LPRSA Sustainable Remedy Update
December 12, 2013

The CPG has assembled a number of documents to support the upcoming meeting on December 12, 2013 at EPA Headquarters (HQ) with Jim Woolford, OSRTI Director and HQ staff. The information is meant to address HQ's questions to the CPG from the July 24, 2013 meeting as well as to update both EPA Region 2 and HQ on the CPG's ongoing activities to develop the Sustainable Remedy (SR) for the entire 17.4 miles of the LPRSA.

The documents provided include:

- **"A Sustainable Remedy for the Lower Passaic River"** – a summary presentation that provides the status and brief responses to previous HQ questions. This is the presentation that is proposed to be presented and discussed during the meeting. The following documents are provided for reference and to support discussions and understanding of the SR.
- **"Technical Case for the Sustainable Remedy"** (TCSR) – a 20 page white paper that provides a detailed overview of the SR for Lower Passaic River. The TCSR discusses how the CPG's conceptual understanding of the River based on the complete RI data set supports the implementation of targeted remediation. The document is provided for HQ and the Region's reference and further reading.
- **"Sustainable Remedy - Evaluation of the Nine NCP Criteria"** - addresses the HQ's request that the CPG evaluate the SR against the 9 NCP criteria. The results of the evaluation are summarized in the CPG's presentation, but additional information is included in this document for both HQ's and the Region's reference and consideration.
- **Community and Local Elected Official's Letters –** Included are a number of letters drafted by local organizations and elected officials calling for Region 2 Administrator Enck to consider the Sustainable Remedy as an alternative to the FFS alternatives under consideration by the Region for the lower 8 miles of the River.

The CPG is submitting these documents to Region 2 in advance of the meeting as requested by HQ and requests that if there are any questions or comments to please contact the CPG's Project Coordinators.

A Sustainable Remedy for the Lower Passaic River

EPA HQ Meeting

Cooperating Parties Group

December 12, 2013

FOIA_07123_0001503_0002

Presentation Elements

- Status of Sustainable Remedy Development
- SR Evaluation Against 9 CERCLA Criteria
- Modeling Update
  - Demonstration of Sediment Surface Concentration Reductions
  - Remediation Trajectories
  - R2 Briefings
- Risk Evaluation
- Community Acceptance
- Adaptive Management – Proposed Metrics

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Sustainable Remedy Elements

In-River Elements	
Targeted dredging	• Dredge target areas with 2,3,7,8-TCDD surface concentration > 500 ppt • ~680,000 cy (~140 acres, nominal 2 ft + 50% contingency, ~30 target areas from RM 0-14.6) • Mechanical dredge w/environmental bucket
Engineered caps	• Physical isolation of remaining legacy sediments in target areas • Chemical isolation
Transportation; treatment; disposal	Barge to processing facility; dewater/treat/stabilize; disposal in permitted upland facility(ies)
ENR/in-situ treatment	May be implemented as an alternative to dredging and/or capping in selected areas and/or as part of potential future adaptive management
MNR	Monitor effect of targeted removal on areas not actively remediated
Long-term monitoring	Assess remedy performance and effectiveness
Interim/Adaptive management	Investigate and implement additional measures if monitoring indicates progress towards RAOs is not achieved
Construction time	Approximately 5 years

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Sustainable Remedy Elements

Institutional Controls and Exposure Reduction Elements	
Institutional controls	• Proprietary controls (e.g., property purchases, restrictive covenants utility restrictions) • Informational tools (deed notices, fish advisories, signage, state registry)
Agency Enforcement	Government evaluation of progress (e.g., 5-year review)
Aquaponics and Fish Exchange Program	Reduce short-term human health risks from consumption of LPR fish; provide a clean source of high quality protein to the angling community
Carp Management Program	Limit the availability and consumption of carp to reduce human health risk and improve river ecology
Environmental Justice	Rapidly addresses a degraded urban river – risk reduction, quality of life improvements
Out-of-River Elements	
Watershed Restoration Program	• Establish a lasting program to promote future projects that sustain the in-river remedy • Improve "urban river" water quality through select projects (e.g., tree farms, park restoration, and wetlands construction) • NRD Restoration activities will be accelerated following rapid completion of remedial activities
Job Training Initiative	Projects would promote job training and create employment opportunities, consistent with the Superfund JTI

Sustainable Remedy Evaluation Against NCP Criteria

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The Sustainable Remedy Will Satisfy Key NCP Requirements

- Comprehensive approach will ***provide overall protection of human health and the environment (Criterion 1)***
  - Targeted in-river remediation
  - Additional exposure reduction controls
  - Adaptive management
  - Out-of-river elements
- Adaptive approach through use of interim remedy will promote ***compliance with ARARs (Criterion 2)***
- Targeted approach provides distinct advantages with respect to ***short- and long-term effectiveness, implementability (Criteria 3, 5, and 6)***
- Targeted remediation, in combination with prior removal actions, ***reduces contaminant toxicity, mobility, and volume (Criterion 4)***
- Continued public outreach and stakeholder engagement promote ***state and community acceptance (Criteria 8 and 9)***
- ***NCP Process – select lowest cost alternative that is protective (Criterion 7)***

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Summary Evaluation of the Sustainable Remedy against the 9 NCP Criteria

THRESHOLD	1. Overall Protection of Human Health and the Environment	YES
	2. Compliance with ARARs	Satisfactory
BALANCING	3. Long-term Effectiveness and Permanence	Good
	4. Reduction of Toxicity, Mobility, or Volume through Treatment	Satisfactory
	5. Short-term Effectiveness	Good
	6. Implementability	Good
	7. Cost	Satisfactory
MODIFYING	8. State Acceptance	Under Evaluation
	9. Community Acceptance	Satisfactory

Good | Satisfactory | Fair | Poor | Under Evaluation

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State of the CPG Working Model

- Working model completed and used for projections
- Overcomes the major concerns raised by the Peer Review of the EPA Model
- Being refined
  - Better mapping of sediment COPC concentrations
  - Better descriptions of some of the processes at work in the river
- Refinements will improve predictions, but will not change the big picture conclusions

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Mapping of Sediment COPC Concentrations

- Fundamental to understanding the river, crafting remedies and modeling effectiveness
- Basic approach
  - Divide up the river
    - Using bathymetry, nature of the sediments and historical patterns of erosion and deposition
  - Within each division, use all the recent sediment COPC data to estimate concentrations throughout the area

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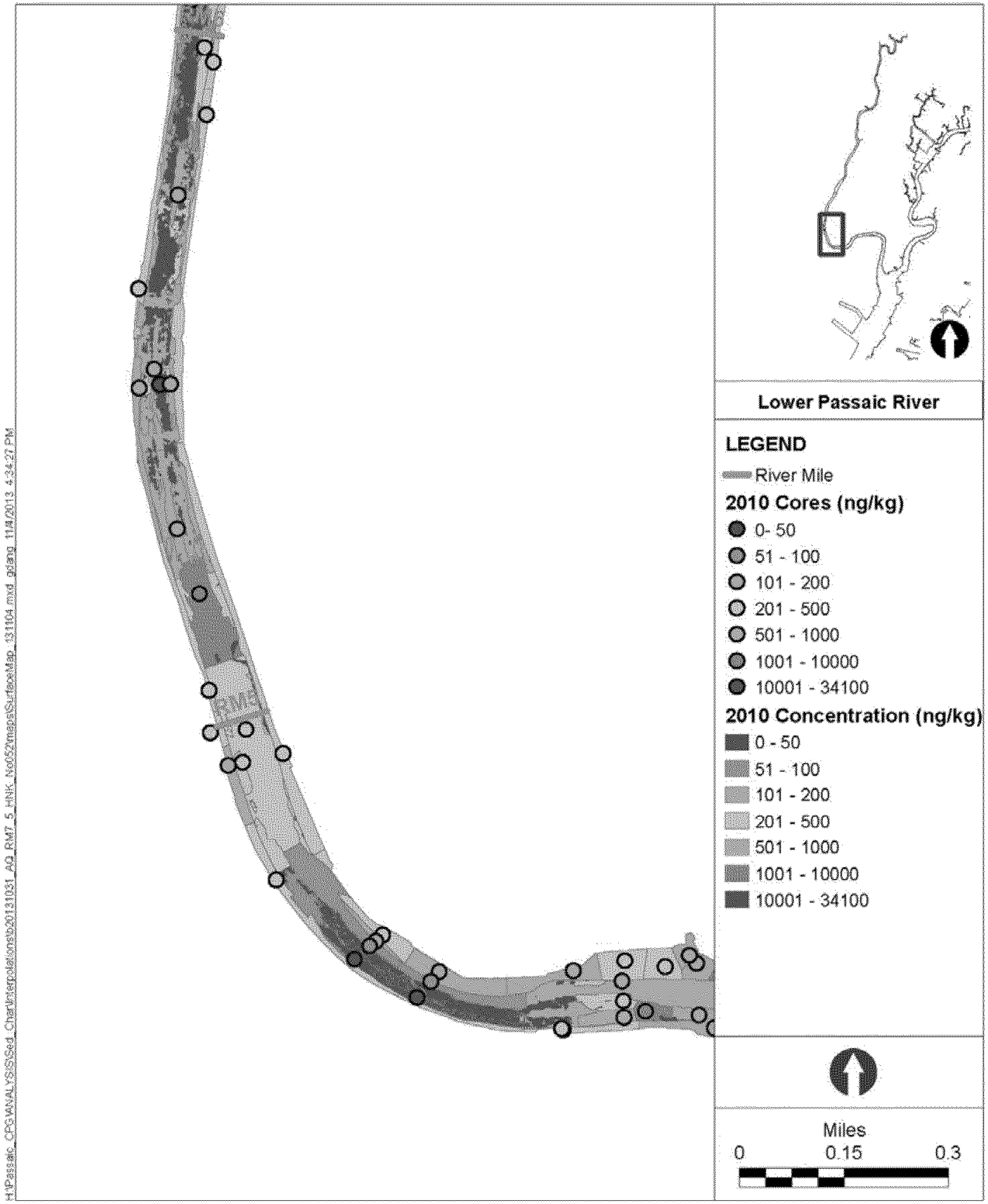
Example: Mapping of 2,3,7,8-TCDD in Vicinity of RM 5



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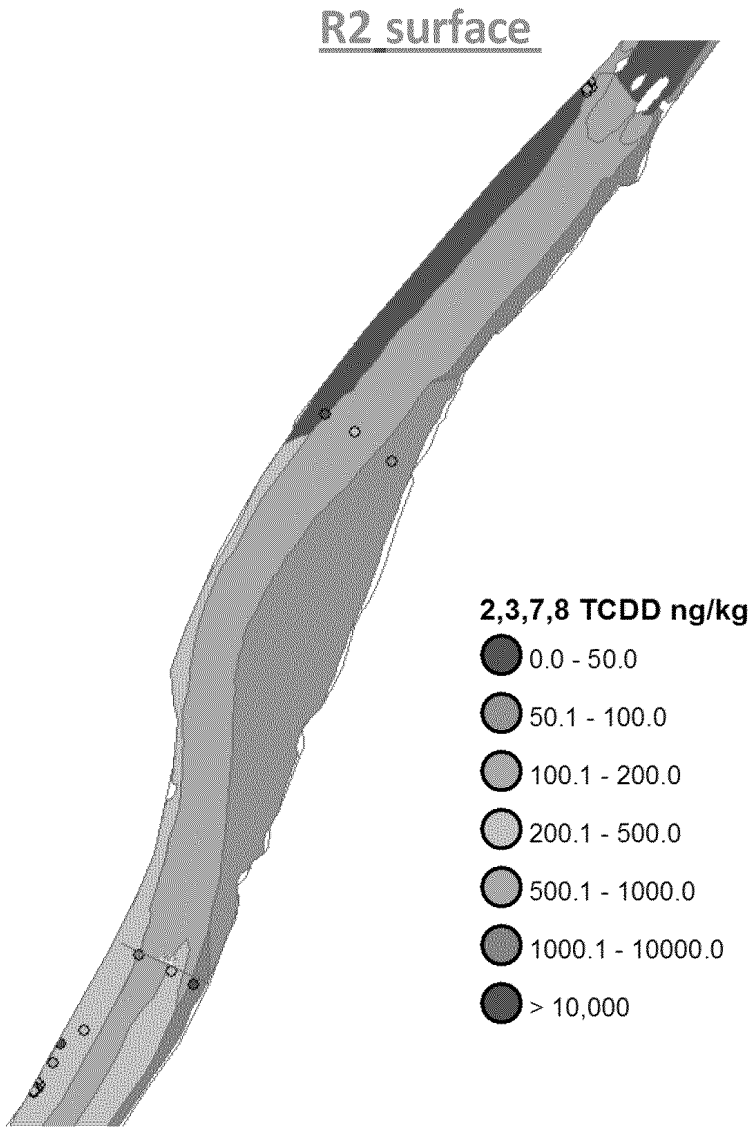
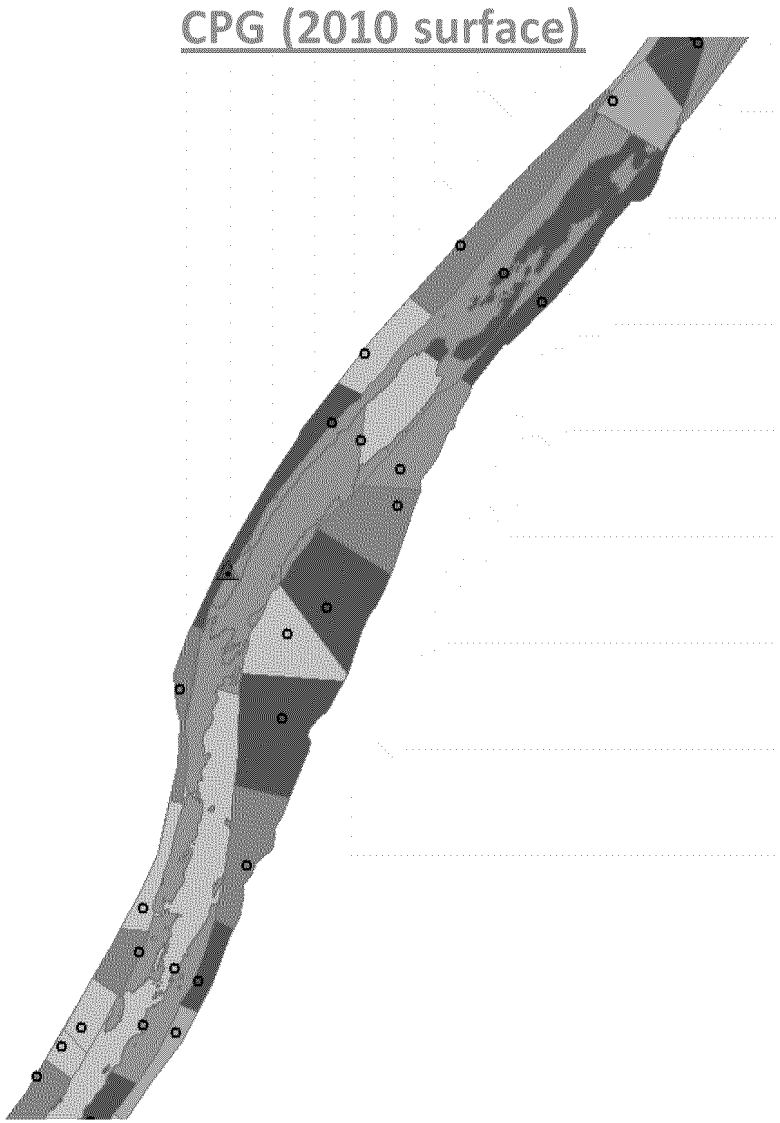
Use of All the Recent RI Data Increases Our Understanding

Example: RM 7.5 Area





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Targeted Remedy Designed From the COPC Mapping Using RI Data

- Identify areas of high concentration
- Use 500 ppt 2,3,7,8-TCDD as a threshold
  - Is protective of human health and the environment
  - Maximizes efficiency of remediation
    - Greater risk reduction while minimizing extent of disruption to the river and the community
- Rapid Risk Reduction
  - Achieves acceptable Human Heath (Direct Contact) Risk
  - Fish Exchange
    - Mitigates human health exposure
    - Does not rely on consumption bans
  - Fish Ingestion Risk also Managed by
    - Carp Management

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Use of all RI Data and Consistent Approach Aligns EPA and CPG Results

	CPG 2010 Surface	R2 Surface	Modified R2 Surface*
	Area (acres)		
Target areas	140	193	178
Target areas % of total area	**15%**	**22%**	**21%**
	Mean 2378-TCDD Concentration for RM 0-14 (ng/kg)		
Target areas	4,662	1,670	3,240
Non-target areas	188	239	277
All areas	908	557	887
All areas with target areas set to 0	158	186	220
Percent reduction in mean concentration	**83%**	**67%**	**75%**

*** Using all the post-2005 data. Approximate only; required assumptions about EPA mapping approach.**
All values are approximate and subject to change.

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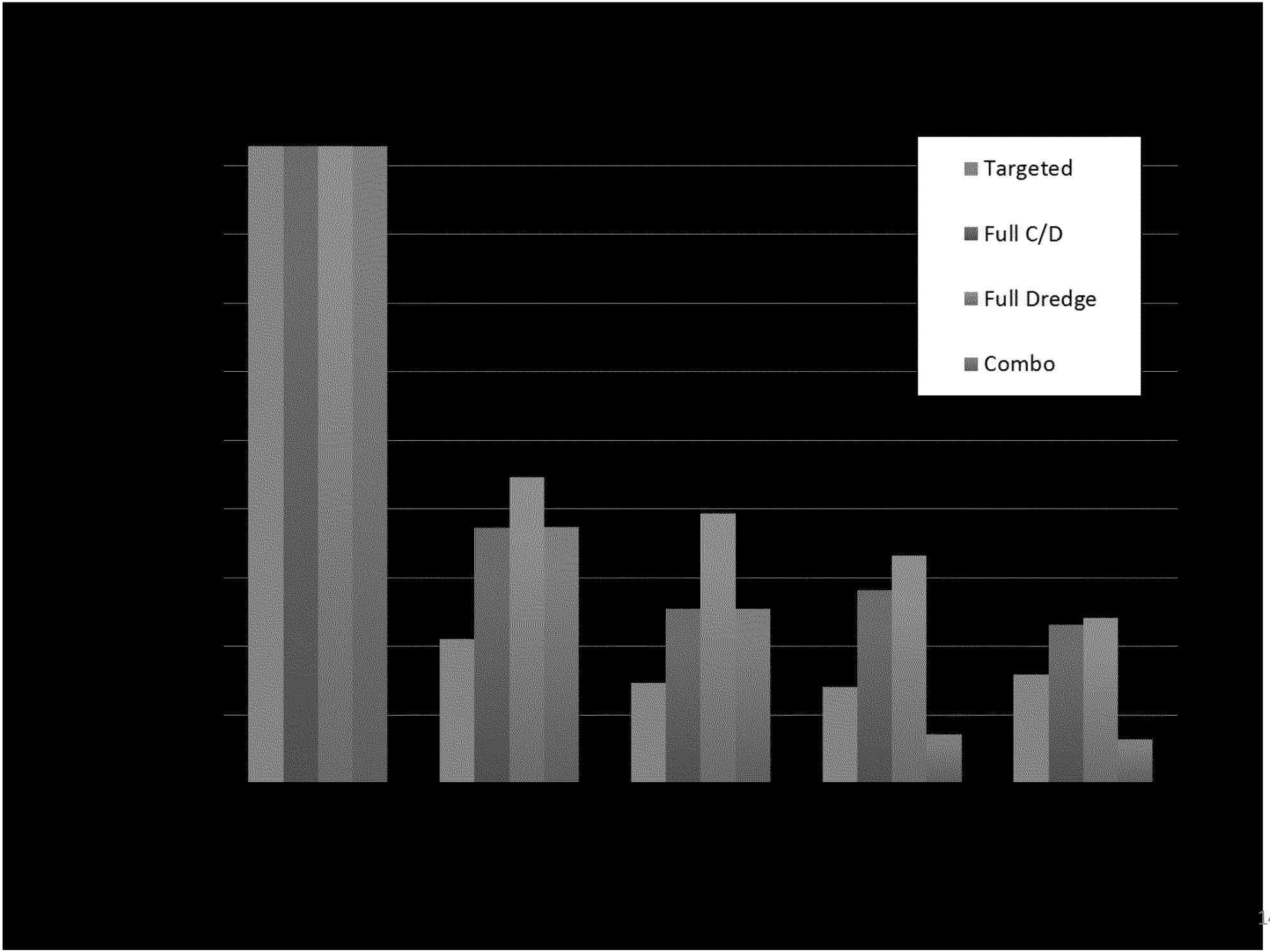
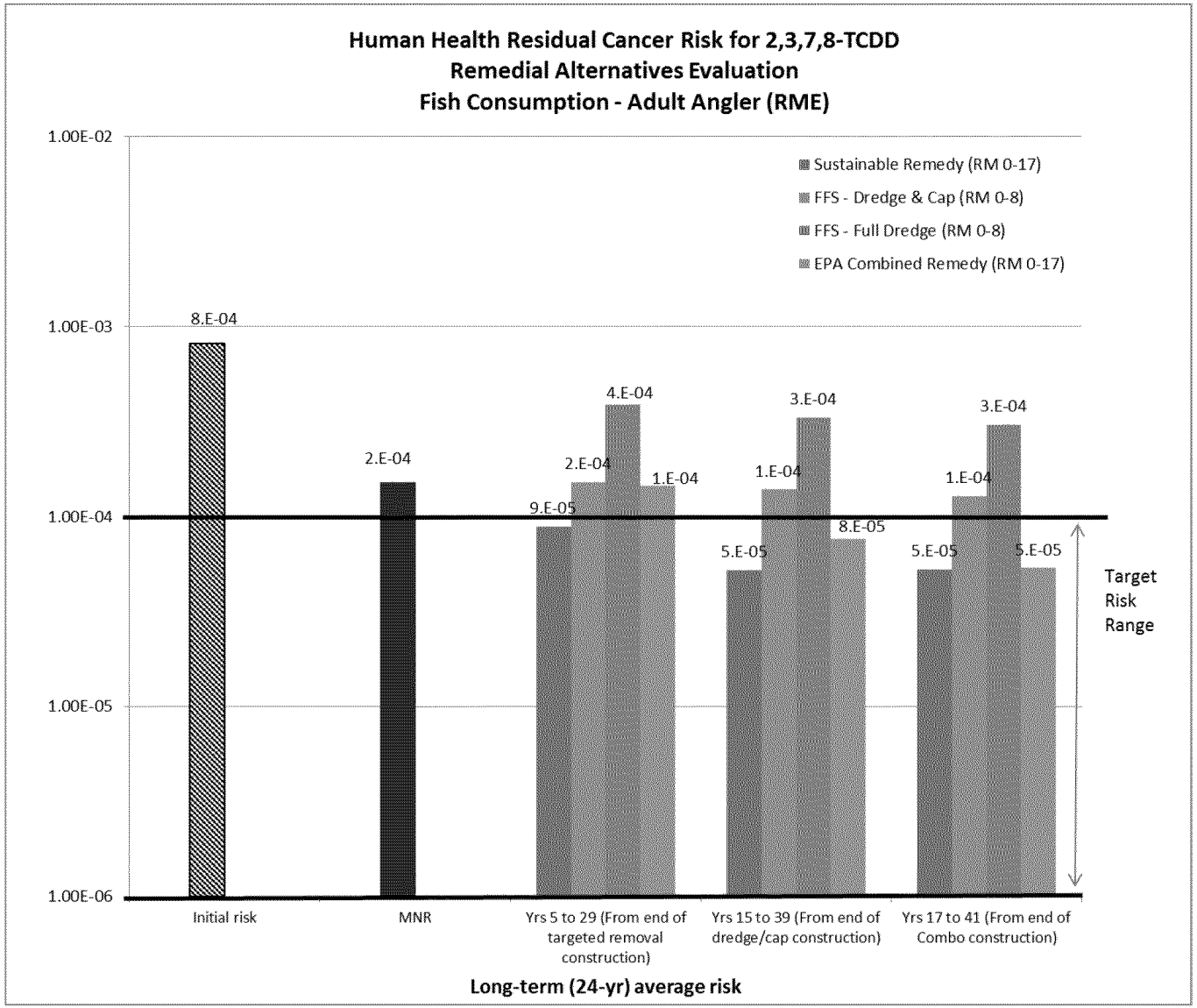

Targeted
Full C/D
Full Dredge
Combo

Remedial Alternatives Evaluation – TCDD



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Region 2 Briefings

- Two meetings held with R2 and NJDEP this fall to provide detailed description of modeling efforts
  - Developed better understanding of R2 and CPG mapping approaches
  - Concluded "models are converging"
  - Agreed to continue collaboration meetings in 2014
- R2 acknowledged that the meetings provided information necessary to understand the development of CPG's working model

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Community Relations/Acceptance

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Community Acceptance

- Significant risk reduction
- Minimize quality of life impacts
- Working with community

FOIA_07123_0001503_0019

COUNTY C
OFFICE OF THE COL
One Bergen County Plaza • Room 280
(201) 336-7300 • Fax (2

Kathleen A. Donovan
County Executive

February 21, 20

Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, New York 10007-1866

RE: PASSAIC RIVER

Dear Regional Administrator Enck:

The purpose of this letter
Protection Agenc
immediate
mile

NEREID BOAT CLUB
201-438-3995
www.nereidbc.org

350 Riverside Avenue
P.O. Box 1678
Rutherford, NJ 07070

October 30, 2013

The Honorable William Pascrell, Jr.
Rayburn House Office Bldg., Rm. 2370
Washington, DC 20515

Dear Congressman Pascrell:

I am writing to you today on behalf of Nereid Boat Club, Inc., to request that your office ask EPA Region 2 to fully consider the merits of the Sustainable Remedy developed by the Lower Passaic Cooperating Parties Group as part of its review of remedial options for the Lower Passaic River.

CITY OF GARFIELD INC. 1917

City of Garfield
111 OUTWATER LANE
GARFIELD, NEW JERSEY 07026-2694
jdelaney@garfieldnj.org

CITY HALL: (973) 7
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FAX: (97?

NEW JERSEY GE.

RALPH R. CAPUTO
ASSEMBLYMAN, 28TH DISTRICT
NUTLEY, GLEN RIDGE, BLOOMFIELD
IRVINGTON AND NEWARK PARTIAL

148-152 FRANKLIN STREET
BELLEVILLE, NJ 07109
(973) 450-0484
FAX: (973) 450-0487
EMAIL: AsmCaputo@njleg.org

March 6, 2013

Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Dear Regional Administrator Enck:

As an Assemblyman repres
Township of Nutley
United States
my beli

MONTCLAIR STATE UNIVERSITY
PASSAIC RIVER INSTITUTE
The College of Science and Mathematics

March 18, 2013

Ms. Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway, 26th Floor
New York, NY 10007-1866

Dear Regional Administrator Enck:

At our fifth Passaic River Symposium held on October 19th, there was a in-depth discussion on the path forward for sediment remediation, restoration, and economic development of the lower Passaic River and the impending release of the U.S. Environmental Protection Agency (EPA) Region 2's Focused Feasibility Study (FFS). While the Passaic River Institute (PRI), elected officials and other members of the community look forward to the release of the FFS later this year, we were interested to learn recently about another approach to addressing sediment remediation in the lower Passaic River utilizing an Adaptive Management Approach.

NEW JERSEY SENATE

PAUL A. SARLO
DEPUTY MAJORITY LEADER
36TH LEGISLATIVE DISTRICT
8 COLUMBIA BOULEVARD, 1ST FLOOR
WOOD-RIDGE, NJ 07075
PHONE: (201) 806-8118
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COMMITTEES
CHAIRMAN
BUDGET AND APPROPRIATIONS
JUDICIARY
HIGHER EDUCATION
LEGISLATIVE OVERSIGHT

Ms. Judith Enck
February 14, 2013
Page Three

Simply put, the FFS is premature. The decisions made this year will impact our community for the next 100 years. Accordingly, we strongly recommend that Region 2 set aside the FFS, allow the CPG to complete the RI/FS as quickly as possible, examine all remedial alternatives for the entire 17 miles of the LPRSA based on all data that is and will become available, and work with the CPG and the riverfront communities to advance our comprehensive remedial solution that restores the River and provides value to communities along the River.

NJCC
THE STATE CHAMBER

March 6, 2013

Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Dear Regional Administrator Enck:

By way of background, the New Jersey State Chamber of Commerce ("State Chamber") is recognized as the independent voice of business in New Jersey. With a broad based memb ranging from the Fortune 500 companies to small proprietorships, representing every corne the state and every industry, our members provide jobs for over a million people in New Je We continue to work towards promoting a vibrant business environment and economic prosperity through vision, expertise and innovative solutions.

With that in mind, we want to take the opportunity to express our strong
Focused Feasibility Study (FFS) that the United States E
Region 2 is planning to release later this
understand that the EPA
eight mil

New Jersey
ALLIANCE for ACTION INC.®

PHILIP K. BEACHEM
President

P.O. Box 6438 • Raritan Plaza II • Edison, New Jersey 08818-6438
(732) 225-1180 • FAX (732) 225-4694
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GERALD T. KEENAN
Executive Vice President

CLIFFORD HEATH
Senior Vice President

March 18, 2013

Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Dear Regional Administrator Enck:

On behalf of the hundreds of companies and thousands of employees of member companies that we represent in the State of New Jersey, the New Jersey Alliance for Action is writing to you today to state our opposition to the U.S. Environmental Protection Agency's (EPA) Focused Feasibility Study (FFS).

NEW JERSEY GENERAL ASSEMBLY

BARLENE CARTER
DISTRICT
32 BEECH STREET
BLOOMFIELD, NJ 07007
PHONE: (201) 743-0818
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EMAIL: AsmCarter@njleg.org

COMMITTEES
AGRICULTURE AND NATURAL RES
TRANSPORTATION, PUBLIC WOR
INDEPENDENT AUTHORIT
TELECOMMUNICATIONS AND U

March 7, 2013

Judith A. Enck
Regional Administrator
Environmental Protection Agency, Region 2

Focused Feasibility Study

Fish Exchange Pilot Program

- In 2014, the fish exchange will provide healthy, clean fish from an aquaponics facility
  - Employing local veterans
  - Replacing contaminated fish with locally grown fish
  - Part of adaptive management
- Ongoing effort to reach out to communities to gain knowledge of local fishing habits
- Program would be tracked and monitored to support adaptive management

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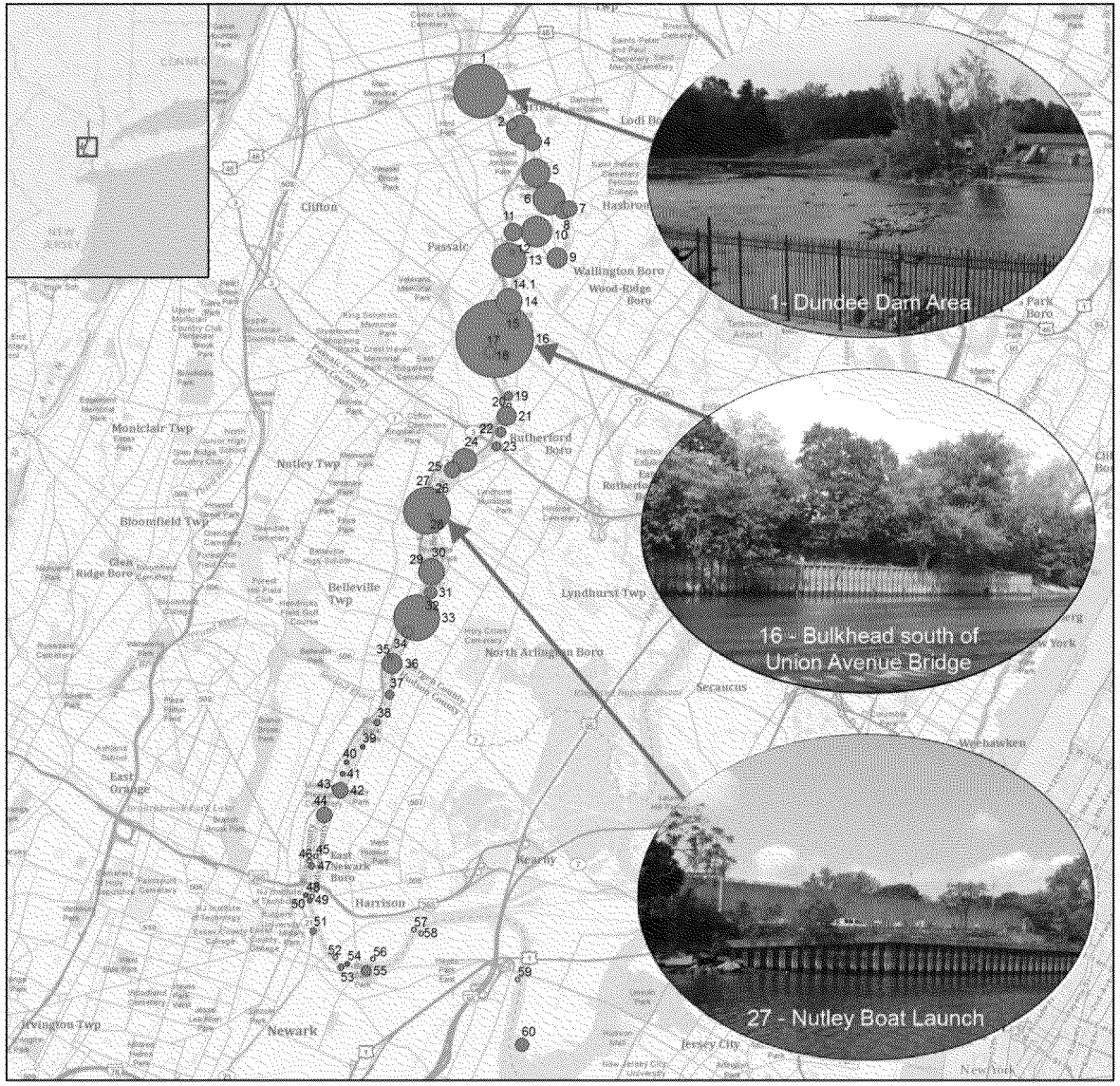
Observed Fishing Locations



LPRSA Unique Angler Trips per Fishing Site
September 16, 2011 - September 15, 2012

0 0.5 1 1.5 2
Miles

PRELIMINARY DRAFT

Unique Angler Trips per Fishing Site (and Site Number)

Fishing Sites with No Anglers

1

10

100

1,000

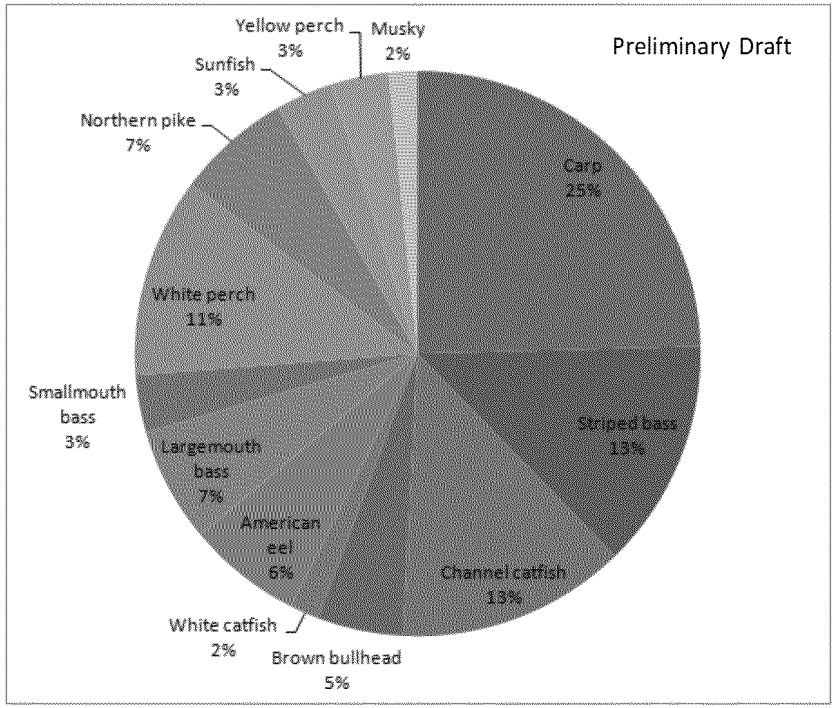
Note: Unique angler trips is the total number of fishing trips observed at a site, including trips made by the same angler on different days. For example, approximately 350 unique anglers made 600 separate, observed fishing trips to Site 16 between September 16, 2011 and September 15, 2012.

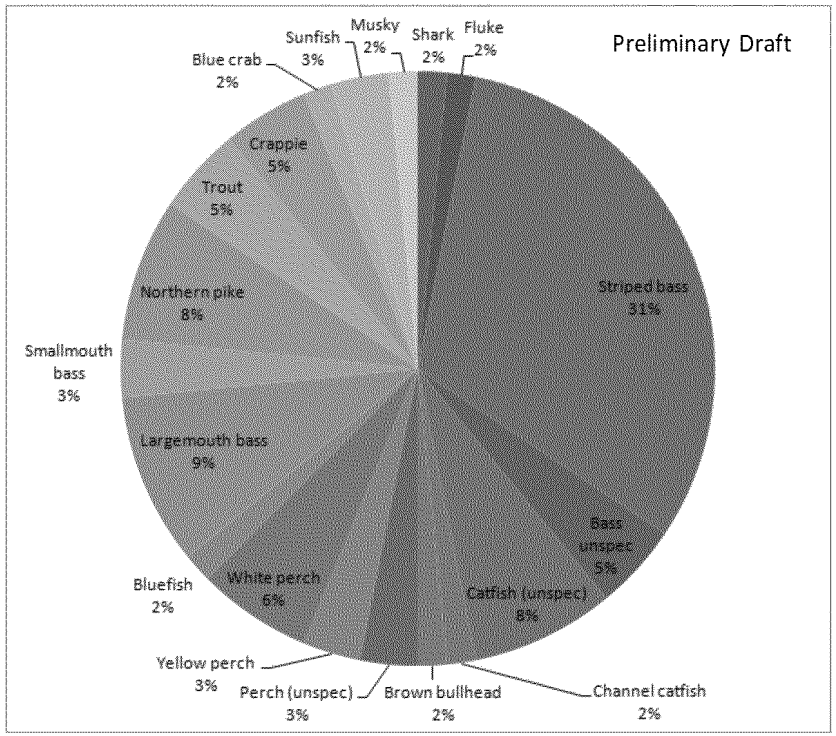
AECOM

February 2013

Basemap: ESRI 2012

Coordinate System: NJ State Plane, Feet





Catch Preferences: Current Consumption

(Consuming Anglers)

Catch Preferences: But-for-Advisory Consumption

(Consuming and Non-Consuming Anglers)

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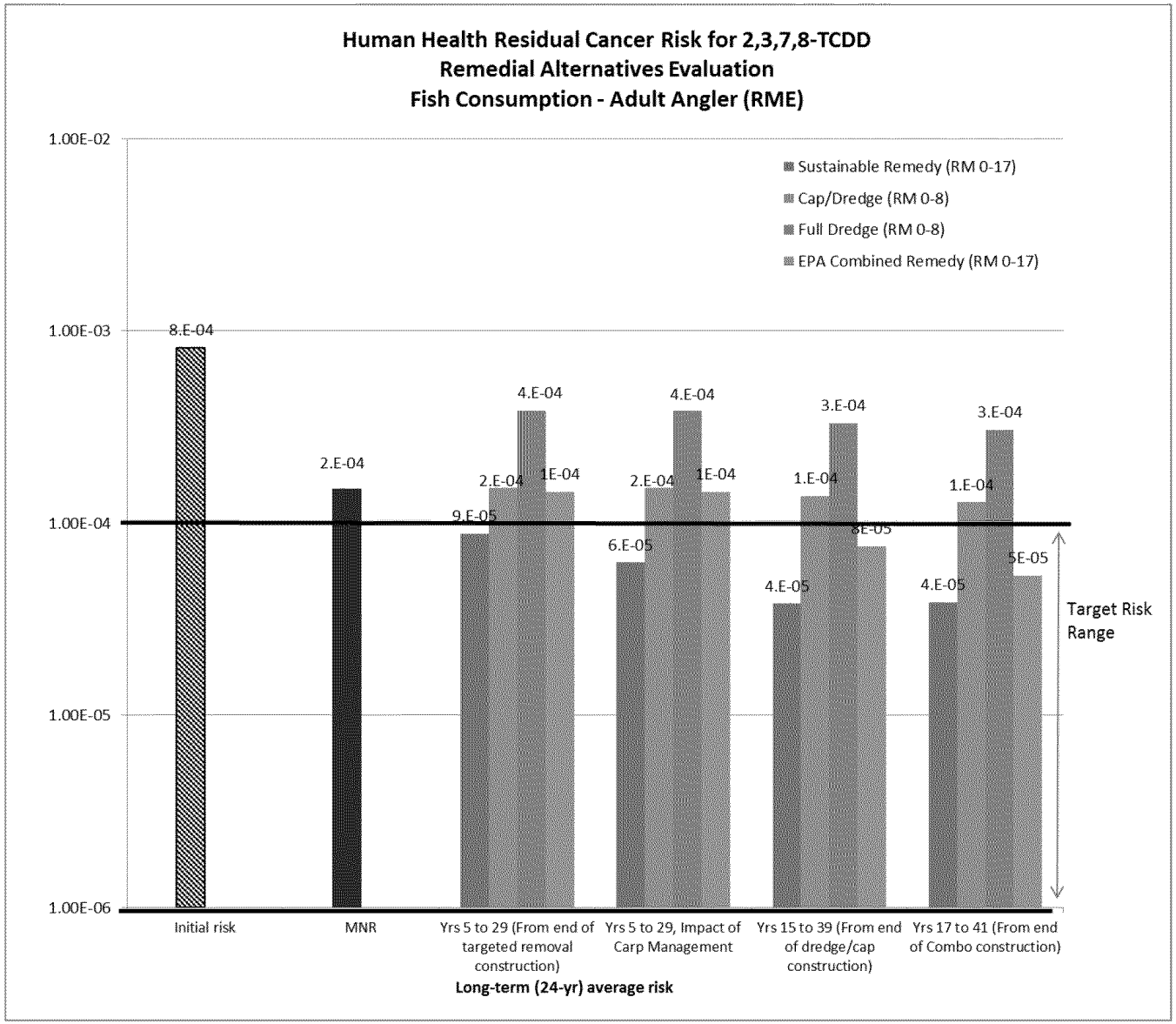
Remedial Alternatives Evaluation – TCDD with Carp Management



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Adaptive Management Approach

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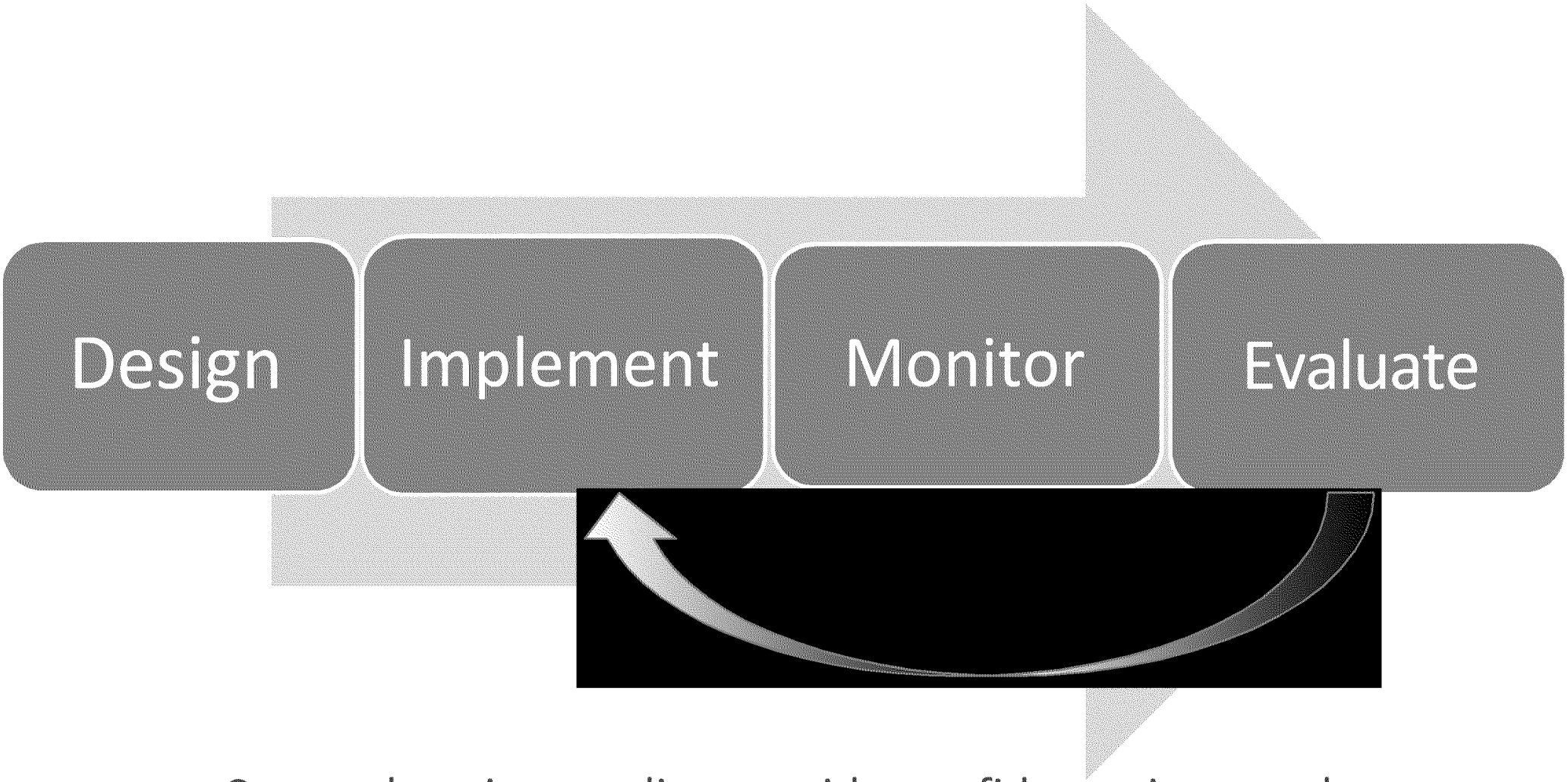
"Adaptive Management" Ensures Success



Comprehensive studies provide confidence in remedy effectiveness; evaluation provides the needed check

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Conceptual Phasing Plan for Adaptive Management

year 0 | year 5 | year 10 | year 15 | year 20

1 Target Areas

Sign ROD

- Remedial Design for Target Areas
- In-water Work for Target Areas

2 Monitoring/MNR

- Verification Monitoring
- Long-term Monitoring Plan
- Design for Contingent Action Based on Verification Monitoring Results
- O&M Monitoring

3 Adaptive Management

- Evaluate MNR results
- ENR or cap O&M
- Contingency actions

MNR

Baseline | Verification, O&M & | Long Term Monitoring

Exposure Management Components

- Community Advisory Network: River Vision & Public outreach
- Fish Advisories & Carp Management Program
- Finalize IC Implementation Plan
- Continue Fish Exchange & Monitor Results

- Evaluate results, carp management & fish exchange
- Program enhancements
- Restoration & Public Access projects/ partnerships

Source Control

Source Control for Target Areas

Other Source Control Measures

5-year Reviews | MNR Process Check | Completion Report

MNR = Monitored Natural Recovery
ROD = Record of Decision

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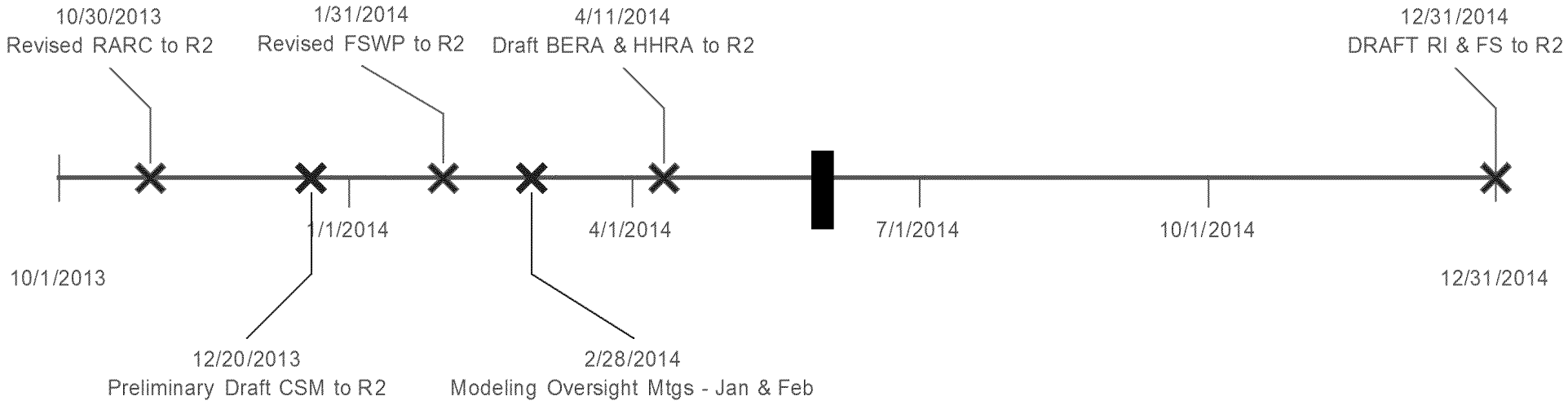
2013/2014 LPRSA RI/FS Timeline



- Major RI/FS deliverables in 2013 and 2014
- Receive final approvals from R2 on RARC & FSWP
- Update RI/FS Schedule
- Complete modeling oversight meetings & develop a single LPR/NB model from FFS & CPG working models
- Discussions with R2 on interim RI and FS report submissions

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Summary

The Sustainable Remedy

- Satisfies 9 NCP criteria
- Relies on a comprehensive understanding of the River informed by the many studies conducted during RI
- Differentiates between areas of high concentration of contaminants and areas of lesser concentrations – allowing the identification of target areas
- Is a targeted remedial approach supported by all the data, can be accomplished more quickly, with less community disruption, comparable level of risk reduction and at far less cost
- Manages interim risk by using fish exchange while the River recovers
- ***NCP Process – select lowest cost alternative that is protective***

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Technical Case for the Sustainable Remedy
Lower Passaic River Restoration Project

Overview of the Sustainable Remedy

The Lower Passaic River Study Area (LPRSA) Cooperating Parties Group (CPG)[1] is nearing completion of a more than $100 million Remedial Investigation/Feasibility Study (RI/FS) study designed to determine the most effective method(s) to reduce the risk to human health and the environment from the contaminants found in the Lower Passaic River (LPR) sediment, water and ecology following applicable CERCLA guidance and regulation. The preliminary conclusion from the RI/FS is that the optimal solution for the river is a program that includes the removal and capping of the most highly contaminated sediment in the river, as well as ecological restoration. This approach – the "Sustainable Remedy" – is part of a comprehensive vision for the entire 17 miles of the lower river, where risks to human health and the environment are reduced, water quality is improved and communities can again value and enjoy the river.

The Sustainable Remedy provides a superior alternative to the bank to bank dredging approaches contemplated by EPA Region 2 in its Focused Feasibility Study. The Sustainable Remedy will address the entire 17 miles of the LPR, achieve equivalent - or better - risk reduction, be accomplished much more quickly (with less negative impact on the river and adjacent communities), and includes river restoration and interim risk management provisions that are not part of EPA's plan. Based on a detailed evaluation of the Sustainable Remedy and the bank to bank alternatives, the CPG has concluded that the Sustainable Remedy better meets the nine CERCLA remedy selection criteria and is more consistent with EPA's Sediment Management Guidance than are the bank to bank dredging alternatives.

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[1] The CPG includes more than 60 cooperating members. Many other parties who have been identified as potentially responsible are not members of the CPG. Most notably, Tierra Solutions/Maxus/Occidental Chemical, considered the most significant responsible party due to significant contribution of 2,3,7,8-TCDD, is no longer part of the CPG and no longer funding the RI/FS effort. In 2012, EPA issued a Unilateral Administrative Order (UAO) against Occidental for its failure to contribute toward the CPG's removal of 2,3,7,8 TCDD contaminated sediment at RM 10.9.

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The Sustainable Remedy is scientifically sound. It has been developed through extensive technical evaluation of the sediment, surface water and ecological data collected by the CPG (with EPA oversight) during the RI and by EPA and others in previous investigations. The numerical modeling used to predict the future levels of contaminants in sediment and fish provide assurance that the remedy will be protective of human health and the environment. However, safeguards are built into the Sustainable Remedy consistent with the EPA's sediment principles, including adaptive management. This is an iterative process whereby continued monitoring will be conducted after the sediment cleanup is completed and if progress towards the remedial goals is not achieved, the need for additional remediation will be evaluated.

Components of the Sustainable Remedy

The Sustainable Remedy consists of two integrated programs that will rapidly remediate contaminated sediment and help to restore the ecology along the entire 17 miles of the LPR:

1. Targeted removal and capping of approximately 130 to 150 acres of sediments in the LPR that contain the highest levels of near-surface contamination. The removal targets surface sediments in areas where elevated concentrations are observed at or near the sediment surface due to limited burial and areas of recent erosion into historic, contaminated sediments. Initial analyses indicate this remediation can be constructed in approximately five years and will reduce the average 2,3,7,8-TCDD surficial sediment concentration by approximately 80 percent, with other contaminants of potential concern (COPCs) approaching regional background concentrations. After the cleanup, the risk to human health during swimming, wading and boating will meet EPA target levels (10^{-4} to 10^{-6}), and the risks from fish consumption will approach EPA target levels and be equivalent to those achieved by the EPA's bank to bank FFS alternatives.
2. Restoration programs that will improve water quality, reduce the impacts of invasive species, and create and enhance habitat that will ultimately encourage a healthy watershed ecology. These programs are expected to include

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components such as bank softening, riverfront park improvements that create habitat and provide greater river access, and projects such as creating wetlands and riparian habitat, planting shade trees, and constructing rain gardens, that will improve the watershed.

The Sustainable Remedy's holistic approach to the Passaic River cleanup, where natural resource restoration efforts are combined with sediment remediation, is precisely the program envisioned by the Urban Water Federal Partnership which the Passaic River was added to in May 2013.

Although the best science available supports the conclusion that the Sustainable Remedy will be protective of human health and the environment, there are uncertainties that must be recognized and managed to ensure a successful conclusion. The Sustainable Remedy has incorporated two features that allow these uncertainties to be evaluated and addressed to ensure a successful outcome:

- First, the Sustainable Remedy will use "adaptive management", an iterative decision-making process designed to monitor and address uncertainties, as outlined in EPA's own sediment management guidance (EPA 2005[2]). Using adaptive management, the performance of the remediation will be evaluated to verify that the goals are being met. If the cleanup is not meeting the predicted outcome, the CPG will work with the EPA to determine what additional remedial actions are needed.

- Second, a fish exchange program will be established in parallel with the sediment remediation. Studies conducted by the CPG have found that some anglers are consuming fish from the river, despite the state-mandated fish and crab consumption ban. By exchanging clean, locally grown fish for fish caught in the LPR, the risks from eating contaminated fish will be directly reduced while the Sustainable Remedy is completed and its effectiveness subsequently proven. The fish exchange will provide a supply of safe, high quality protein to community

[2] EPA. 2005. Contaminated Sediment Remediation Guidance for Hazardous Waste Sites. EPA-540-R-05-012.

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members who currently consume their catch as well as provide other benefits to the community.

Compliance with NCP Criteria and EPA Guidance

Remedies under consideration for the LPRSA must meet nine evaluation criteria specified in the National Contingency Plan (NCP). The Sustainable Remedy will meet these criteria and provide equivalent or better risk reduction and protectiveness than the EPA FFS remedial options. The Sustainable Remedy will be protective of human health and the environment by quickly removing surface sediments with the highest 2,3,7,8-TCDD concentrations (as well as other co-located COPCs) and by managing interim potential fish consumption risk through the fish exchange program. It achieves long-term protectiveness by isolating buried contamination and enhancing natural recovery, and it minimizes short-term impacts by a shorter implementation period and less resuspension of contaminants than the FFS alternatives. Further, the potential for recontamination following implementation is reduced by addressing potential ongoing sources from the entire river.

The Sustainable Remedy is also more consistent with the 11 principles of EPA's "Guidance for Contaminated Sediment Sites" than are the bank to bank dredging alternatives in the FFS, including the use of phased actions that quickly reduce risk followed by monitoring to determine what else needs to be done. This results in a scientifically-sound approach that provides meaningful risk reduction in a more timely and responsive manner, enhances the ecology and value for local communities, and can adapt to handle inherent uncertainties associated with large-scale sediment remediation projects.

Conceptual Site Model

Our understanding of the sources, fate and transport, and bioaccumulation of contaminants in the LPRSA is organized and expressed as a Conceptual Site Model (CSM). That model is derived from the interpretation of the extensive data collected to investigate the river. The data collected to understand the LPRSA conditions can generally be grouped into: (1) multiple rounds of sediment sampling (with analyses for physical, chemical and radiochemical parameters); (2) several bathymetric

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surveys; (3) physical and chemical water column monitoring; (4) analysis of benthic invertebrate and fish tissue; and (5) avian, fish, benthic and habitat surveys. Data have been collected throughout the LPRSA, from above Dundee Dam in the upper Passaic River, and in Newark Bay, with an extensive design-level data collection program at RM 10.9 Removal Area, where the CPG is currently implementing a Removal Action that will be completed in January 2014.

The interpretation of these data and application of the numerical models that use the available data to simulate and predict sediment and contaminant transport have provided a thorough understanding of the physical characteristics, hydrology, nature and extent of contaminants, and contaminant impact upon human health and the ecology in the LPRSA.

The CPG's understanding of the LPRSA is based on a number of detailed scientific evaluations, including:

(1) characterizing the behavior of freshwater and estuarine flows and associated sediment transport patterns;

(2) determining the extent of chemical contamination in LPR sediment and comparing the contamination within the LPRSA with the upper Passaic River and Newark Bay;

(3) analyzing radiochemistry data to evaluate depositional history and assess the stability of sediment throughout the LPRSA;

(4) characterizing changes in the elevation and morphology of the river bed over time, including conditions following Hurricane Irene (2011);

(5) modeling the structure of the food web and the pathways by which contaminants are transferred from sediment to fish;

(6) conducting human health risk evaluations to understand what contaminants and pathways are driving the risk; and

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(7) characterizing potential risks to populations and communities of LPR ecological receptors to understand what contaminants, pathways and other stressors are most pertinent to the ecological health and recovery of the LPR.

These, and other studies that comprise the RI for the LPRSA, were used to develop a remedy focused on effectively addressing elevated risks to human health and ecological receptors from contamination in the LPRSA.

The following summary of the system understanding of the LPRSA highlights the important features of the LPRSA that support the implementation of a targeted remedial action to reduce risk and accelerate recovery:

Human Health and Ecological Risk

- The human health risk from contamination in the Passaic River is driven predominantly by ingesting fish containing 2,3,7,8 TCDD (dioxin).

- Human health and ecological risk are driven by surface sediment concentrations. People (waders, boaters and swimmers) and fish and wildlife are exposed to surface sediment, and the bioaccumulation of 2,3,7,8 TCDD is the greatest source of human health risk. Finally, the data that has been collected show that the levels of contaminants in surface water are connected to the concentrations in surface sediment.

- The mudflats and shoals, which are the locations where the highest concentrations of contaminants in surficial sediment are typically found, represent areas of greatest potential exposure, both for humans where these sediments are accessible to recreational users, and for the ecological community as habitat for forage fish and wading birds.

- Invasive species contribute to the degradation of the LPRSA. For example, the common carp present in the river can degrade water quality, benthic habitat, and populations of valued fish and wildlife. Because of their comparatively

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higher body burden of bioaccumulative contaminants, consumption of carp also contributes significantly to potential human health risk.

- There are ongoing sources of non-COPC stressors such as nutrients and pathogens to the LPR that degrade water quality and damage the ecology.

Contaminant Distribution

- The data that have been collected and the analysis of the behavior of the river show that there are specific, predictable locations in the river, such as mudflats and point bars, where sediment containing high concentrations of 2,3,7,8-TCDD has accumulated. There are also areas with elevated surficial concentration of 2,3,7,8-TCDD that have experienced recent erosion. These areas, totaling approximately 140 acres[3], represent sources of human and ecological exposure, as well as ongoing sources of contamination to the rest of the river, inhibiting natural recovery. These areas also contain several other COPCs, including PCBs, DDX and mercury.

- The areas where the highest concentrations of surface sediment are found are located in the lower 14 to 15 miles of the river. This is a function of both the sediment type (more fine-grained sediment) and the limit of upstream tidally-induced contaminant transport.

- The sediment bed throughout the river is generally stable, and, in many locations, particularly within the navigation channel, the highest COPC concentrations have been buried since their release several decades ago. This is supported by several lines of evidence including vertical contaminant profiles and radiodating. These stable, buried sediments do not pose a risk to human or ecological receptors and are not mobilizing COPCs into the system. In contrast, there are a number of locations, primarily mud flats and point bars, throughout the lower 12 miles of the river where steady state conditions

[3] Target areas include recently collected, unvalidated data in delineation

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were reached many years ago, and elevated concentrations of contaminants are found in surface sediment.

Natural Recovery

- Natural recovery (the reduction in surface sediment concentrations) is seen throughout much of the LPR as surficial sediments are buried by and mix with incoming cleaner sediments from upriver. This natural recovery process is ongoing. Although burial has slowed as infilling has slowed, some areas remain highly depositional and mixing of clean sediment in the upper several inches of the sediment bed is occurring. Fish tissue concentrations have declined in response to recovery of the surficial sediments. Future recovery of surficial sediments can be expected to result in a continued decline in fish tissue concentrations.

- The recovery is most apparent in those locations where the net sedimentation rates are greatest. Recovery is not observed in locations such as the mudflats above RM 7 where there is no significant burial or erosion, and in these locations surficial sediment COPC concentrations remain elevated.

- COPCs enter the LPRSA from Newark Bay and over Dundee Dam. The importance of these ongoing sources, with the exception of 2,3,7,8-TCDD, is evident by the similar average surficial sediment concentrations of contaminants other than 2,3,7,8-TCDD within and outside of the LPR. To the extent that COPCs enter the LPRSA from Newark Bay and over Dundee Dam, sediments with elevated COPCs concentrations act as sources to the LPRSA. The extent that recovery can occur in the LPR is controlled by these ongoing sources; remedial actions performed within the LPR cannot reduce COPC concentrations below those of any ongoing sources due to recontamination.

- High flows of the recent past[4] have uncovered previously buried sediments and exposed relatively high COPC concentrations at the surface. These areas

[4] Daily average flow at Little Falls exceeded 13,000 cfs [the 10-year flood] twice in the 47 years from 1949 to 1995 and six times in the 16 years from 1996 to 2011

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now provide a source of contaminated sediments to the rest of the LPR and likely slow natural recovery.

Basis for the Targeted Removal

The first component of the Sustainable Remedy is a targeted removal of approximately 140 acres of LPR sediments with the highest levels of near-surface contamination that present the majority of the risk and inhibit recovery. The data demonstrate that there is structure to the distribution of concentrations of 2,3,7,8-TCDD and other COPCs in the LPR sediments and that these patterns are explainable based on our understanding of historical sources and how the river functions. Although the deeper sediments in the LPR are stable, there are areas of the river where surficial sediments with elevated COPC concentrations are contributing to potential risk and slowing recovery. These areas are the focus of the targeted removal and isolation of contaminated sediments because management of these areas will provide an appropriate and effective remedy.

These targeted areas are responsible for much of the potential human and ecological risk because they not only contain high levels of 2,3,7,8-TCDD and other persistent COPCs that are significantly above the concentrations in other areas in the LPR and significantly above urban background levels, but also because most of the targeted areas are found in shallow parts of the river with easier access for humans and with more productive ecologies than the channels. These areas are ongoing sources of 2,3,7,8-TCDD to other locations of the LPR through erosion and diffusion to the water column. Therefore, these sediments should be the focus of any remedial activities as they have a disproportionatel y higher impact on human health and the environment than the rest of the LPRSA.

The stable sediments in the lower seven miles with generally lower surficial COPC concentrations do not present such risks and will recover more quickly after the source areas are addressed. The sediments in the channels show lower concentrations of COPCs due to net deposition and mixing of sediments with lower concentrations. These areas where the surface concentrations are lower should not be disturbed as doing so will introduce more contaminant mass into the system and slow the natural recovery.

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Delineation of Target Areas

The CSM defines two characteristic areas that contribute the greatest potential for human and ecological risk, and/or may be providing ongoing sources of contaminants to the LPRSA. These areas can be delineated to identify the target areas for remediation:

1. Areas where episodic erosion exposes buried historic sediments with elevated concentrations that provide a source of COPCs for the rest of the LPR, inhibiting recovery. These areas were observed primarily below RM 7.

2. Areas where elevated concentrations of 2,3,7,8-TCDD are observed at or near the surface, and where ongoing recovery has slowed or ceased (e.g., RM 10.9). These areas have the highest impact on potential risk because they tend to be shallow and near shore, where people are more likely come in direct contact with the sediments. In addition, these areas tend to be the most productive ecological areas because they are shallow, so more light reaches the bottom, and the water does not move as quickly. Therefore these areas have the highest population of smaller prey fish, vegetation and benthic organisms. This combined with the higher concentration of COPCs in these areas results in a very significant impact to the contaminant load in the food chain. These areas are primarily located above RM 7.

The targeted removal balances the need to clean up the areas subject to erosion and the near shore areas where high concentrations of 2,3,7,8-T CDD are found in sediment with the objectives of quickly conducting the sediment remediation and minimizing the disruption and impacts on the river and the river front communities. A detailed evaluation of the distribution of contaminants in surface sediment shows that cleaning up additional areas beyond those included in the Sustainable Remedy will provide little additional benefit relative to reducing risk, but will dramatically increase the time needed to complete the cleanup and the disruption and impacts of the cleanup.

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Based on the distribution of contaminants throughout the river, it has been concluded that targeting surface sediment containing approximately 500-1,000 ppt of 2,3,7,8-TCDD optimizes the efficiency of the cleanup. Targeting lower concentrations of TCDD increases the area and volume of sediment (and increases the time of cleanup and the resuspension of contaminants) but does not provide commensurate reductions in surface concentrations.

Target removal areas have been developed to address surficial sediments with 2,3,7,8-TCDD concentrations above 500 ppt. The target area boundaries were delineated based on 2,3,7,8-TCDD concentrations and other criteria including surficial sediment texture (i.e., the location of silt deposits), bathymetric gradients, geomorphic regions, and dredging history. These criteria are all a function of river dynamics and therefore evaluation of these properties also allows our scientists to predict the extent of the highly contaminated areas. The ~30 proposed target areas are located between the mouth of the LPR and RM 14.6 and comprise approximately 140 acres, or ~15% of the lower 14.6 miles of the sediment bed on an area basis (Figure 1). The target area boundaries will be refined as part of the remedial design process. During the remedial design additional data will be collected in and around the targets, just like at RM 10.9, to develop the details necessary to perform the remediation in each area.

Recovery Projections

Evaluation of the immediate impact of the removal of the targeted areas shows that the effects on the river will be remarkable. The CPG has been working under the oversight of the EPA to develop these models. Evaluating the long term effects of a proposed remediation is supported by the use of mathematical models that are designed to simulate the river dynamics and predict how the surficial sediments change over time. The models simulate the hydrodynamic conditions in the river, the movement of sediments and how contaminants behave in the system. These results are then used to predict how much of the contamination will move in the food chain and how that will in turn impact human health and the environment. When the Sustainable Remedy is entered into the CPG's working model, the result shows that the risks are managed effectively. When the Sustainable Remedy is compared with

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the remedial alternatives presented in the FFS, the model predicts that the surface sediment concentrations over the 17-mile study area are better than or equal to those expected following the FFS. These ongoing modeling efforts represent an integration of the CSM and all of the applicable RI data to provide a useful representation of the important processes in the system and the best possible projection of post-remedy surface concentrations. The model is still under development and the results presented below are preliminary; however the preliminary results provide a useful means for a comparative analysis. The predictions from these models are helpful in comparing remediation alternatives and developing a strategy for evaluating how well the remediation is meeting the goals set for the river. No model is able to simulate all the activities in a river, and therefore it is important to monitor the results of the remediation in the river and adapt the remediation as needed to reach these goals.

The targeted removal, as described above, is compared with remedies proposed by EPA in the FFS. The following remedial alternatives are evaluated:

- Monitored Natural Recovery (MNR)
- Cap and Dredge of the Lower 8 miles (~15 years implementation period)
- Full Dredge of the Lower 8 miles (~45 years implementation period)
- Targeted Removal (~5 years implementation period)

Two graphs that show the model results are provided. They show the predictions of 2,3,7,8-TCDD concentrations in surficial sediment (top six inches) over time for the four remediation alternatives currently being discussed (natural recovery, the Sustainable Remedy, and the two FFS alternatives developed by the EPA). Figure 2 shows the results for river miles (RM) 0-8 and Figure 3 show the predictions for the entire 17-mile of the LPRSA. Evaluation of these graphs indicates the following:

- The targeted removal achieves lower surficial concentrations more quickly than the FFS alternatives, due to the removal of the areas with the highest surficial COPC concentrations, the significantly shorter implementation time and the lower amount of resuspension and recontamination.
- The concentrations achieved by the targeted removal at the end of the projection are within a factor of two of the FFS alternatives for the lower 8 miles, suggesting similar predicted concentrations for the alternatives, given

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that the difference between the results are within the range of uncertainty for the long-term projections.

- The targeted removal achieves lower surficial concentrations over the entire river during and following implementation, as it addresses the entire 17-mileLPRSA.

Risk reduction associated with the proposed remedies was evaluated using fish tissue concentrations predicted by a food web model. Risk was calculated for an adult angler using Reasonable Maximum Exposure (RME) assumptions provided by EPA Region 2 for the LPRSA baseline Human Health Risk Assessment (Figure 4). The evaluation shows that risk from fish consumption is more rapidly reduced by removal of mudflats and shoals with elevated COPC concentrations (the Sustainable Remedy) than by the cap and dredge or full dredge in the lower 8 miles (EPA FFS alternatives) or by a combined remedy, assuming cap and dredge for the lower 8 miles and the targeted removal above RM 8.

The preliminary risk evaluations (which are informed by the CPG's ongoing Creel Angler Survey[5]) suggest that a meaningful option for reducing human health risk is to reduce or eliminate the consumption of carp. Some of the anglers interviewed along the LPR report catching and eating carp, which generally have the highest concentrations of 2,3,7,8-TCDD measured in LPR fillet samples. The results of the preliminary risk evaluations have shown that by replacing carp in a person's diet with native fish species found in the river, the risk from fish consumption can be lowered by approximately 30%. One of the ways in which a change in diet can be accomplished is by managing the invasive carp population in the river[6]. Carp were introduced in the Passaic River in the late 1800s and have since become a dominant species in the LPR. Because of their abundance, carp are easy to catch. With a reduction in the population of LPR carp, anglers will target other native species they prefer (e.g., striped bass, largemouth and smallmouth bass, pike, catfish, perch) which have lower concentrations of 2,3,7,8-TCDD than carp.

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[5] See Analysis of Catch Preferences of Lower Passaic River Study Area Anglers, Draft Report, June 2013

[6] Windward. 2013. Common carp (Cyprinus carpio) as an environmental stressor and methods for its management in the Lower Passaic River, technical memorandum. Draft. Prepared for Cooperating Parties Group, Newark, New Jersey. June 8, 2013. Lower Passaic River Restoration Project. Lower Passaic River Study Area RI/FS. Windward Environmental LLC, Seattle, WA.

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Reduction of the number of carp in the river will also have the added benefit of restoring river ecology. Carp are omnivorous, eating aquatic plants, other fish species eggs, and benthic invertebrates. Carp feeding behaviors adversely impact the ecology of the LPR by removing subaqueous vegetation and increasing turbidity and contaminant load to the water. Reduction in the carp population will promote restoration of habitat that favors native fish species.

The CPG has developed a pilot program to evaluate how to manage the carp in the river. We submitted a work plan for review and approval by Region 2 that was disapproved by EPA on November 27, 2013.

Reducing the carp population will have the combined benefit of reducing human health and ecological risks associated with food chain exposures, reducing the ecological damage caused by this invasive species, and promoting the growth of native species of fish and vegetation. When carp management is combined with sediment remediation, the risk from fish consumption can be brought into EPA's target risk range.

Summary

The Sustainable Remedy is a comprehensive approach to the entire seventeen miles of the Lower Passaic River. It focuses remediation on areas that, when addressed, are expected to have the greatest impact on recovery in a more timely manner. The Sustainable Remedy:

- Addresses the entire LPRSA as an interim remedy with an ongoing adaptive and iterative approach;
- Is protective of human health and the environment;
- Reduces the duration of the disturbance of the LPRSA;
- Addresses areas with elevated surficial concentrations of COPCs that pose the greatest potential risk;
- Addresses erosional areas which could expose high concentration sediments;
- Enhances the ongoing natural recovery;

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- Provides a scientifically-sound, credible and implementable alternative to the remedies proposed under the FFS;
- Addresses the most ecologically valuable areas first;
- Brings value back to the communities quickly; and
- Manages the uncertainty inherent in any remediation through on-going monitoring, adaptive management and the fish exchange.

The Sustainable Remedy protects the ecological community and human health, minimizes resuspension and manages uncertainty. It is consistent with the EPA guidance, which encourages adaptive management approaches at complex sites and periodic reviews of remedy performance.

The Sustainable Remedy is an integrated, watershed approach to the management of the river. The out-of-river projects will be selected with input from communities within the LPRSA to address ecological improvements, facilitate human use and enjoyment of the river, and demonstrate the benefits of watershed improvements as part of the solution for managing urban water quality issues. The out-of-river projects will include support for community education programs and will provide opportunities to support the local economy.

Given the extent of the LPRSA and the potential for a large proposed remedy, there is necessarily uncertainty associated with estimates of the response and future behavior of the system. Following implementation of the targeted removal, continued monitoring will be performed to measure the effectiveness of the remedy. Monitoring will include periodic data collection of fish tissue, ecological receptors, and bathymetry to evaluate the success of the remedy. During the implementation and evaluation period, a fish exchange program will be introduced to manage human health risk from fish consumption. If the remedy does not meet the goals, additional remedial actions will be considered, adaptively managing the recovery of the LPRSA.

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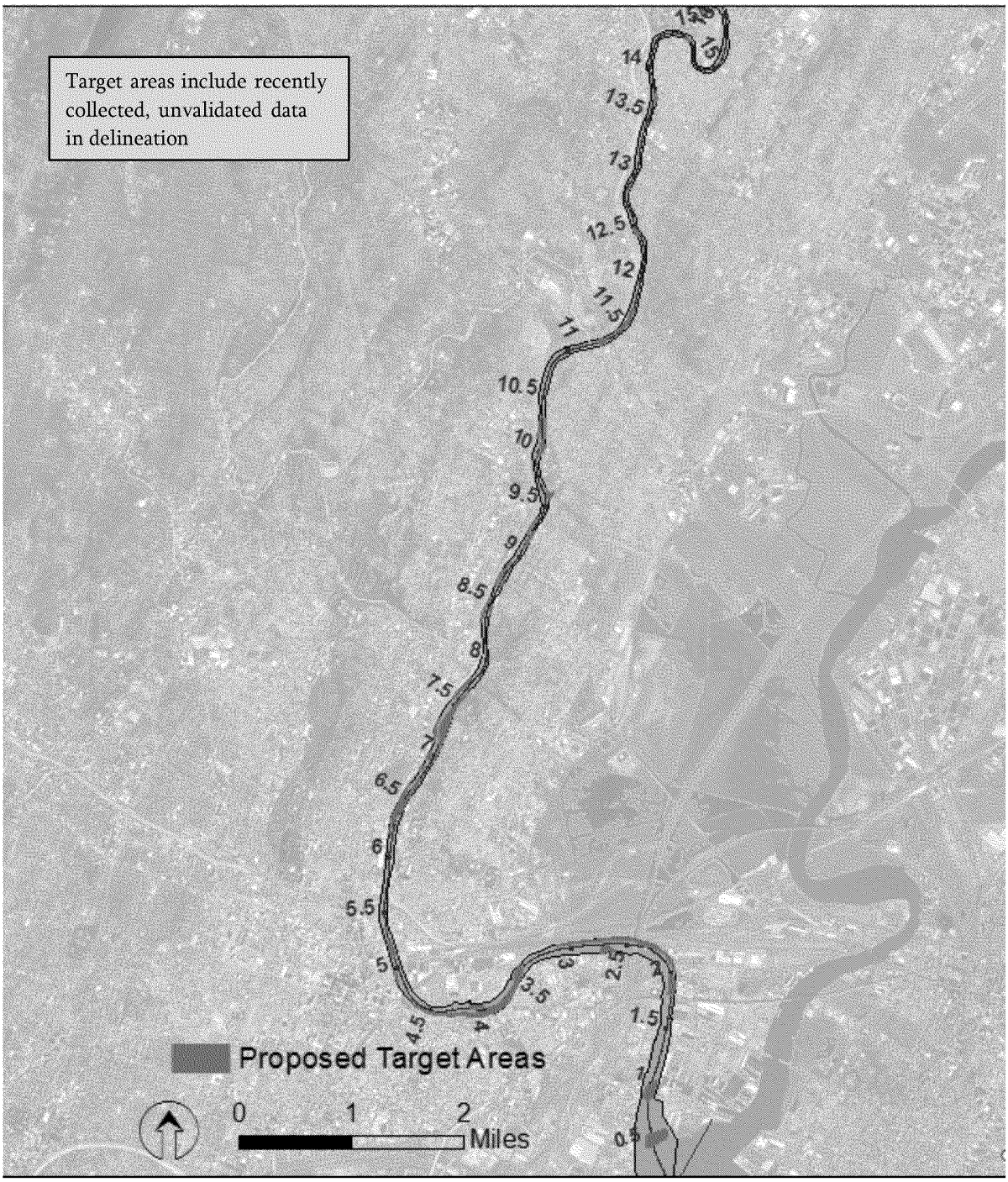

Figure 1 Proposed Target Areas

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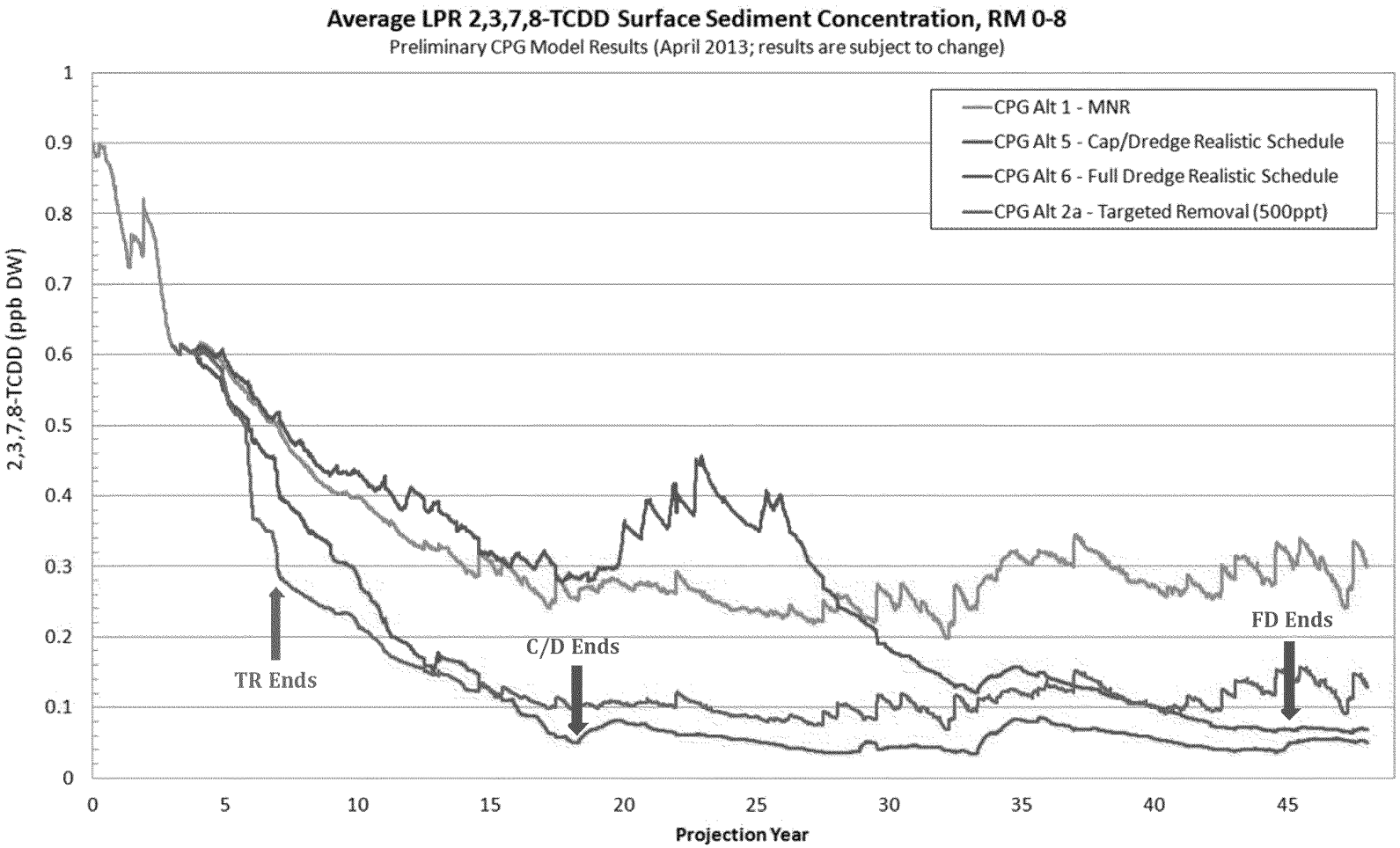

Figure 2 Comparison of Predicted Sediment Recovery Curves, RM 0-8

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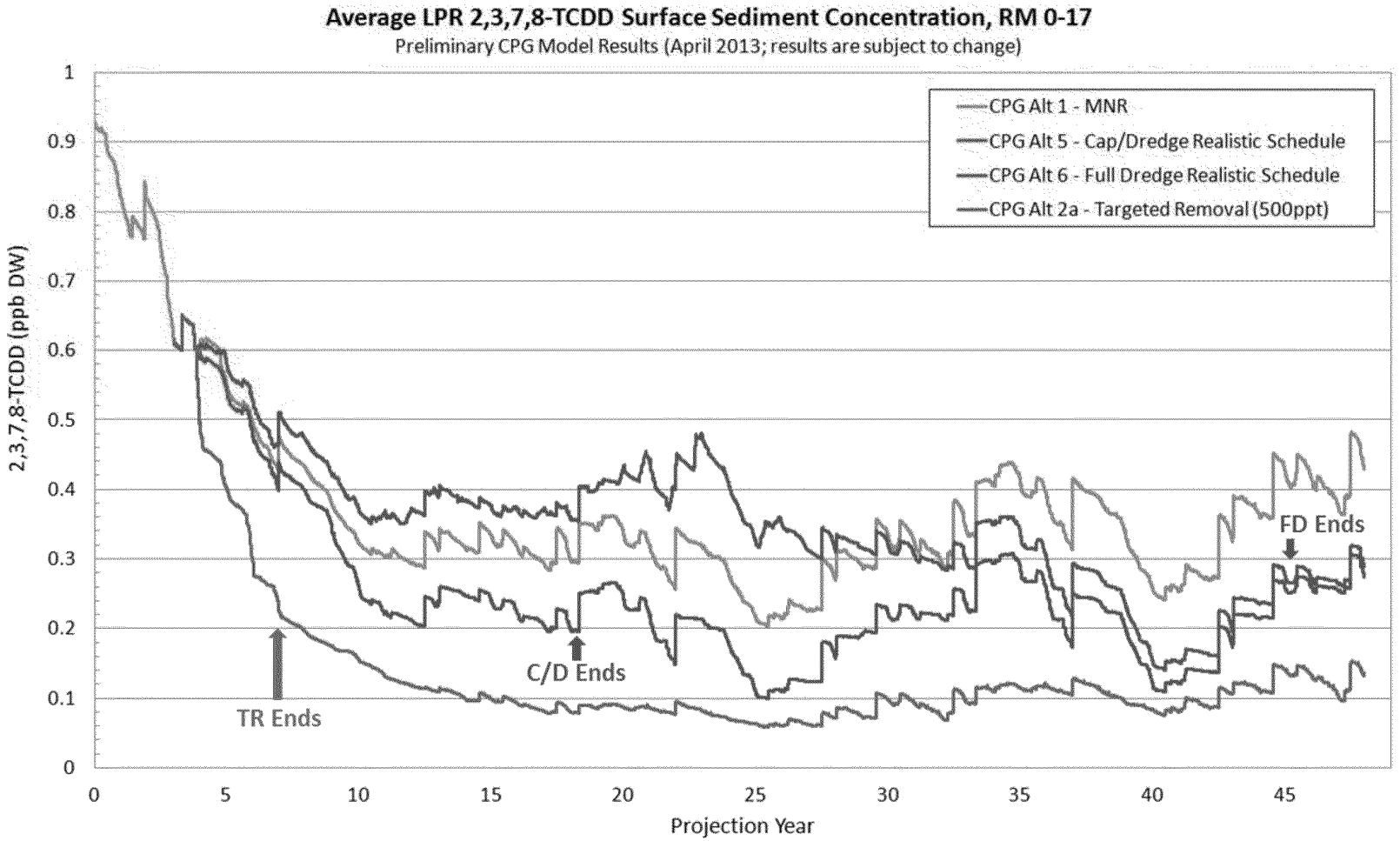

Figure 3 Comparison of Predicted Sediment Recovery Curves, RM 0-17

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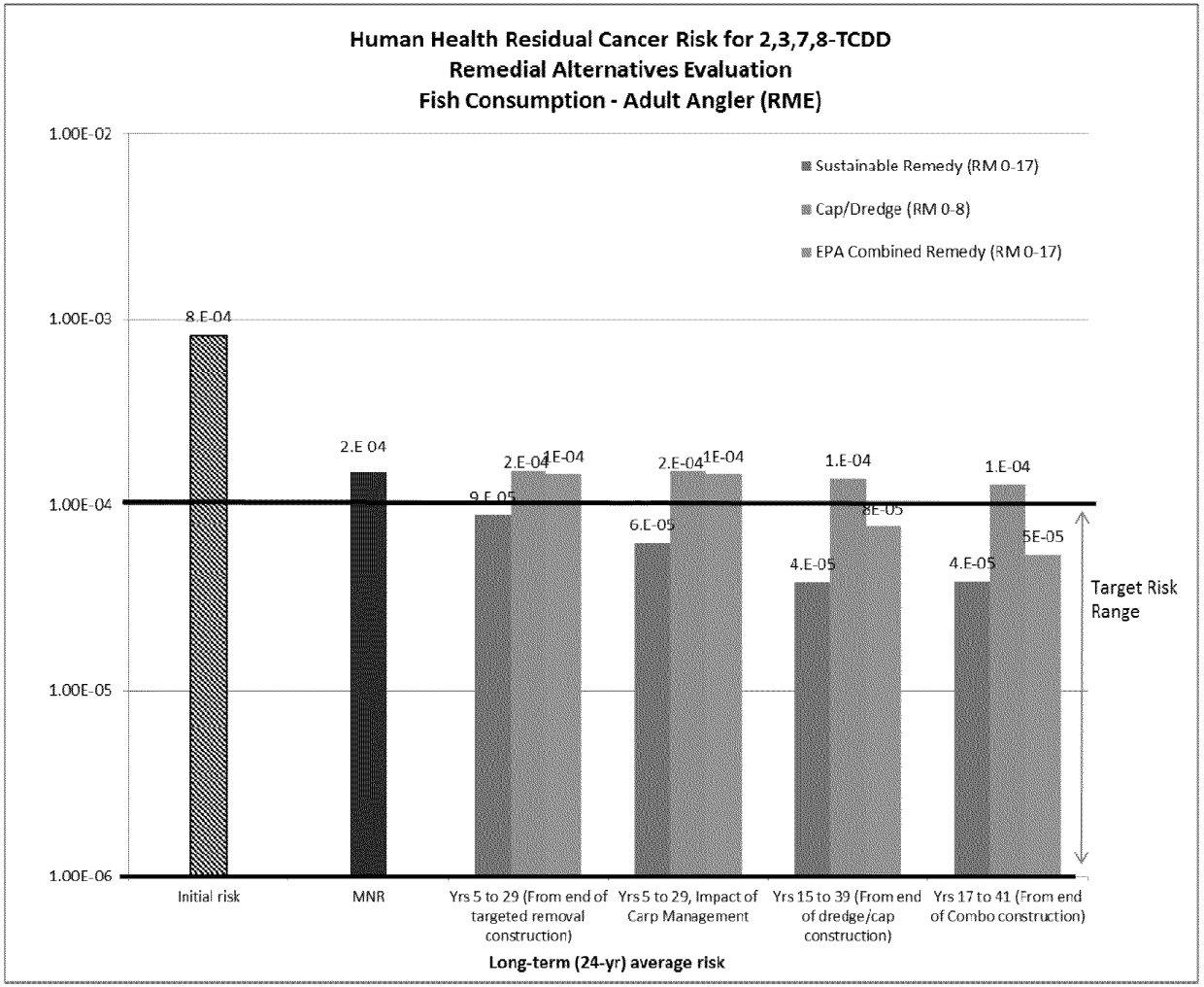

Figure 4 Comparison of Predicted Human Health Cancer Risk

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Sustainable Remedy - Evaluation of the Nine NCP Criteria

EPA Headquarters Meeting

December 2013

Sustainable Remedy Elements

In-River Elements	
Targeted dredging	• Dredge target areas with 2,3,7,8-TCDD surface concentration > 500 ppt • ~680,000 cy (~140 acres, nominal 2 ft + 50% contingency, ~30 target areas from RM 0-14.6) • Mechanical dredge w/environmental bucket
Engineered caps	• Physical isolation of remaining legacy sediments in target areas • Chemical isolation
Transportation; treatment; disposal	Barge to processing facility; dewater/treat/stabilize; disposal in permitted upland facility(ies)
ENR/in-situ treatment	May be implemented as an alternative to dredging and/or capping in selected areas and/or as part of potential future adaptive management
MNR	Monitor effect of targeted removal on areas not actively remediated
Long-term monitoring	Assess remedy performance and effectiveness
Interim/Adaptive management	Investigate and implement additional measures if monitoring indicates progress towards RAOs is not achieved
Construction time	Approximately 5 years

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Sustainable Remedy Elements

Institutional Controls and Exposure Reduction Elements	
Institutional controls	• Proprietary controls (e.g., property purchases, restrictive covenants utility restrictions) • Informational tools (deed notices, fish advisories, signage, state registry)
Agency Enforcement	Government evaluation of progress (e.g., 5-year review)
Aquaponics and Fish Exchange Program	Reduce short-term human health risks from consumption of LPR fish; provide a clean source of high quality protein to the angling community
Carp Management Program	Limit the availability and consumption of carp to reduce human health risk and improve river ecology
Environmental Justice	Rapidly addresses a degraded urban river – risk reduction, quality of life improvements
Out-of-River Elements	
Watershed Restoration Program	• Establish a lasting program to promote future projects that sustain the in-river remedy • Improve "urban river" water quality through select projects (e.g., tree farms, park restoration, and wetlands construction) • NRD Restoration activities will be accelerated following rapid completion of remedial activities
Job Training Initiative	Projects would promote job training and create employment opportunities, consistent with the Superfund JTI

Sustainable Remedy Evaluation Against NCP Criteria

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The Sustainable Remedy Will Satisfy Key NCP Requirements

- Comprehensive approach will ***provide overall protection of human health and the environment (Criterion 1)***
  - Targeted in-river remediation
  - Additional exposure reduction controls
  - Adaptive management
  - Out-of-river elements
- Adaptive approach through use of interim remedy will promote ***compliance with ARARs (Criterion 2)***
- Targeted approach provides distinct advantages with respect to ***short- and long-term effectiveness, implementability (Criteria 3, 5, and 6)***
- Targeted remediation, in combination with prior removal actions, ***reduces contaminant toxicity, mobility, and volume (Criterion 4)***
- Continued public outreach and stakeholder engagement promote ***state and community acceptance (Criteria 8 and 9)***
- ***NCP Process – select lowest cost alternative that is protective (Criterion 7)***

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Summary Evaluation of the Sustainable Remedy against the 9 NCP Criteria

THRESHOLD	1. Overall Protection of Human Health and the Environment	YES
	2. Compliance with ARARs	Satisfactory
BALANCING	3. Long-term Effectiveness and Permanence	Good
	4. Reduction of Toxicity, Mobility, or Volume through Treatment	Satisfactory
	5. Short-term Effectiveness	Good
	6. Implementability	Good
	7. Cost	Satisfactory
MODIFYING	8. State Acceptance	Under Evaluation
	9. Community Acceptance	Satisfactory

Good | Satisfactory | Fair | Poor | Under Evaluation

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Criterion 1 – Overall Protection of Human Health and the Environment

Sub-Criteria	Assessment
Magnitude & Type of Residual Risk	• Human health and ecological risk and contaminant mobility significantly reduced by removing highest concentration surface sediments and capping underlying contaminants • ~75-80% 2,3,7,8-TCDD SWAC reduction at completion of active remediation (year 5); ~90% at year 15 • PCB concentrations are well correlated with 2,3,7,8-TCDD and will be addressed • Direct contact human health risk reduced to acceptable levels at completion of active remediation (year 5) • Human health risks from fish consumption (adult angler) reduced from 8E-4 to 9E-5 at completion of active remediation • With carp management, fish consumption risk (adult angler) is reduced to 6E-5 at completion of remediation, and to 4E-5 by year 15 • Ecological risks reduced to acceptable levels at completion of active remediation • Targeted approach will limit impacts to existing viable ecological habitats

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Criterion 1 – Overall Protection of Human Health and the Environment (Cont.)

Sub-Criteria	Assessment
Adequacy and Reliability of Controls	• Dredging, capping, ENR, monitoring, adaptive management, and institutional controls have demonstrated success and comply with EPA sediment remediation guidance
Short-term effectiveness	• Significantly reduces surface sediment concentrations and achieves risk-based and contaminant mobility RAOs within 5 years (immediately following remedial construction) • Fish consumption risks are reduced and river ecology improved through fish exchange and carp management programs • Short implementation time accelerates opportunities for shoreline and riverine habitat restoration • MNR provides continued risk-reduction after active remedy construction • Short-term risks to community/workers managed by minimizing scale and duration of construction, utilizing construction controls, and continuing community outreach

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Criterion 2 – Compliance with ARARs

Sub-Criteria	Assessment
Chemical-Specific Location-Specific Action-Specific	• Sustainable Remedy will be designed and implemented to comply with substantive and administrative requirements (except as waived) • CWA 404 and ESA requirements will be satisfied during design; remedy design will result in no net habitat loss • Disposal of dredged sediments will comply with applicable federal and state regulations • No alternatives are expected to comply with surface water quality standards (SWQS). SWQS waivers may be required at or before completion of the remedial action • Following initial implementation, monitoring will assess system recovery
Advisories & Guidance	• Remedy does not preclude future dredging of the federal navigation channel • Satisfies EPA guidance for reasonably anticipated future land use

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Criterion 3 – Long-Term Effectiveness and Permanence

Sub-Criteria	Assessment
Reduction of Residual Risk	• Risks significantly reduced by dredging and capping areas with greatest surface sediment concentrations or ongoing source potential • 2,3,7,8-TCDD SWAC reduction of 75-80% at 5 yrs, ~90% at yr 15 following remedial construction • PCB concentrations are well correlated with TCDD and will be addressed • Human health risk due to direct exposure and ecological risks in mudflat habitat reduced to acceptable levels at year 5 • Fish consumption cancer risk (adult angler) is reduced to 6E-5 at completion of remediation, and to 4E-5 by year 15 • Ecological risks reduced to acceptable levels at completion of active remediation • Engineered caps will be designed for long-term performance (>100 yrs) based on proven technologies • Out-of-river elements and accelerated restoration opportunities provide further water quality improvements by reducing urban watershed-related impacts • Stability of deeper sediment ensures no significant erosion-related risk

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Criterion 3 – Long-Term Effectiveness and Permanence (Cont.)

Sub-Criteria	Assessment
Adequacy and Reliability of Controls	• Long-term monitoring provides ongoing assessment of remedy effectiveness; Includes monitoring of surface sediment, surface water, fish tissue, cap integrity, cap pore water, erosion/sedimentation processes, out-of-river elements, and institutional controls (ICs) • ICs including government controls, proprietary controls, agency enforcement tools, and informational devices provide protection by reducing potential exposure to contaminated media • Adaptive management plan provides reliable controls for remedy performance monitoring and appropriate response actions, if needed

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Criterion 4 – Reduction of Toxicity, Mobility, or Volume Through Treatment

Sub-Criteria	Assessment
Degree of Expected Reductions in Toxicity, Mobility, Volume	• Contaminant mobility significantly reduced by removing highest concentration surface sediments and isolating underlying contaminants by capping • Early actions (CPG RM 10.9 and TMO Phase 1) have already achieved reduction in contaminant inventory
Treatment Processes; Hazardous Materials Destroyed/Treated	• Dewatering and treatment of dredged sediments destroys dissolved phase contaminants (in decant water) and reduces mobility and volume of sediment contamination (through stabilization treatment processes)
Types and Quantity of Residuals Remaining	• Targeted removal addresses highest surface concentrations of 2,3,7,8-TCDD and areas most vulnerable to remobilization of historically deposited contaminants at depth • Comprehensive monitoring and adaptive management provide for additional response actions to further address residuals, if required • Out-of-river elements reduce urban contaminants entering the river

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Criterion 5 – Short-Term Effectiveness

Sub-Criteria	Assessment
Time until RAOs are Achieved	• Significantly reduces sediment concentrations and achieves risk-based and contaminant mobility RAOs following remedial construction (5 years) • Human health risk from fish consumption are reduced and river ecology improved through fish exchange and carp management programs • MNR provides continued risk-reduction after active remedy construction
Protection of Community and Workers During Remedial Action	• Short-term risks to the community and workers managed by minimizing the scale and duration of construction and through construction controls and community outreach
Environmental Impacts	• Relatively short implementation time accelerates opportunities for shoreline and riverine habitat restoration • Targeted approach will limit impacts to existing viable ecological habitats • Impacts from dredging residuals, CO_2 generation, traffic, and noise are limited in duration and magnitude • Minimal disturbance and early benefits to the community

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Criterion 6 – Implementability

Sub-Criteria	Assessment
Reliability of Technologies	• Remedial technologies (e.g., dredging, capping, ENR, off-site disposal) are relatively common, available, and have been successfully implemented in the LPRSA (RM 10.9) and other sites
Availability of Treatment, Storage, and Disposal Services, Equipment Specialists, and Prospective Technologies	• Site characteristics, urban setting, aging infrastructure present considerable challenges, including access limitations, vessel draft constraints, low-clearance bridges (many in disrepair), buried utilities, vulnerable shoreline structures (bulkheads, abutments, piers), limited transloading and sediment processing facilities/sites, and permit equivalency requirements • These challenges were exemplified during RM10.9 Removal Action, where planned dredge productions rates were significantly impacted (projected 630 cy/day; actual ~400 cy/day) due to above factors • Combination of technologies (dredging, capping, ENR, MNR) to be used under the Sustainable Remedy realistically anticipate and more effectively manage these challenges

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Criterion 6 – Implementability (Cont.)

Sub-Criteria	Assessment
Ability to Obtain Approvals from Other Agencies	• Sustainable Remedy will be designed and implemented to comply with substantive and administrative requirements identified in ARARs analysis (except as waived) • Required approvals/permits from USACE, FWS, NOAA, NJDEP, NJDOT, and local governments are anticipated to be attainable • See also Criterion 8, State Acceptance
Ease of Undertaking Additional Actions	• Sustainable Remedy elements will not preclude or interfere with additional remedial actions, if needed
Ability to Monitor Effectiveness of Remedy	• Comprehensive monitoring and adaptive management program provides effective decision making framework for timely implementation and monitoring of any needed additional remedial actions

FOIA_07123_0001503_0063

Criterion 7 – Cost

Sub-Criteria	Assessment
Capital Costs	Estimated capital costs are high due to the scale of likely remedial actions within the LPRSA, construction challenges and inefficiencies associated with site constraints, and out-of-river elements
Operating and Maintenance Costs	• Significant costs are anticipated for long-term monitoring, operation and maintenance, and adaptive management • Under adaptive management, additional long-term costs may be incurred to implement any needed additional actions

FOIA_07123_0001503_0064

Criterion 8 – State Acceptance

Sub-Criteria	Assessment
State Acceptance	State acceptance will be obtained by EPA through coordination with the State of New Jersey throughout the remedy selection process

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Criterion 9 – Community Acceptance

Sub-Criteria	Assessment
Community Acceptance	Community acceptance will be obtained by EPA through coordination and outreach with all stakeholders throughout the remedy selection process, and will be determined based on a balanced consideration of all viewpoints

FOIA_07123_0001503_0066

The New Jersey State Chamber of Commerce
216 West State Street
Trenton, NJ 08608

1911-2011
NJCC
THE STATE CHAMBER

(609) 989-7888
www.njchamber.com

October 25, 2013

The Honorable Robert Menendez
U.S. Senator
528 Senate Hart Office Building
Washington, D.C. 20515

Dear Senator Menendez:

As you know, the New Jersey State Chamber of Commerce ("State Chamber") is recognized as an independent voice of business in the State of New Jersey. With a broad membership ranging from Fortune 500 companies to small proprietorships, representing every corner of the State and every industry, our members provide jobs for over a million people in New Jersey. We continue to work towards promoting a vibrant business environment and economic prosperity through vision, expertise and innovative solutions.

With our mission in mind, we are writing to you today to request that your office ask the Environmental Protection Agency (EPA) Region 2 to seriously consider the Sustainable Remedy during its review of remedial options for the Lower Passaic River Study Area.

While the final Focused Feasibility Study has not been released yet, we understand that EPA Region 2 is planning to move forward with a plan for bank-to-bank dredging of the entire lower 8 miles of the Lower Passaic River. As New Jersey's State Chamber, we have real concerns that this approach would take decades to complete and would deter business development in River communities in Essex, Hudson, Passaic and Bergen counties for years to come.

We understand that the Lower Passaic River Study Area Cooperating Parties Group (CPG) has proposed a Sustainable Remedy that could be implemented more quickly and would be less intrusive to communities and area businesses. Furthermore, the shorter implementation schedule of the Sustainable Remedy when compared to a bank to bank dredge could encourage new businesses to invest in and develop new projects in the Passaic River region.

In addition to addressing contaminated sediment, this remedy also includes green infrastructure projects that would reduce the pollution that continues to enter the River. These infrastructure projects would also bring new employment and improve the quality of life opportunities for New Jersey citizens.
We appreciate the opportunity to express our views and respectfully request that you ask EPA Region 2 to strongly consider the Sustainable Remedy during its review of remedial options for the Lower Passaic River.

Sincerely,

Michael Egenton
Senior Vice President
Government Relations

New Jersey
ALLIANCE for ACTION INC.®

PHILIP K. BEACHEM
President

P.O. Box 6438 • Raritan Plaza II • Edison, New Jersey 08818-6438
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GERALD T. KEENAN
Executive Vice President

CLIFFORD HEATH
Senior Vice President

October 16, 2013

Hon. William Pascrell, Jr.
U.S. House of Representatives
2370 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Pascrell:

On behalf of 2,400 members of the New Jersey Alliance for Action I am writing to you to encourage the US Environmental Protection Agency (EPA) Region 2 to consider the Sustainable Remedy proposal during its review of remedial options for the Lower Passaic River Study Area.

As you may know, New Jersey Alliance for Action is a non-profit, non-partisan statewide coalition comprised of business, labor, professionals, academic and government leaders. For the past 39 years, the Alliance has been an advocate of investment in infrastructure for New Jersey's economy, environment and quality of life.

While the final FFS has not been released, we understand that EPA Region 2 will recommend a bank-to-bank dredge of the lower 8 miles. The Region is now well aware of the significant logistical challenges encountered during the removal action at River Mile 10.9 in Lyndhurst. A bank-to-bank dredge potentially removing hundreds of times more material – when compared to the Lyndhurst removal action – would be a substantial drag on our economy for a very long time.

We believe that the EPA should take an objective look at the practical issues involved in removing millions of cubic yards of sediment from the River in this heavily urbanized area. We hope that the EPA will consider all of these important factors prior to the release of its Focused Feasibility Study and Proposed Remedial Action Plan (FFS/PRAP) for the River.

The Sustainable Remedy proposal would be less intrusive to communities and businesses, could be implemented more quickly and still allow the opportunity for additional work if results are not achieved. Jobs would also be created through the green infrastructure projects that are included in the Sustainable Remedy.

We respectfully request that you discuss with the EPA the overall cleanup of the Lower Passaic River and ask that the Agency take a closer look at the Sustainable Remedy proposal as it considers its final recommendation.

Sincerely,

Philip K. Beachem
President

NEREID BOAT CLUB
201-438-3995
www.nereidbc.org

350 Riverside Avenue
P.O. Box 1678
Rutherford, NJ 07070

October 30, 2013

The Honorable William Pascrell, Jr.
Rayburn House Office Bldg., Rm. 2370
Washington, DC 20515

Dear Congressman Pascrell:

I am writing to you today on behalf of Nereid Boat Club, Inc., to request that your office ask EPA Region 2 to fully consider the merits of the Sustainable Remedy developed by the Lower Passaic Cooperating Parties Group as part of its review of remedial options for the Lower Passaic River.

Nereid appreciates your past vigorous support for its activities and the recovery of the Passaic River as an economic and recreational asset for northern New Jersey. As you know, Nereid is a rowing club of some 130 adult "masters" members located in Rutherford and first established in 1868. Nereid also sponsors a youth program with some 90 members and hosts the scholastic crew teams of both Montclair High School and Ridgewood High School. I enclose a copy of the recent *Bergen Record* article about the successful 13th annual Head of the Passaic Regatta hosted by Nereid and its down-river compatriot club located in Lyndhurst. We have dozens of members out on the Passaic every day for nine months of the year.

It is from this perspective and with this long 'on the river' experience that we request a good faith and serious consideration by EPA Region 2 of the Sustainable Remedy developed by the Cooperating Parties Group. At present, EPA has stated that it plans to release a Focused Feasibility Study and Proposed Remedial Action Plan (FFS/PRAP) for this area later this year and that the Region is likely to recommend a bank-to-bank dredge of the entire lower 8 miles. We have concerns that this remedy may be too narrowly focused on sediment contaminants alone.

While we appreciate the importance of remediating sediment contamination and the hard work that EPA Region 2 has done related to this issue, the environmental issues that impede development of the Passaic as a recreational asset are much broader. As rowers, we are particularly concerned with Combined Sewer Overflow runoffs and the 'floatables' (from tires to lumber to household trash) that get dumped into the river on a regular basis. We believe that the alternative Sustainable Remedy will be a serious effort to address such issues.

EPA Region 2 is aware of the substantial logistical challenges encountered during the sediment dredging pilot program recently undertaken in Lyndhurst. The bank-to-bank dredge of the entire lower river as planned in the Region 2 FFS/PRAP potentially removing hundreds of times as much material would likely be a process that would take decades, will address only sediment contaminants and would leave the floatables and sewer overflows unaddressed. After all the time we have waited for meaningful action on the Lower Passaic, and with action potentially so

close at hand, let's make sure we choose a remedy that is right for the Lower Passaic and for our communities.

Nereid would be happy to give you or your staff a first-hand look at the river and our concerns.

Sincerely,

Peter Willcox
President, Nereid Boat Club, Inc.

New Jersey
ALLIANCE for ACTION INC.®

PHILIP K. BEACHEM
President

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GERALD T. KEENAN
Executive Vice President

CLIFFORD HEATH
Senior Vice President

March 18, 2013

Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Dear Regional Administrator Enck:

On behalf of the hundreds of companies and thousands of employees of member companies that we represent in the State of New Jersey, the New Jersey Alliance for Action is writing to you today to state our opposition to the U.S. Environmental Protection Agency's (EPA) Focused Feasibility Study (FFS).

The New Jersey Alliance for Action is a non-profit, non-partisan statewide coalition of more than 2,500 business, labor, professional, academic and government leaders. The Alliance is an advocate of investment in infrastructure for New Jersey's economy, environment and quality of life. Since our creation in 1974, we have worked closely with each New Jersey Governor, the Cabinet, the Legislature and local government as well as our members to create funding and secure permits for road, bridge and rail improvements, water projects, school construction, aviation enhancements, shore preservation, business expansion and other key infrastructure investments.

We are opposed to the FFS at this time because of a number of reasons:

- While the FFS has not been released yet, we understand that the EPA would prefer to implement a full bank-to-bank dredging of the lower eight miles of the River. We would like to understand the EPA's plans for removal of 11 million cubic yards of sediment from the River and how it will deal with the tremendous amount of long-term disturbance and inconvenience that a project of this scale would cause for employees and businesses in Northern New Jersey. We believe that a large scale dredging project would likely mean more than 20 years of disruption and increased traffic congestion for businesses and employees in Passaic, Essex, Hudson and Bergen counties.
- The FFS will only address the lower eight miles and will do nothing to address the upper 9 miles of the River, putting many communities like Garfield, Passaic, Clifton and Wallington at a disadvantage.
- We believe the EPA should allow the Lower Passaic River Study Area Cooperating Parties Group (CPG) to finish work on the Remedial Investigation/Feasibility Study (RI/FS) prior to the approval of a final remedy for the Lower Passaic River. Since 2007, the CPG has gathered thousands of samples from the River and spent millions of dollars to identify the extent of contamination in the Lower Passaic River. We are concerned with the EPA moving forward with an FFS for the lower eight miles of the River as data collected of

the full 17 miles of the Lower Passaic River during the RI/FS will be rendered useless and millions of dollars will have been wasted.

- The FFS will not address ongoing pollution that continues to enter the River each day. We believe it is important to develop programs and projects that can effectively address stormwater runoff, discharges from combined sewer outflows and other sources. These projects not only have environmental benefits for the River, but also economic benefits to the New Jersey workforce.
- We believe that the EPA has not explored all possible remedies for the Lower Passaic River and should work with the Lower Passaic River Study Area Cooperating Parties Group (CPG) on a cost-effective and common sense remedy that would address contamination in the full 17 miles of the Lower Passaic River.

We were briefed recently by the CPG about a proposal to clean up the River called the Sustainable Remedy. We think this is the right approach for the River as:

- the most highly contaminated sediment would be removed from the River in a quicker time period;
- it will address contamination throughout the full 17 miles of the Lower Passaic and benefits all communities that share their borders with the River;
- it will include important community projects – projects that could possibly be developed and constructed by Alliance for Action members and union workers – that will reduce ongoing pollution that continues to enter the River each day.

I respectfully request that the EPA consider the Sustainable Remedy as an alternative remedy prior to the release of the FFS.

Sincerely,

Philip K. Beachem
President

NEW JERSEY GENERAL ASSEMBLY

MARLENE CARIDE
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COMMITTEES
AGRICULTURE AND NATURAL RESOURCES
TRANSPORTATION, PUBLIC WORKS AND INDEPENDENT AUTHORITIES
TELECOMMUNICATIONS AND UTILITIES

March 7, 2013

Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Re: United States Environmental Protection Agency Region 2's Focused Feasibility Study

Dear Regional Administrator Enck:

As Assemblywoman of New Jersey District 36, I write to oppose the United State Environmental Protection Agency Region 2's Focused Feasibility Study (FFS). My district includes six (6) municipalities in the Lower Passaic River Study Area: East Rutherford, Lyndhurst, North Arlington, Passaic, Rutherford and Wallington. While it is difficult to comment on a document that has not been released, the document, reportedly, contains recommendations which will do nothing to assist these towns, will be detrimental to the restoration of the Lower Passaic River and will be disruptive to our community.

We urge Region 2 to set aside the FFS and allow the Remedial Investigation/Feasibility Study (RI/FS) for the entire 17 miles of the Lower Passaic River Study Area (LPRSA) to be completed as quickly as possible to examine all possible remedial alternatives. Together with all stakeholders, Region 2's focus must be on the development and implementation of one comprehensive remedial solution that restores the LPRSA and provides value to communities along the River.

In May 2007, the LPRSA Cooperating Parties Group (CPG) entered into an agreement with Region 2 to complete the RI/FS of the lower 17.4-miles of the Lower Passaic River – a process that is on schedule and slated to be completed in 2015 at a cost of over $75 million. In June 2007, one month after the CPG and Region 2 executed the RI/FS Agreement, Region 2 issued its Draft FFS Report identifying remedial alternatives for final action for the sediments in the lower eight miles of the LPRSA. We understand that a revised draft FFS was presented to the National Remedy Review Board in December 2012, and the FFS and Proposed Plan are scheduled to be released in March 2013.

Re: United States Environmental Protection Agency Region 2's Focused Feasibility Study

We are in agreement that action needs to be taken to mitigate the contamination in the LPRSA. However, it is illogical to issue a final remedy for downstream before addressing upstream and ongoing contamination. It is also illogical to have two overlapping studies, especially since the data collected pursuant to the RI/FS should be considered in selecting a remedy for the full LPRSA. Since 2007, millions of dollars have been spent studying the LPRSA and characterizing the contamination to develop sound and effective remedial options. If Region 2 advances the FFS in the lower eight miles of the LPRSA, the data collected as part of the RI/FS throughout the 17-mile LPRSA will be rendered useless, as implementing a bank-to-bank remedy in the lower eight miles will result in recontamination throughout the LPRSA. Allowing years of work, millions of dollars and valuable data to be wasted would be completely irresponsible on the part of the EPA, and further delay any action in the upper nine miles of the river.

It is our understanding that the CPG has proposed an alternative remedy for the LPRSA called the Sustainable Remedy. As proposed, the Sustainable Remedy addresses the entire 17 miles of the LPRSA, not just the lower eight miles, and significantly reduces risk much quicker than the FFS without decades of dredging and community disruption. Based on what we know about the FFS, we believe the dredging proposed in the FFS will take decades – between 20 and 30 years – to complete, not the 6 to 11 years estimated by Region 2. We also have serious concerns about the bridge openings that will be required to support the FFS, the potential for significant traffic congestion, and potential air pollution that may result from a project of this magnitude.

The CPG is also proposing an out-of-river component as part of the Sustainable Remedy. This component would help reduce ongoing sources of contamination that continue to flow into the LPRSA and advance local projects that will improve and enhance the watershed. We see a great deal of value in the out-of-river component of the CPG's Sustainable Remedy. The FFS fails to provide any value whatsoever to those riverfront communities that have been forced to deal with a contaminated Lower Passaic River for decades.

Simply put, the FFS is premature. The decisions made this year will impact our community for the next 100 years. Accordingly, we strongly recommend that Region 2 set aside the FFS, allow the CPG to complete the RI/FS as quickly as possible, examine all remedial alternatives for the entire 17 miles of the LPRSA based on all data that is and will become available, and work with the CPG and the riverfront communities to advance one comprehensive remedial solution that restores the River and provides value to communities along the River.

Sincerely,

MCaride

Marlene Caride
Assemblywoman, District 36

MC/cs
Via Regular Mail

JOHN T. VAN DER TUIN
16 Elsway Rd.
Short Hill, New Jersey 07078

March 14, 2013

Judith A. Enck
Regional Administrator, Region 2
U.S. Environmental Protection Agency
290 Broadway
New York, New York 10007-1866

Re: Lower Passaic River Restoration Project

Dear Administrator Enck:

I have spent, literally, thousands of hours on the lower Passaic River, from roughly mile 7 to mile 15, over the last decade rowing my shell and working with other masters and youth rowers on regattas and river improvement projects.[1] So, I enthusiastically endorse the Restoration Project you are engaged in to remediate the lower Passaic and make it a valuable recreational asset for all of us in the metropolitan area. I hope it bears fruit in my lifetime.

I do have a concern, however. Sometimes it is just beautiful to see the dozens of shells out on the river; other times it just, literally, stinks or is so clogged with floatables as to be unrowable. I am thus, concerned, that in addition to, and of equivalent importance to, the effort to remove contaminated sediments, there must be an effort to address CSO's, clean up floatables, restore the riverbanks and improve and regulate adjacent development. I fear that a single-minded focus on sediment dredging and removal – in addition to being extraordinarily expensive and disruptive to the use of the river – will neglect these other, and equally important, efforts. In this regard, I note that the goals of the Lower Passaic River Restoration Project are five, and extend beyond sediment removal:

- remediation of contaminated sediments
- improve water quality
- restore degraded shorelines
- restore and create new habitats
- enhance human use.

I understand that the Lower Passaic River Study Area Cooperating Parties Group has nearly completed a study and alternative plan that would address all of the goals of the Restoration Project. I haven't seen it, and thus can't yet endorse its details, but I would urge that the EPA Focused Feasibility Study not be advanced until the CPG study is complete and can be considered, with open minds, as an alternative or complement to the Focused Feasibility Study.

Thank you.

Very truly yours,

John Van Der Tuin

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[1] In my professional life, I have also represented community groups and companies to enforce the provisions of environmental statutes and regulations. *See, e.g., Coalition for a Liveable West Side, Inc., et al. v. New York City Dep't. of Environmental Protection,* 830 F.Supp. 194 (S.D.N.Y. 1993); *Coalition Against Columbus Center, et al. v. City of New York,* 769 F.Supp. 478 (S.D.N.Y. 1991); *In the Matter of Coca-Cola Bottling Co. of New York v. Bd. of Estimate*, 72 N.Y.2d 674 (1988). I am not an apologist for corporate polluters.

cc: kluesner.dave@epa.gov
vaughn.stephanie@epa.gov
rgermann@lowerpassaiccpg.com

Peter Willcox
206 Fernwood Avenue
Upper Montclair, New Jersey 07043

March 12, 2013

Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Dear Regional Administrator Enck:

As the President of the Nereid Boat Club, and as an avid rower on the Lower Passaic River, I'm writing to you today to express my concern about the Environmental Protection Agency's upcoming FFS completion.

I have been a member of the Nereid Boat Club for eight years and have served on Nereid's Board of Directors for six years. Though I did not grow up near the Passaic River, I did begin to realize the recreational opportunities that the Lower Passaic River could offer when my daughter, Katherine, began rowing for Montclair High School Crew, one of the top high school teams in the County. Katherine introduced me to the sport of rowing and, after she graduated from Montclair High School in 2009, I continued my rowing and my love for the River has only grown.

For years, the people living by the river have seen the Passaic as a blight on their communities. For me, before my daughter joined the Montclair H.S. Crew team, the closest I ever got to the Passaic River was when I was driving by on Route 2. The efforts of the Nereid Boat Club and others who use the River have helped to change that negative perception; now when they see our rowers on the River, I hope that they can see the River as a recreational amenity that they should use and enjoy.

I strongly urge the EPA to consider all before embarking on its cleanup efforts. If the EPA decides to move forward with its FFS, it will negatively impact our communities for decades, prevent our boat club and other members of the public from enjoying the River and do nothing to address the upper 9 miles of the River – in fact probably making that part of the cleanup more complicated.

I urge you to allow the RI/FS to be completed, examine all remedies for the entire 17 miles of the Lower Passaic River Study Area and strongly consider the Sustainable Remedy that has been proposed by the Cooperating Parties Group. This remedy will remove the greatest amount of risk from the river fastest and also reduce ongoing pollution that continues to enter the River every day.

Sincerely,

Peter Willcox

March 8, 2013

Judith A. Enck, Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Dear Regional Administrator Enck:

As president of Nereid Boat Club, I write to express concern over the consideration of remedies for the Lower Passaic River.

Nereid is a 501(c)3 organization dedicated to providing competitive and recreational rowing opportunities to athletes of all ages and skill levels. Founded in 1868 and re-established in 1994 in a historic building near RM 12 in Rutherford, Nereid's 280 members (140 adults, 140 high school and youth) row the proximate 10-mile stretch of the river roughly eight months of the year. Students from a dozen towns participate in Nereid programs. We also host Montclair Crew, one of the country's top high school teams.

Together with our neighbor club, the Passaic River Rowing Association, we run the Head of the Passaic Regatta each October. In recent years, participation has grown from 400 to 1200 rowers. With these youth, college and adult rowers come some 2,000 additional spectators who enjoy a beautiful autumn day on the banks of the Passaic. These activities symbolize the potential and promise of the river. I enclose several photos of the 2012 regatta and our recently renovated property.

Our interest in the remediation process is in minimizing the impact on rowing and maximizing long-term opportunities for the safe and accessible use of this precious waterway. A principal concern is appropriate land-use development and remediation: poorly regulated adjacent uses and development continue to result in excessive floatables in the river – a chronic hazard and eyesore that impede its recreational use.

On February 5, we met with representatives of the Lower Passaic River Study Area Cooperating Parties Group (CPG) to learn more about the work at RM 10.9 in Lyndhurst. Another Nereid board member and I also attended the January public briefing in Lyndhurst. We were very appreciative of both updates and look forward to maintaining close contact with EPA and CPG as this work progresses.

In addition, while we understand that U.S. Environmental Protection Agency Region 2's Focused Feasibility Study (FFS) has not been released, we are concerned that it will be concluded prior to a full consideration of all options, including the CPG's Remedial Investigation/Feasibility Study (RI/FS) of the lower 17 miles and the Sustainable Remedy.

Certainly, the best decisions come when the most information is available. We understand the imperative to move forward but nonetheless request that EPA delay the FFS release in order to review all options carefully. To that end, we ask that EPA allow CPG a reasonable additional period of time to complete the RI/FS before moving forward with the FFS release and implementation of a final remedy.

We deeply appreciate the dedication of EPA and its staff in ensuring the future of the Passaic River. Please consider us partners in this effort.

Sincerely,

Peter Willcox
President

NEREID BOAT CLUB
P.O. Box 1678
350 Riverside Avenue
Rutherford, NJ 07070
www.nereidbc.org

MONTCLAIR STATE UNIVERSITY
PASSAIC RIVER INSTITUTE
The College of Science and Mathematics

March 18, 2013

Ms. Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway, 26th Floor
New York, NY 10007-1866

Dear Regional Administrator Enck:

At our fifth Passaic River Symposium held on October 19th, there was a in-depth discussion on the path forward for sediment remediation, restoration, and economic development of the lower Passaic River and the impending release of the U.S. Environmental Protection Agency (EPA) Region 2's Focused Feasibility Study (FFS). While the Passaic River Institute (PRI), elected officials and other members of the community look forward to the release of the FFS later this year, we were interested to learn recently about another approach to addressing sediment remediation in the lower Passaic River utilizing an Adaptive Management Approach.

As you know, the PRI continues to build a scientific community with a focus on the river basin, conducting cutting-edge research, providing environmental training and education programs and promoting public awareness in watershed and sustainability sciences. The PRI has a central role in approaching and seeking solutions for the vast environmental challenges within the Passaic River Basin, including tributaries and surrounding watershed lands. The PRI brings together over 45 physical, biological and social scientists and engineers from Montclair State University (MSU) and partner institutions to study the trans-disciplinary environmental perturbations within the Passaic River basin. Furthermore, the PRI provides broad environmental services with expertise, independent integrity, and value. The Institute's scientists and experts as well as our strong credentials, academic credibility and university facilities offer unique advantages in investigating and managing complex environmental challenges.

On January 18, representatives of the PRI, professors from Montclair State University and Dr. Robert Prezant, Dean, College of Science and Mathematics, at their invitation met with representatives of the Lower Passaic River Study Area Cooperating Parties Group (CPG) to learn about a proposal to address sediment contamination and sources of ongoing pollution. In the audience were other Earth and Environmental Studies and Biology Department faculty from the MSU College of Science and Mathematics. These included hydro-geologists, geographers, analytical chemists, marine and freshwater scientists, water resource and sediment remediation faculty. The presentation by the representatives of the CPG Group outlined an Adaptive Management Approach. Whereas studies that have been undertaken in the CPG's Remedial Investigation/Feasibility Study show that natural recovery is occurring in the River and by removing the highest surface sediment contamination, they propose addressing the highest risks to human and ecological health of the River.

montclair.edu /csam
1 Normal Avenue ▪ Montclair, NJ 07043 ▪ 973-655-5423

The PRI, as a research institute, expressed our interest in working with the CPG to help better understand the viability of their approach. Specifically, the PRI retains neutrality in considering the best approach from those currently on the table. Instead we advocate solely for data driven methodologies and are glad to help with those assessments. We have suggested to the CPG that we could support efforts to facilitate integrated approaches for assessment, remediation and restoration of the River where Adaptive Management can have a beneficial outcome.

Sincerely,

Meiyin Wu, Ph.D.
Director
Passaic River Institute
Montclair State University
Montclair, NJ 07039

NEW JERSEY SENATE

PAUL A. SARLO
DEPUTY MAJORITY LEADER
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COMMITTEES
CHAIRMAN
BUDGET AND APPROPRIATIONS
JUDICIARY
HIGHER EDUCATION
LEGISLATIVE OVERSIGHT

February 14, 2013

Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Dear Regional Administrator Enck:

As Senator of New Jersey District 36, which includes several municipalities along the Passaic River, I write to you today to oppose the United States Environmental Protection Agency Region 2's Focused Feasibility Study (FFS). While it is difficult to comment on a document that has not been released, we have learned the document is reported to contain recommendations we believe would be detrimental to the restoration of the Lower Passaic River and disruptive to our community.

We urge Region 2 to set aside the FFS and allow the Remedial Investigation/Feasibility Study (RI/FS) for the entire 17 miles of the Lower Passaic River Study Area (LPRSA) to be completed as quickly as possible to examine all possible remedial alternatives. Together with all stakeholders, Region 2's focus must be on the development and implementation of one comprehensive remedial solution that restores the LPRSA and provides value to communities along the River.

In May 2007, the LPRSA Cooperating Parties Group (CPG) entered into an agreement with Region 2 to complete the RI/FS of the lower 17.4-miles of the Lower Passaic River – a process that is on schedule and slated to be completed in 2015 at a cost of over $75 million. In June 2007, one month after the CPG and Region 2 executed the RI/FS Agreement, Region 2 issued its Draft FFS Report identifying remedial alternatives for <u>final</u> action for the sediments in the lower eight miles of the LPRSA. We understand that a revised draft FFS was presented to the National Remedy Review Board in December 2012, and the FFS and Proposed Plan are scheduled to be released in March 2013.

NEW JERSEY SENATE

PAUL A. SARLO
DEPUTY MAJORITY LEADER
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COMMITTEES
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We are in agreement that action needs to be taken to mitigate the contamination in the LPRSA. However, it is illogical to issue a final remedy for downstream before addressing upstream and ongoing contamination. It is also illogical to have two overlapping studies, especially since the data collected pursuant to the RI/FS should be considered in selecting a remedy for the full LPRSA. Since 2007, millions of dollars have been spent studying the LPRSA and characterizing the contamination to develop sound and effective remedial options. If Region 2 advances the FFS in the lower eight miles of the LPRSA, the data collected as part of the RI/FS throughout the 17-mile LPRSA will be rendered useless, as implementing a bank-to-bank remedy in the lower eight miles will result in recontamination throughout the LPRSA. Allowing years of work, millions of dollars and valuable data to be wasted would be completely irresponsible on the part of the EPA, and further delay any action in the upper nine miles of the river.

It is our understanding that the CPG has proposed an alternative remedy for the LPRSA called the Sustainable Remedy. As proposed, the Sustainable Remedy addresses the entire 17 miles of the LPRSA, not just the lower eight miles, and significantly reduces risk much quicker than the FFS without decades of dredging and community disruption. Based on what we know about the FFS, we believe the dredging proposed in the FFS will take decades – between 20 and 30 years – to complete, not the 6 to 11 years estimated by Region 2. We also have serious concerns about the bridge openings that will be required to support the FFS, the potential for significant traffic congestion, and potential air pollution that may result from a project of this magnitude.

The CPG is also proposing an out-of-river component as part of the Sustainable Remedy. This component would help reduce ongoing sources of contamination that continue to flow into the LPRSA and advance local projects that will improve and enhance the watershed. We see a great deal of value in the out-of-river component of the CPG's Sustainable Remedy. The FFS fails to provide any value whatsoever to those riverfront communities that have been forced to deal with a contaminated Lower Passaic River for decades.

NEW JERSEY SENATE

PAUL A. SARLO
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COMMITTEES
CHAIRMAN
BUDGET AND APPROPRIATIONS
JUDICIARY
HIGHER EDUCATION
LEGISLATIVE OVERSIGHT

Ms. Judith Enck
February 14, 2013
Page Three

Simply put, the FFS is premature. The decisions made this year will impact our community for the next 100 years. Accordingly, we strongly recommend that Region 2 set aside the FFS, allow the CPG to complete the RI/FS as quickly as possible, examine all remedial alternatives for the entire 17 miles of the LPRSA based on all data that is and will become available, and work with the CPG and the riverfront communities to advance one comprehensive remedial solution that restores the River and provides value to communities along the River.

Sincerely,

Paul A. Sarlo
Senator, District 36

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NEW JERSEY GENERAL ASSEMBLY

RALPH R. CAPUTO
ASSEMBLYMAN, 28TH DISTRICT
NUTLEY, GLEN RIDGE, BLOOMFIELD
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March 6, 2013

Judith A. Enck
Regional Administrator
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Dear Regional Administrator Enck:

As an Assemblyman representing the Essex County municipalities of the City of Newark and the Township of Nutley along the Passaic River, I write to you today to respectfully oppose the United States Environmental Protection (EPA) Region 2's Focused Feasibility Study (FFS). It is my belief that such action, although borne of good intentions, would have an adverse effect on river restoration and cause a major disruption for my constituents.

My concerns regarding the FFS stem from the massive dredging options proposed for the lower eight miles of the Passaic River, including the possibility of a cap spanning from river bank to river bank. Recently, information has come to my attention which indicates that there are two alternatives being proposed in the lower 8 miles: a four (4) million cubic yard removal that is estimated to take six years to complete and an 11 million cubic yard removal that is estimated to take 11 years to complete.

It is my opinion that the assumed dredging rates are overly aggressive and that this project is likely to take decades to finish. It appears as though the EPA is grossly under estimating the unique challenges of dredging in an urbanized tidal River like the Passaic River. More importantly, the FFS does nothing to help the Township of Nutley and the Township of Belleville, a community I represented for many years up until the redistricting in 2010. The fact of the matter is the action in the lower 8 miles of the River does nothing but force municipalities like Nutley and Belleville to wait even longer for action.

While the Passaic River has been studied extensively, it is my belief that the FFS will cause more damage than good. A massive dredging project of this magnitude in the lower eight miles of the River would severely impact the quality of life for the residents of these communities.

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Furthermore, addressing the contamination downstream, just to go upstream when the lower eight mile dredge is complete, seems illogical and inefficient, particularly in light of the discovery of a new "hot-spot" in Lyndhurst. I am concerned such a massive removal in the southern portion of the River will cause significant resuspension and recontamination and will present even more of a health-risk to the River and my constituents. I question the overall efficacy and approach of the FFS when there is another study being conducted that encompasses the entire 17 miles of the River.

In my discussions with other state and municipal elected officials along the River, I have learned of the benefits of the alternative proposed by the Lower Passaic River Cooperating Parties Group (CPG) called the Sustainable Remedy. My understanding of the Sustainable Remedy is that it addresses in-river contamination by removing targeted "hot-spots" throughout the entire 17 miles of the River using less invasive and less disruptive techniques. I am told that this approach would reduce risk by up to 80% throughout the entire 17 miles of the River in five short years.

In addition to the targeted removal, the Sustainable Remedy contains an out-of-river component, consisting of community based projects along the river banks that would help reduce and manage ongoing sources of contamination and improve the watershed. As far as I know, the FFS does not contemplate any out-of-river work that would improve the watershed, reduce runoff, and provide benefits to local communities. I am having a very difficult time understanding why the EPA would have such a myopic view towards the Passaic River and not implement out-of-river projects that complement and support the in-river removal.

Both active environmental studies underway on the Passaic River-the FFS and the Remedial Investigation/Feasibility Study (RI/FS)-deserve to be analyzed on their merits. Moving forward with one, without the results of the other, certainly appears to be short-sighted. Going south to go north makes no sense to me. Making assumptions that 700,000 cubic yards of sediment can be dredged out of the Passaic River each year is over ambitious. Doing nothing on the banks of the River to help manage ongoing sources while the River is being restored seems unscientific.

For far too long the residents along the Passaic River have been waiting for relief and a clear path forward for the restoration of the River. I respectfully request that you and the professional staff at the EPA give the proposed Sustainable Remedy a very close examination. If there is a way we can restore the entire 17 miles of the Passaic River, reduce risk quicker and more efficiently than what is being proposed and advance community based projects that will help manage ongoing sources while improving the watershed, the EPA and the NJDEP should give the proposal its full and objective consideration.

Sincerely,

Ralph R. Caputo

Ralph R. Caputo
Assemblyman, 28th District
New Jersey General Assembly

Cc: Acting EPA Administrator Bob Perciasepe
NJ Congressional Delegation
Honorable Chris Christie, Governor, State of New Jersey
Commissioner Bob Martin, NJ DEP
Essex County Executive Joseph DiVincenzo
Essex County, Board of Freeholders

City of Garfield

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JOSEPH P. DELANEY
MAYOR

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November 25, 2013

The Honorable Senator Robert Menendez
528 Hart Senate Office Building
United States Senate
Washington, DC 20510-3005

Dear Senator Menendez:

I am writing to you today on behalf of the City of Garfield, to request that your office ask EPA Region 2 to fully consider the merits of the Sustainable Remedy as part of its review of remedial options for the Lower Passaic River.

EPA Region 2 has stated that it plans to release a Focused Feasibility Study and Proposed Remedial Action Plan (FFS/PRAP) for this area later this year and that the Region is likely to recommend a bank-to-bank dredge of the entire lower 8 miles. We have concerns that this remedy will be lengthy, intrusive to the community and provide little flexibility for adjustment if its goals are not being met.

We appreciate the hard work that EPA Region 2 has done related to the FFS/PRAP, but we hope that the Region will step back and take an objective look at the practical issues involved in removing millions of cubic yards of material from this congested and urbanized waterway.

The Sustainable Remedy could be implemented more quickly, would be less intrusive yet effective and still allow the opportunity for additional work if needed. In addition to addressing contaminated sediment, this remedy also includes green infrastructure projects that would reduce the pollution that continues to enter the River.

EPA Region 2 is aware of the substantial logistical challenges encountered during the removal action ongoing in Lyndhurst. A bank-to-bank dredge potentially removing hundreds of times as much material would likely be a process our communities would have to live with for decades. After all the time we have waited for meaningful action on the Lower Passaic, and with action potentially so close at hand, let's make sure we choose a remedy that is right for the Lower Passaic and for our communities.

Sincerely,

Joseph Delaney
Mayor

JD/p

cc: Congressman Wm. Pascrell
City Council
T. Duch, City Manager

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