via website, presentations, and meetings<br><br>**Total Budget: $ 44,460 ($ 31,372 grant)**<br>**Hours: 190 (50% Yr 1)**<br>**Includes $25,000 for NHB** | **Products:**<br>▪ Updated keys, fact sheets, and presentations that reflect updated classification work<br>**Objectives:**<br>▪ Outreach education to professionals and conservation volunteers<br>▪ Improved ability to inform permitting, mitigation, and conservation planning<br><br>**NHWPP actions: 2a.1, 2a.2** | 2014-2015 | Jay Aube<br><br>NHB: Bill Nichols, Pete Bowman, & Melissa Coppola |
| **6. Improve the requirements for and technical review of wetland permit applications**<br>Develop new checklists to structure the technical review of applications and guide applicants in designing projects to minimize impacts, including improved assessment of wetlands functions and quality. In addition, define a GIS-based protocol for use by technical review staff in identifying and evaluating impacts associated with proposed projects.<br><br>**Total Budget: $64,277 ($19,050 grant)**<br>**Hours: 1,030 (70% Yr 1)** | **Products:**<br>▪ New permit application technical review checklists<br>▪ GIS-based protocol for identifying and evaluating impacts during technical review of applications<br>**Objectives:**<br>▪ Higher-quality designed proposed projects with fewer impacts, especially to higher-value and higher-quality resources<br>▪ Increased clarity, consistency, and efficiency in technical review of permit applications<br>▪ Improved ability to confirm/identify potential wetland-related impacts of proposed projects as a basis for alternative design to reduce impacts<br>**NHWPP actions: 1c.1, 1c.2, 1c.5, 1d.2** | | Mary Ann Tilton<br><br>Collis Adams<br><br>Sandy Crystall<br><br>Bill Thomas<br><br>Dori Wiggin |

| | | | |
|---|---|---|---|
| **7. Develop new Memorandums of Agreement (MOAs) with sister programs and agencies**<br><br>Work with other DES programs and other local, regional, state, and federal agencies to better define and articulate (a) conditions under which pre-application consultation should be required (e.g., presence of certain resources), (b) the process for consultation by applicants and/or DES staff, and (c) how to document information exchanged or conclusions reached during consultation.<br><br>**Total Budget: $40,522 ($19,015 grant)**<br>**Hours: 590 ( 30% Yr 1)** | **Products:**<br>▪ Interim procedures defined within checklists prepared under Task 6<br>▪ Updated or new MOAs with sister programs and agencies connected with the wetland permit application review process<br>**Objectives:**<br>▪ Increased clarity, consistency and efficiency for applicants in preparing applications and DES technical review staff in review of applications<br>▪ Improved consideration and reduction of impacts, particularly those affecting higher-quality, higher-value, or sensitive resources<br>**NHWPP actions: 1c.1, 1c.2, 2c.1** | Interim procedures Sept 2013-Jan 2013<br><br>MOAs Sept 2014-April 2015 | Mary Ann Tilton<br><br>Collis Adams<br><br>Sandy Crystall<br><br>Bill Thomas<br><br>Dori Wiggin |
| **8. Grant Administration, Quality Assurance, Outreach, and Reporting**<br><br>Monitor budget and progress on tasks; resolve issues. Prepare regular progress reports. Participate in regional workshops. Presentation at national conference.<br><br>**Total Budget: $30,185 ($21,673 grant)**<br>**Hours: 420 (50% Yr 1)**<br>**Travel (conf): $1,900** | **Products:**<br>▪ Progress Reports, Project Presentation(s)<br><br>**Objectives:**<br>▪ Effective implementation of workplan<br>▪ Shared learning on applicability of wetland assessment methods/criteria for assessing aquatic life support<br><br>**NHWPP Actions: 3a.2, 3a.3, 3a.4, 3c.1, 3c.2, 3c.3** | 10/1/13-03/31/16 | Sandy Crystall (lead) |

**6. Programmatic Capability/Technical Experience/Qualifications**

The proposed workplan utilizes and builds upon recent work conducted by DES and NHB, and supported by previous EPA Wetlands Program Development Grants (WPDG). Staff have been involved with one or more of the previous projects that provide the basis for the proposed work. Under a 2010 WPDG, DES is completing the development of a wetland monitoring strategy (S. Crystall), and a revised Level 1 wetlands assessment (K. Edwardson). Under a 2012 WPDG, DES and the NHB applied several rapid assessment methods to 27 natural and 5 mitigation wetlands (S. Mattfeldt, S. Crystall, NHB) and the DES Watershed Management Bureau is working with the Wetland Water Quality Standards Subcommittee to develop a plan for developing wetland-specific water quality standards (S. Crystall). NHB has conducted work on biomonitoring and assessment, and classification in recent projects (NHB-Bill Nichols). In 2013, Wetland Program technical staff (M. Tilton, W. Thomas, D. Wiggin) completed Lean events to evaluate the wetland application and technical review process and will continue to support the implementation of those recommendations under this grant. Summary resumes for key staff are attached.

**7. Partnership Information:** Maine DEP will provide training to DES staff on the field protocols, contractor requirements for macroinvertebrate sample processing, and the provision of macroinvertebrate data to Maine DEP, and process the NH data through its model. Staff from the NHB will collaborate with DES to enhance wetland assessment and classification through several tasks.

**8. Transfer of Results:** DES anticipates that the application of Maine's invertebrate model to NH will be of wide interest so DES will participate in a national conference to present the findings of this project. All reports and materials developed will be available and shared with

other states at regional meetings. In addition, DES and its partner, NHB, will participate in regional conferences.

**9. Past Performance:** Table 2 below describes DES activities and performance for five prior assistance agreements addressing related or similar activities implemented by DES over the last four years. All of these projects have been satisfactorily implemented to date, with routine and final reports filed on a timely basis.

**10. QA/QC-Invasive Species Control:** DES with its partners will prepare a Quality Assurance Project Plan (QAPP) for field work and data collection and analysis associated with Task 1. The QAPP will be reviewed by the DES's Quality Control Officer, Vincent Perelli. Staff will be trained on the Quality Assurance parameters prior to initiating field work. The QAPP will include provisions for Invasive Species Control. DES staff are trained and experienced in identifying and avoiding the spread of invasive species during field work. DES will ensure that staff from other entities are similarly trained, and that all staff are up-to-date on appropriate standard operating procedures.

**Attachments**

**i. Staff Resumes**

**ii. Support Letter(s)**

Maine Department of Environmental Protection

New Hampshire Natural Heritage Bureau (Partner letter)

**iii. References**

**Table 2. Past Performance Summary**

| Fiscal Year | Grant Information<br>Type, #, Title (abbrev), DES Manager(s) | Award | Status |
|---|---|---|---|
| 2009 | WPDG - Grant # CD961197010<br>Enhancing New Hampshire's Aquatic Resource Mitigation and Compliance Program<br>DES Managers: Collis Adams/Mary Ann Tilton | $300,000 | Project completed and final report submitted in a timely manner |
| 2010 | WPDG - Grant # CD961137701<br>Building Statewide Wetlands Monitoring and Assessment Capabilities<br>DES Managers: Gregg Comstock/Ted Walsh | $110,640 (federal portion) | Wetlands Monitoring Strategy to be completed by July 2013<br>Definition of waters to include wetlands: Completed<br>Designated uses that apply to wetlands: Completed<br>Updated Level 1 Assessment: Completed |
| 2008-2011 | State Innovation Grant - Grant # EI9788001<br>Superior Environmental Results Through Innovative Land Development Technical Assistance and Permitting in NH<br>DES Manager: Carolyn Russell | $275,000 | Project completed and final report submitted in a timely manner and within budget |
| 2011-2014 | WPDG - Grant # CD96155401-1<br>Creation of an Integrated and Comprehensive Aquatic Resource Habitat Restoration and Protection Program in New Hampshire | $293,000 | Mitigation/restoration sites evaluated; Currently building comprehensive complaint intake process<br>Database evaluation and business plan to build new Db complete<br>Time extension approved to complete project by Sept. 2014 |
| 2011-2014 | WPDG - Grant # CD96155701-0<br>Advancing NH's Wetland Program - Developing Water Quality Standards, Improving Assessments, and Enhancing Permitting Reviews;<br>DES Managers: Gregg Comstock/Collis Adams | $300,000 | Water Quality standards website created; Wetland WQS Plan due September 2014<br>Lean permit and Regulatory review processes underway; time extension approved to complete project by September 2014 |

**Attachment i.**

**Staff Resumes**

# SANDRA J. CRYSTALL, PWS

Phone: (603) 271-2471 Email: sandra.crystall@des.nh.gov


Environmental professional with more than 25 years of multidisciplinary experience in environmental and natural resources management, wetland evaluation and permitting, wetland monitoring and assessment, regulatory analysis, environmental policy, technical writing, and the provision of training in the private and public sectors. Managerial experience gained as a supervisor and project manager. Possess strong skills in technical analysis, oral and written communication, and plant identification.

## EXPERIENCE

**New Hampshire Department of Environmental Services (DES), Concord, N. H.**
**Wetlands Monitoring Coordinator, Watershed Management Bureau**
Assignment to the DES Watershed Management Bureau (from January 2011- present) involves the following projects:

- Botanist/Ecologist for 2011 National Wetland Condition Assessment, one of the National Aquatic Resource Surveys. Served as regional trainer of EPA vegetation protocols for regional field staff.
- Provided training and guidance on application of USA RAM at wetlands being assessed by multiple rapid assessment methods. Applied multiple assessments methods at bogs and fens. Gave presentations on project and application of the floristic quality assessment at ASWM and NEBAWWG meetings.
- Developing plan to establish wetland-specific water quality standards in coordination with multi-stakeholder Wetland Water Quality Standards subcommittee.
- Developing New Hampshire's wetland monitoring and assessment strategy.
- 2012 Lean Award - NHDES/DoIT IT Project Prioritization Improvement Team

**Senior Resources Manager, Wetlands Bureau**
Coordinated and provided public outreach and technical assistance for the State's wetlands protection program. Supervised technical staff. Developed informational materials and conduct indoor and field-based workshops about wetland science, wetland protection laws and permitting requirements, as well as the requirements of other DES land resource-based programs. Developed management reports from permitting database to identify accomplishments and track trends. Developed the Wetlands Bureau's Annual Report to the US Environmental Protection Agency (EPA). Managed the informational content on the Bureau's web site.

- Developed and managed a comprehensive outreach program that reached approximately 5,000 people annually through 30 – 40 events and presentations to diverse audiences. 1999 – 2011

**Wetlands Inspector, Wetlands Bureau**
Reviewed and evaluated applications for dredge and fill permits. Assessed impacts of, and made permit decisions or recommendations about proposed work in wetlands and surface waters. Provided technical assistance and guidance to the public concerning procedures and information required to obtain wetlands permits. Conducted peer reviews of permitting decisions. Conducted field inspections to determine accuracy of wetland delineations, potential impacts to wetland resources, and identify potential sites for conservation purposes. 1998 – 1999

**Tetra Tech EM, Inc., Vienna, Va.**
**Senior Environmental Scientist**
Managed and provided technical support on local, regional, and national projects concerning natural resources, environmental education, assessment and remediation of hazardous waste sites, solid waste, regulatory analysis, and pollution prevention. Developed and conducted training courses for international and U.S. audiences. Facilitated workshops and roundtable meetings. Managed large, complex, multifaceted, multitask projects, with budgets of up to $300,000 and requiring more than 15 interdisciplinary staff.

- Used the Hazard Ranking System to evaluate the relative risks to human health and the environment posed by more than 100 hazardous waste sites nationwide. Conducted field reconnaissance of sites to evaluate natural features that might serve as the migration paths of hazardous substances.
- Managed the development of a guidance manual on the implementation of cleanup technologies for soils contaminated with volatile organic compounds. Project involved more than 15 staff nationwide and meetings conducted at eight EPA regional offices. Received an unprecedented award fee of 100% for the project from the EPA. 1990 – 1997