



**ELI/TNC Watershed Approach Handbook:  
Improving Outcomes and Increasing Benefits  
Associated with Wetland and Stream Restoration and Protection  
Projects**

**Webcast sponsored by EPA's Watershed Academy**



**Wednesday, March 18, 2015  
1:00pm – 3:00pm Eastern**



**Instructors:**

- Dr. Rebecca Kihlsinger, Wetlands Program Director, Environmental Law Institute, San Francisco
- Palmer Hough, Environmental Scientist, Wetlands Division, U.S. Environmental Protection Agency
- Mark P. Smith, Deputy Director, North America Water Program, The Nature Conservancy, Boston, MA
- Nicholas Miller, Science Director, The Nature Conservancy, Madison, WI



## Webcast Logistics

- ▶ **To Ask a Question** – Type your question in the “Questions” tool box on the right side of your screen and click “Send.”
- ▶ **To report any technical issues** (such as audio problems) – Type your issue in the “Questions” tool box on the right side of your screen and click “Send” and we will respond by posting an answer in the “Questions” box.

# Overview of Today's Webcast

- Overview of the ELI/TNC Watershed Approach Handbook
- Framework for how to carry out the watershed approach
- Case study from Wisconsin



Watershed Approach Handbook  
 Improving Outcomes and Increasing Benefits  
 Associated with Wetland and Stream Restoration and  
 Protection Projects  
 September 2014



3




Watershed Approach Handbook:  
 Improving Outcomes and Increasing Benefits Associated with  
 Wetland and Stream Restoration and Protection Projects

4

# The Handbook

www.eli.org/research-report/watershed-approach-handbook

Home | Events | Contact | Sitemap

JOIN DONATE SUBSCRIBE ATTEND

ELI MAKES LAW WORK FOR PEOPLE, PLACES AND THE PLANET

Home » Research Reports » Watershed Approach Handbook: Improving Outcomes and Increasing Benefits Associated with Wetland and Stream Restoration and Protection Projects

### Watershed Approach Handbook: Improving Outcomes and Increasing Benefits Associated with Wetland and Stream Restoration and Protection Projects

Authors: The Environmental Law Institute and The Nature Conservancy

Date Released: September 2014

Watershed Approach Handbook: Improving Outcomes and Increasing Benefits Associated with Wetland and Stream Restoration Projects advances the use of a watershed approach in the selection, design and siting of wetland and stream restoration and protection projects, including projects required by compensatory mitigation. The handbook, jointly developed by ELI and The Nature Conservancy, demonstrates how using a watershed approach can help ensure that these projects also contribute to goals of improved water quality, increased flood mitigation, improved quality and quantity of habitat, and increases in other services and benefits. It provides an overall framework for the spectrum of watershed approaches, examples of specific types of these approaches, examples of types of analyses that may be useful for using guidance and lessons learned about considerations when developing wetland and stream protection and restoration projects.

Download the report here »

SEARCH REPORTS

Title:

Author(s):

Keyword(s):

Year Published:

Search Reset

5

# The Handbook

www.eli.org/research-report/watershed-approach-handbook

Home | Events | Contact | Sitemap

JOIN DONATE SUBSCRIBE ATTEND

ELI MAKES LAW WORK FOR PEOPLE, PLACES AND THE PLANET

Home » Research Reports » Watershed Approach Handbook: Improving Outcomes and Increasing Benefits Associated with Wetland and Stream Restoration and Protection Projects

### Watershed Approach Handbook: Improving Outcomes and Increasing Benefits Associated with Wetland and Stream Restoration and Protection Projects

Authors: The Environmental Law Institute and The Nature Conservancy

Date Released: September 2014

Watershed Approach Handbook: Improving Outcomes and Increasing Benefits Associated with Wetland and Stream Restoration Projects advances the use of a watershed approach in the selection, design and siting of wetland and stream restoration and protection projects, including projects required by compensatory mitigation. The handbook, jointly developed by ELI and The Nature Conservancy, demonstrates how using a watershed approach can help ensure that these projects also contribute to goals of improved water quality, increased flood mitigation, improved quality and quantity of habitat, and increases in other services and benefits. It provides an overall framework for the spectrum of watershed approaches, examples of specific types of these approaches, examples of types of analyses that may be useful for using guidance and lessons learned about considerations when developing wetland and stream protection and restoration projects.

Download the report here »

SEARCH REPORTS

Title:

Author(s):

Keyword(s):

Year Published:

Search Reset

3

## Speakers

- Palmer Hough - Environmental Scientist, Wetlands Division, U.S. Environmental Protection Agency
- Mark P. Smith - Deputy Director of the North America Water Program for The Nature Conservancy
- Nick Miller - Science Director, The Nature Conservancy, Madison, WI

7

## Thank you!



For More Information

[www.eli.org/compensatory-mitigation](http://www.eli.org/compensatory-mitigation)

[www.eli.org](http://www.eli.org)

TheJoyceFoundation



8



# ELI/TNC

## Watershed Approach Handbook: *Background and Context*

Palmer Hough, US EPA  
Office of Wetlands, Oceans, and Watersheds  
March 2015

9



# Handbook

- Advance use of watershed approach in:
  - Selection, design, and siting of wetland and stream restoration projects
  - Including compensatory mitigation projects



Watershed Approach Handbook

Improving Outcomes and Increasing Benefits  
Associated with Wetland and Stream Restoration and  
Protection Projects

September 2014



**The Nature Conservancy**

Protecting nature. Preserving life.

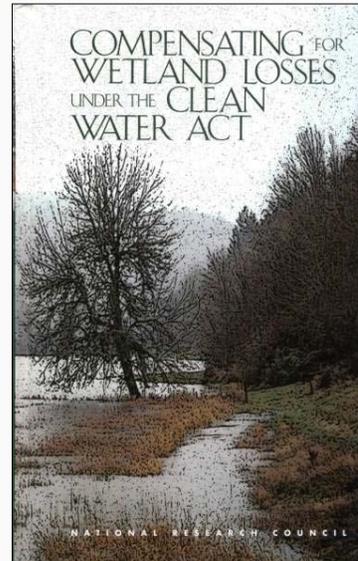


10

## 2001 NRC Study



- Preferences for on-site and in-kind mitigation should not be automatic
- Decisions should be based on analytical assessments of aquatic resource needs in a watershed



11

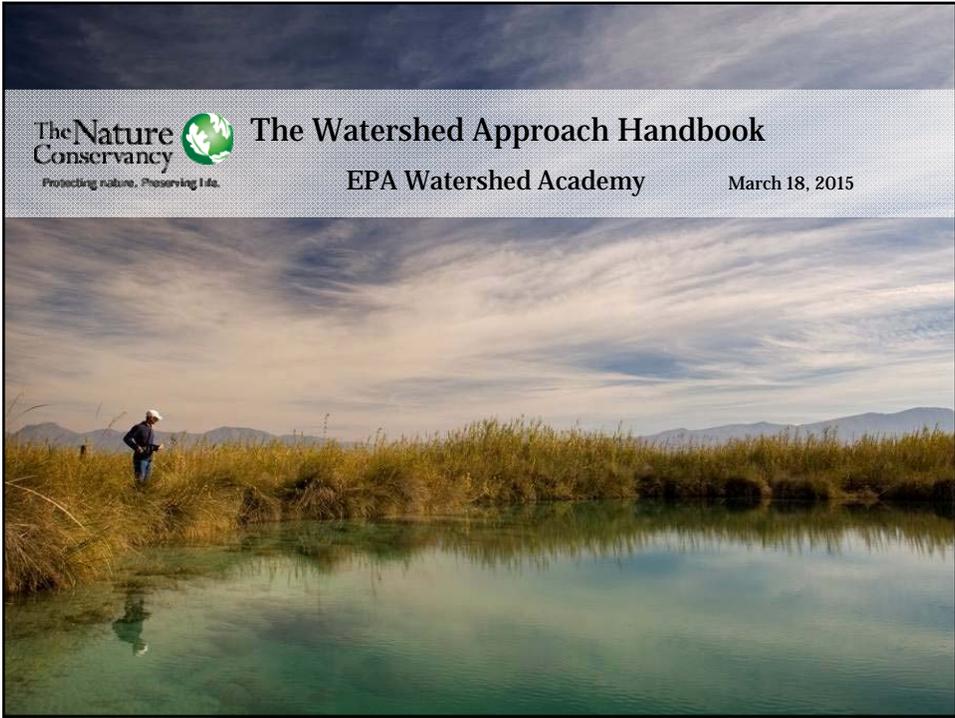
## 2008 Mitigation Rule



- Must use a watershed approach
  - Appropriate/practicable
- Use watershed plans
  - When appropriate plans available
  - May identify priority sites for restoration and protection
- If no appropriate plan
  - Identifies information sources to use



12

The slide features a vertical strip on the left side with the Nature Conservancy logo and a partial view of the same landscape as the cover. The main area of the slide is a light blue background with a halftone dot pattern. It contains the following text:

**Part 1 Presenter:**

Mark P. Smith  
Deputy Director  
North American Water Program

14



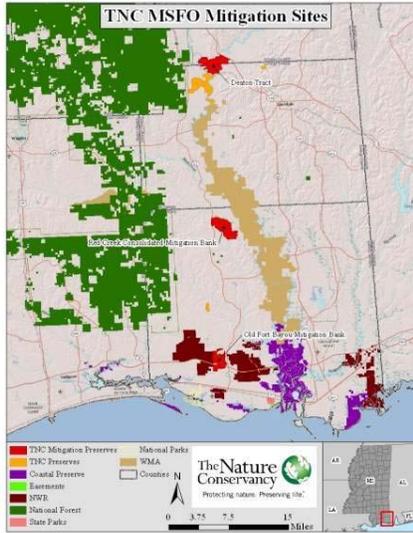
The Nature Conservancy  The Watershed Approach: A Tool to Advance our Collective Conservation Mission  
Protecting nature. Preserving life.™



TNC's Old Fort Bayou Mitigation Bank in Jackson County, MS. © 2011 Erika Nortemann/TNC.

16

## Wetland Mitigation Banking: Pascagoula River System, Mississippi



- 7,800 acres protected by TNC
- 12,000 acres of additional restoration work
- 63,000 linear feet of stream restored, enhanced or preserved
- Over \$27 million generated for acquisition, restoration and management of 5 projects; over \$4 million for long-term stewardship.

17

## Southern Watershed Area Management Plan

### Conservation Plan for the Southern Watershed Area

February 2001

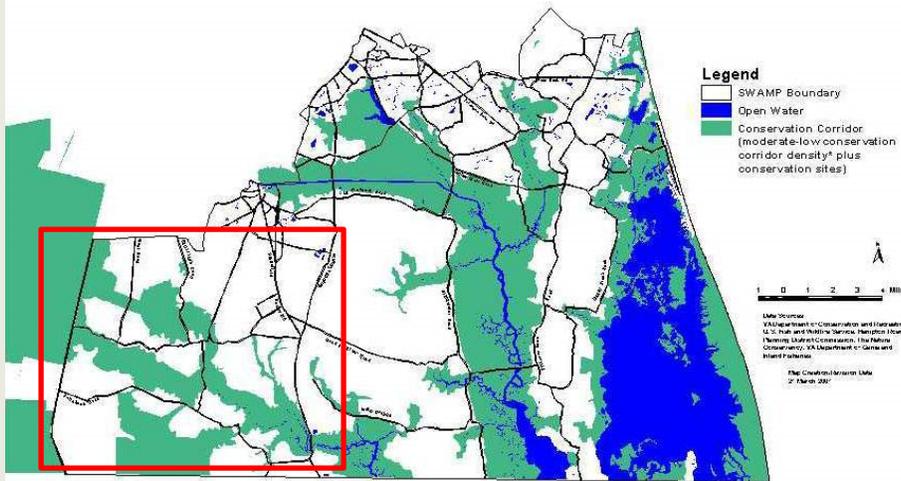
Virginia Department of Conservation and Recreation  
Division of Natural Heritage  
Natural Heritage Technical Report 00-12  
February 2001



18

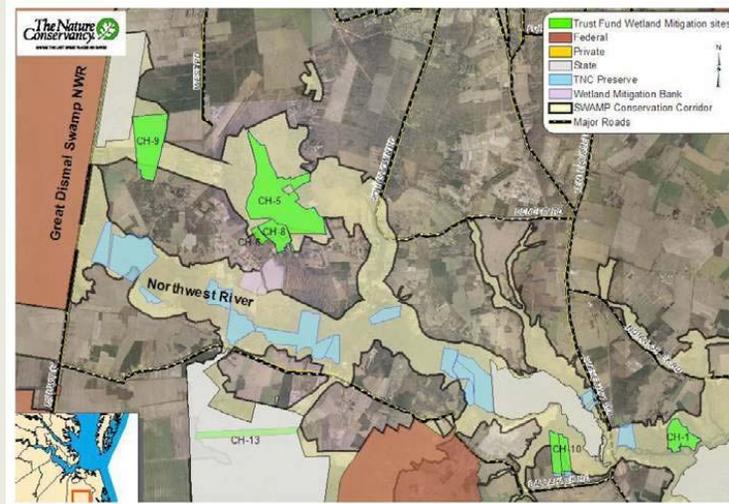


**Figure 8. Medium conservation corridor density**



\* moderate-low conservation corridor density = existing protected lands plus connecting corridors. Size bars of equal to 0.5 miles wide and NWR approved. See the box below for details.

## Southern Watershed Area Management Plan



21

## SWAMP Results

Southern Watershed Area Management Plan Results			
		Preservation	Restoration
Northwest River	15,888	11,487	4,401
North Landing	24,847	24,647	206
<b>Total Acres</b>	<b>40,746</b>	<b>36,128</b>	<b>4,607</b>
Acres by Funding Source			
State:	31%	Mitigation:	15%
TNC:	23%	Other Fed:	6%
USFWS:	22%	Local:	3%

## Why Use a Watershed Approach?

- **Improving environmental return on investment**
  - Water Quality
  - Habitat Improvement
  - Flood Attenuation
  - Recreation
- **Improving the economic return on investment**
  - North Carolina EEP – no delays on \$14 B in transportation projects
  - Michigan – estimated cost/acre dropped from \$75 - 150k to \$25-30K

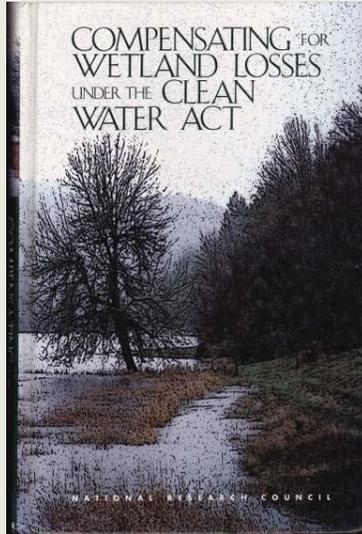
23

## Mitigation Investments

<i>Regulatory Program or Authority</i>	<i>Cost Estimate (in millions)</i>
<b>Clean Water Act § 404</b>	<b>\$2,947.3</b>
<b>Endangered Species Act § 10</b>	<b>\$370.3</b>
<b>Federal Natural Resource Damage Programs</b>	<b>\$87.7</b>
<b>Federal Power Act</b>	<b>\$210.3</b>
<b>Northwest Power Act</b>	<b>\$207.1</b>
<b>Total:</b>	<b>\$3,822.7</b>

Environmental Law Institute. October 2007. "Mitigation of Impacts to Fish and Wildlife Habitat: Estimating Costs and Identifying Opportunities." Washington, DC: Environmental Law Institute. Supported by the Doris Duke Charitable Foundation

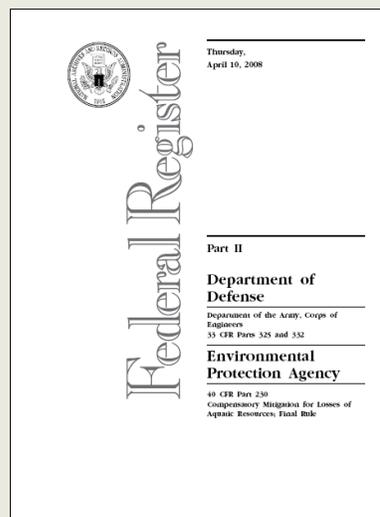
24



- Questioned preference for on-site and in-kind
- Site selection should be based on an analytical assessment of wetland needs in the watershed
- Projects should maximize the likelihood that they will make an ongoing ecological contribution to the watershed

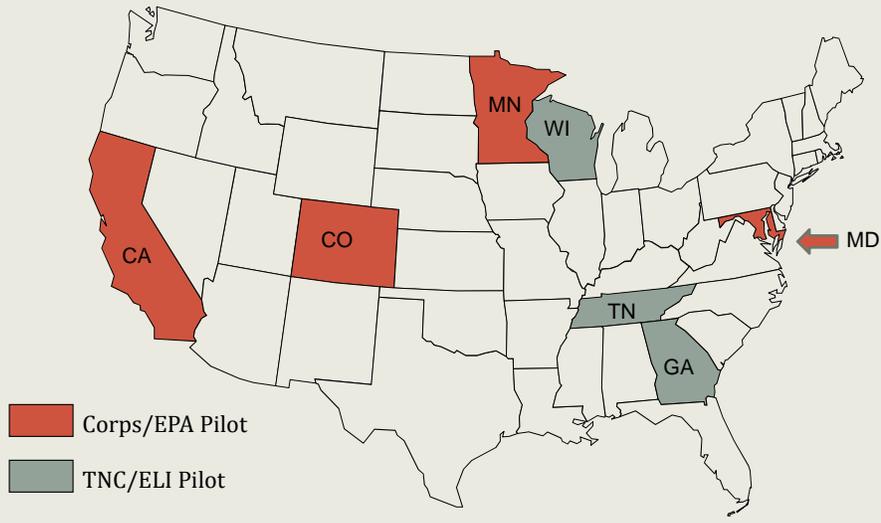
25

- If an appropriate watershed plan exists, use it
- If not, take a watershed approach



26

## Pilot Watershed Approach Projects



27

## Watershed Approach Handbook



### Watershed Approach Handbook

Improving Outcomes and Increasing Benefits Associated with Wetland and Stream Restoration and Protection Projects

September 2014

*Prepared by the Environmental Law Institute (ELI) and The Nature Conservancy (TNC) with funding from the U.S. Environmental Protection Agency (EPA) under EPA Wetlands Program Development Grant No. WD-83501201*



28

- Developed with a broad group of national experts from government, academia, and non-governmental organizations
- Describes a range of approaches, tools, and techniques for applying a watershed approach



Dismal Swamp, NC. An 85-acre Department of Transportation (DOT) wetland mitigation project. Photo credit: © Erika Nortemann/TNC.

## Three Parts:

- 1) Overview of Watershed Approach
- 2) Tools & technical approaches
- 3) Data Sources



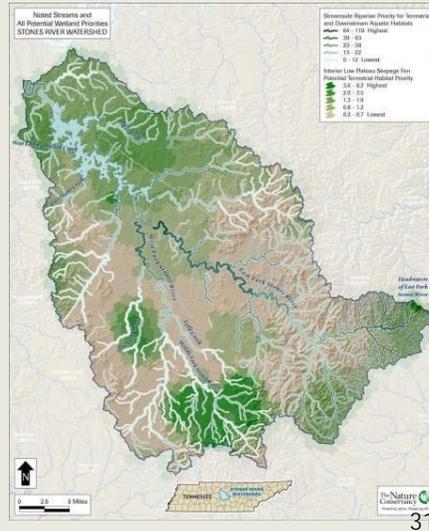
### Watershed Approach Handbook

Improving Outcomes and Increasing Benefits Associated with Wetland and Stream Restoration and Protection Projects

September 2014



1. Identify watershed needs
2. Identify desired outcomes
3. Identify potential project sites
4. Assess the potential of sites to meet watershed needs
5. Prioritize sites based on relative ability to address needs



Stones River Watershed, Tennessee: Wetland habitat priorities and important stream reaches.

<b>Watershed Approach Spectrum</b>			
	<b>Watershed-informed decisions</b>	<b>Watershed analysis: non-prescribed outcomes</b>	<b>Watershed plan: prescribed outcomes</b>
<b>ID/assess watershed needs</b>	Questions guide consideration of watershed factors.	Identifies watershed need(s).	Identifies watershed need(s).
<b>ID watershed outcomes</b>	Includes the consideration of watershed need(s).	No or little use of watershed need(s) to ID specific desired watershed outcome(s).	Describes specific, measurable desired watershed outcomes.
<b>ID sites across watershed</b>	Individual assessments.	Includes analysis of the potential of sites to develop and persist.	Includes analysis of the potential of sites to develop and persist.
<b>Assess how sites meet needs</b>	No assessment of the potential of sites to meet watershed needs.	Assesses the potential of sites to meet watershed needs.	Assesses the potential of sites to meet watershed needs.
<b>Prioritize sites &amp; outcomes</b>	No comparison of the relative ability of sites to sustain and to address watershed needs.	Compares sites to evaluate their relative ability to sustain and to address watershed needs.	Compares sites to evaluate their relative ability to sustain and to address watershed needs.

### **Identify Watershed Needs**

- Existing plans, reports, analyses
- Analysis of historic losses
- Analysis of current condition
- Analysis of future threats
- Stakeholder input

### **Identify Desired Outcomes**

- Stakeholder Input

### **Identify Potential Sites**

- Suitability and persistence of sites
- Aquatic resource conservation opportunities

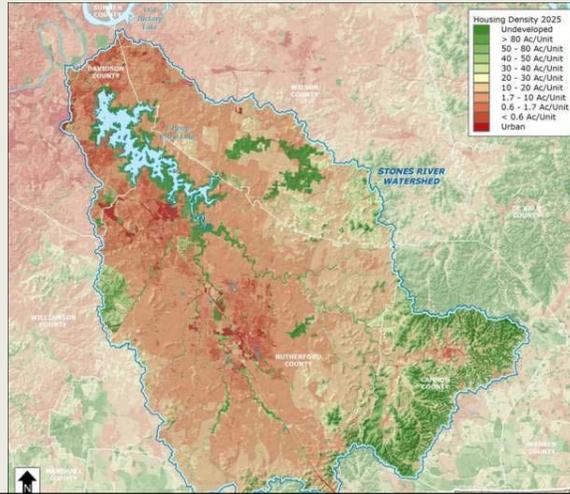
### **Assess Potential of Sites to Meet Watershed Needs**

- Condition assessments
- Ecosystem service assessments
- Wildlife and habitat assessments
- Water quality assessments

### **Prioritize sites and areas**

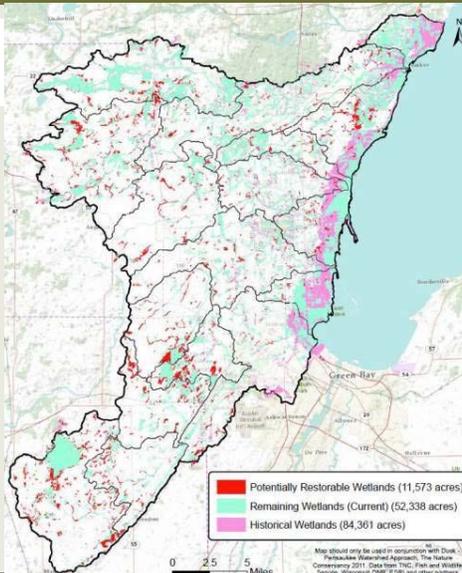
- Identify priority hydrologic units
- Prioritize sites
- Define watershed outcomes

## Future development trends: population growth



35

## Wisconsin Potentially Restorable Wetlands



36

## Ecosystem Services

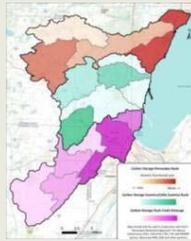
### Flood Abatement



### Surface Water Supply



### Carbon Storage

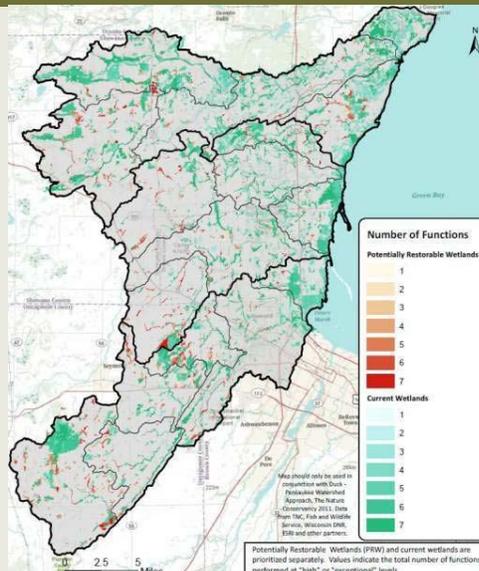


### Water Quality



37

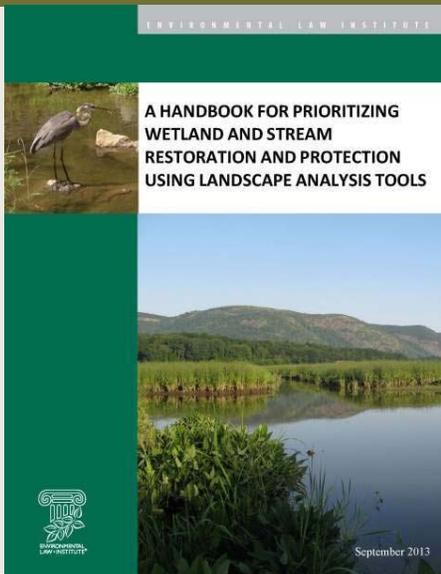
## Site Prioritization



38

### Appendix of Data Sources

### Other publications



- Work where wetlands and streams exist or previously existed
- Provide adequate buffers and connectivity
- Build on existing wetland and upland systems
- Consider compatibility with adjacent land uses
- Consider the source of water
- Consider a changing landscape
- Identify appropriate wetland types
- Focus on ecological processes rather than physical structure of the environment
- Avoid over-engineered structures in the project design

- Funding for plans
- Add to existing plans (e.g. 319 etc) to include wetland and stream priorities
- Crediting schemes that reference priorities and watershed plans
- Others?



Montsweag Brook project, Maine. Photo credit: © 41 Brian Peters.

 Protecting nature. Preserving life.™

**Contact Information:**

Jessica Wilkinson  
Senior Policy Advisor, Mitigation  
U.S. Government Relations  
jwilkinson@tnc.org  
(413) 230-3513

Mark P. Smith  
Deputy Director, North American Freshwater Program  
mpsmith@tnc.org  
(617) 532-8361

Rebecca Kihlslinger, Ph.D  
Science and Policy Analyst  
Environmental Law Institute  
(202) 939-3812  
kihlslinger@eli.org

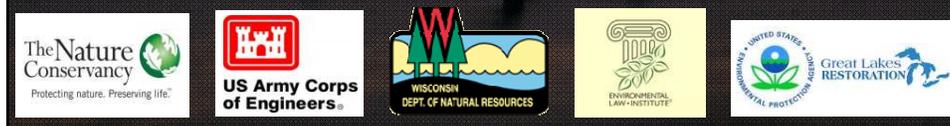
Links to Handbook:  
[www.eli.org/research-report/watershed-approach-handbook](http://www.eli.org/research-report/watershed-approach-handbook)  
[www.conservationgateway.org/ConservationPractices/Pages/watershedapproachhandbook.aspx](http://www.conservationgateway.org/ConservationPractices/Pages/watershedapproachhandbook.aspx)

42

# Questions



**The Duck-Pensaukee Watershed Approach**  
Mapping Wetland Services, Meeting Watershed Needs



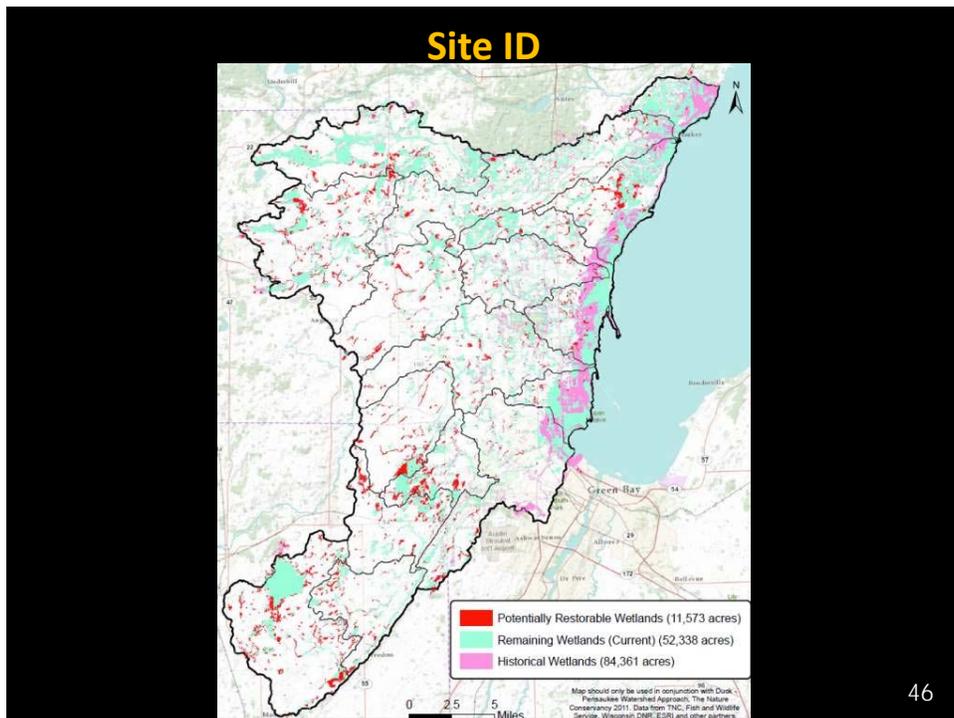
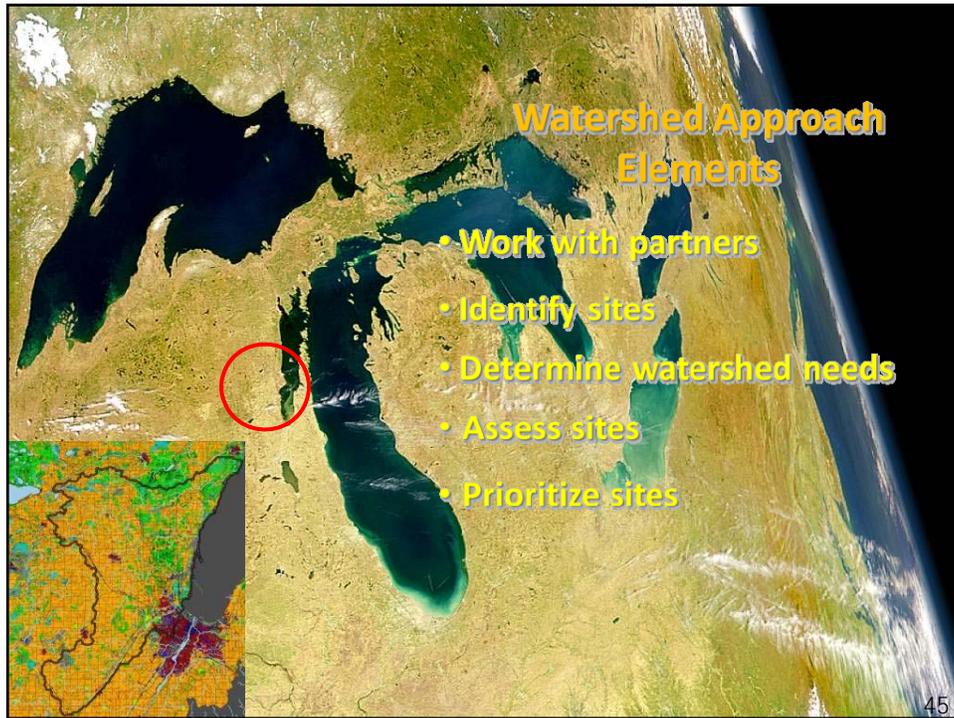
The Nature Conservancy  
Protecting nature. Preserving life.™

US Army Corps of Engineers

WISCONSIN DEPT. OF NATURAL RESOURCES

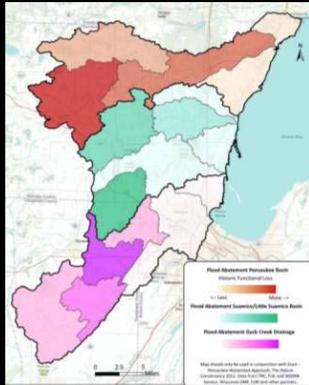
ENVIRONMENTAL LAW INSTITUTE

ENVIRONMENTAL PROTECTION AGENCY  
Great Lakes RESTORATION



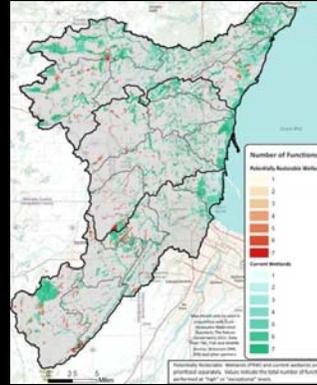
# Duck-Pensaukee Watershed Approach

## Watershed Needs



- Wildlife Habitat
- Flood Abatement
- Water Quality
- Shoreline Protection
- Fish Habitat
- Surface Water Supply
- Carbon Storage

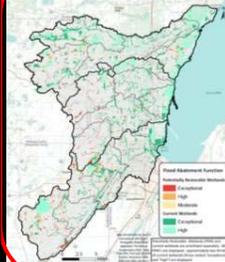
## Site Priorities



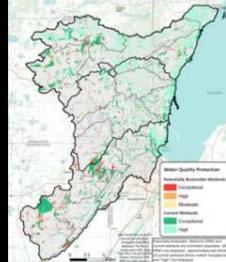
47

## Site Prioritization: Ecosystem Services

### Flood Abatement



### Water Quality



### Shoreline Protection



### Fish Habitat



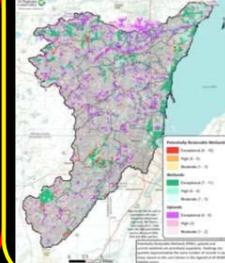
### Surface Water Supply



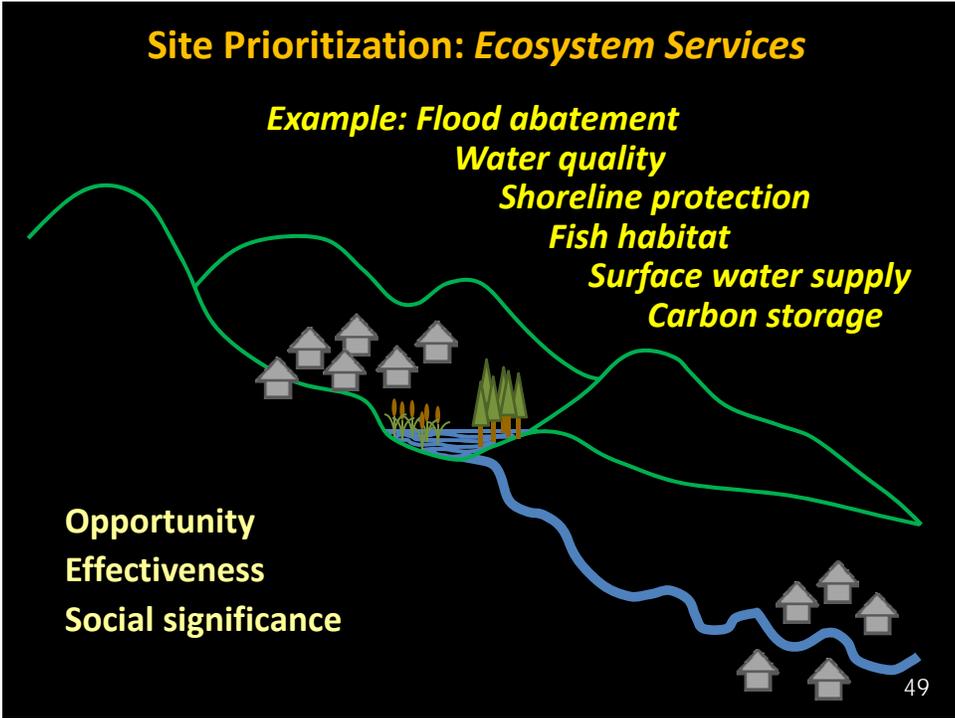
### Carbon Storage



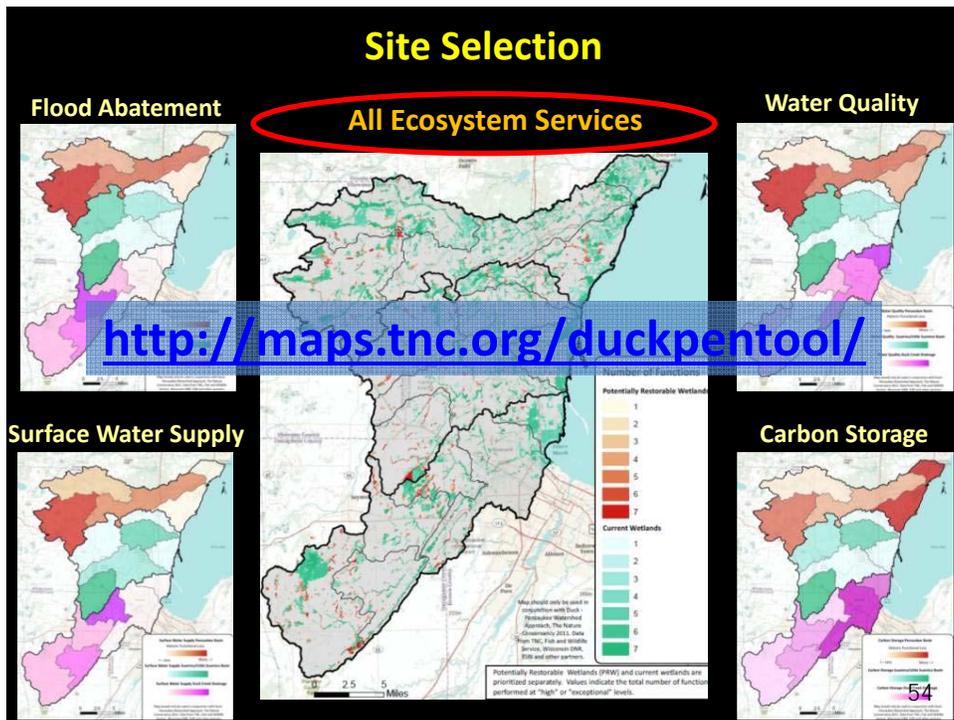
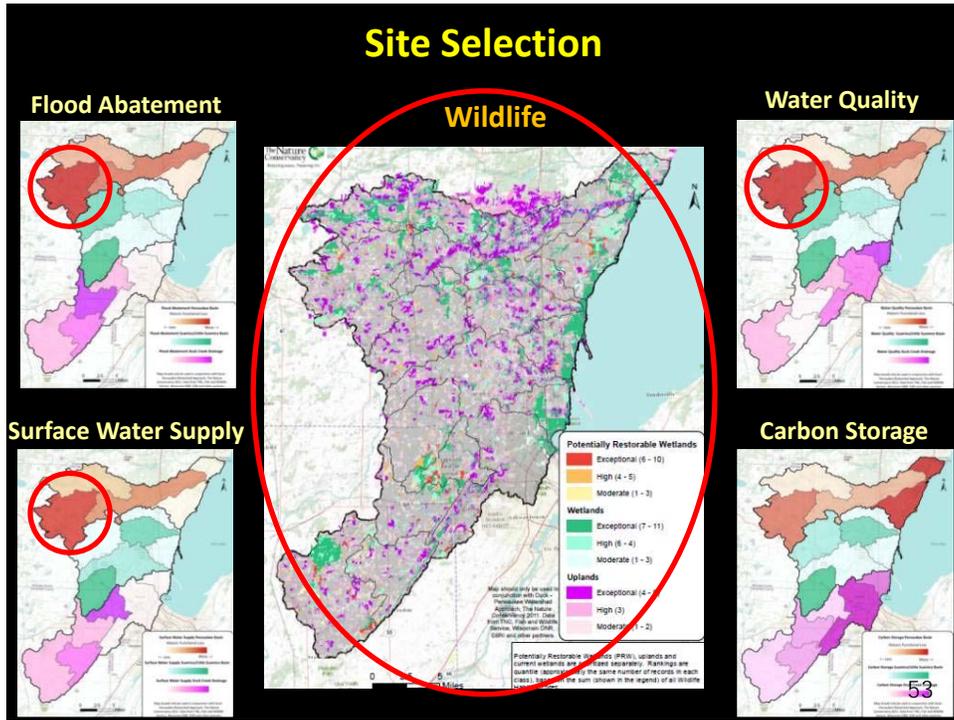
### Wildlife Habitat

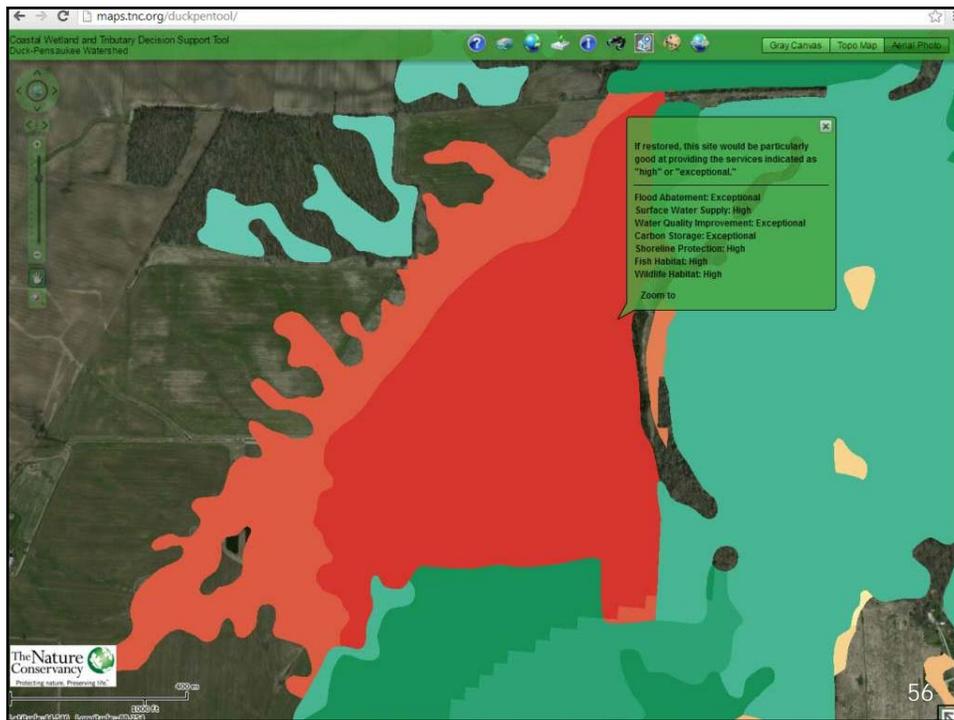
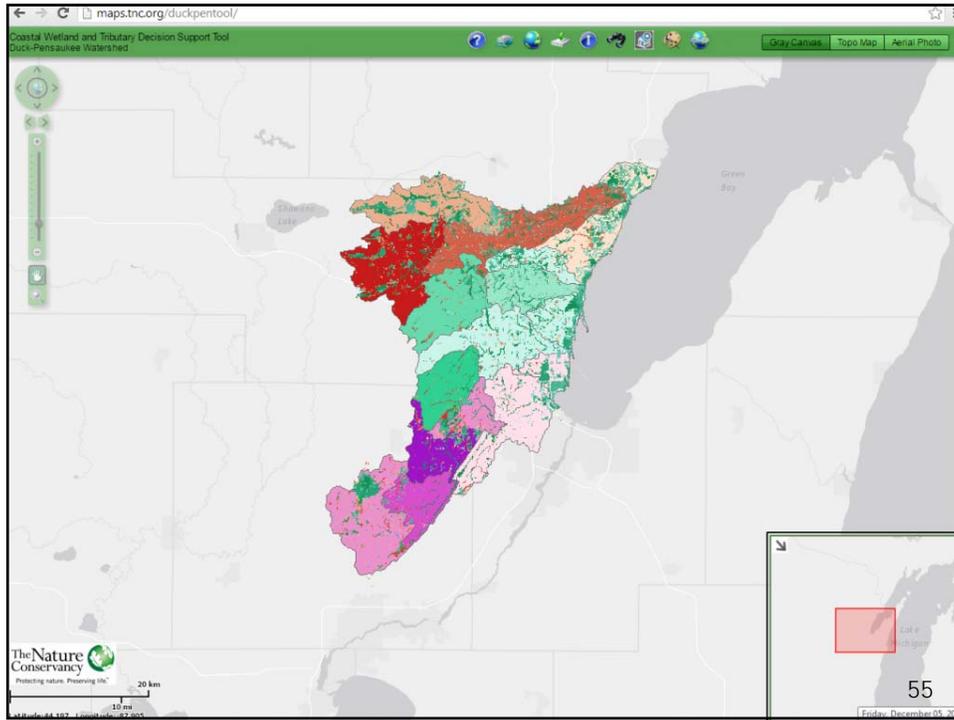


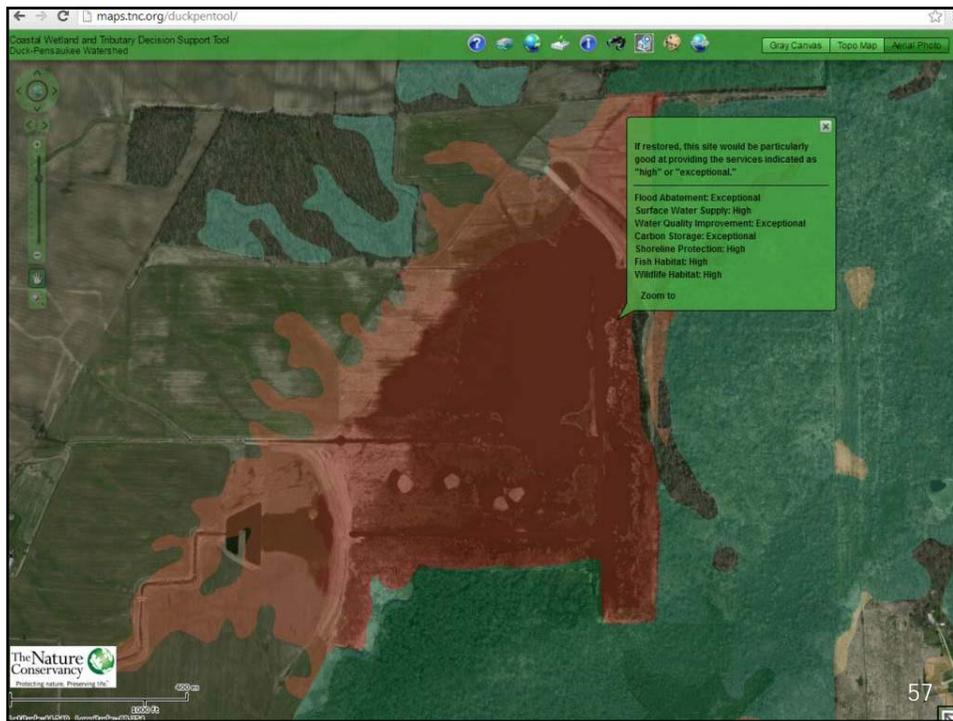
48





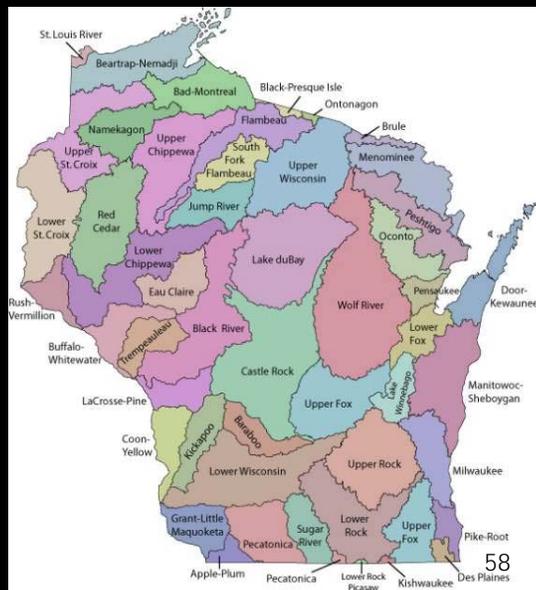






## Next Steps

- Statewide roll-out
- Deep dive in key watersheds
- Better tools
- Implementation
- Linking to plans/programs
- Quantifying water quality benefits





## Speaker Contact Information

**Dr. Rebecca Kihslinger**  
Wetlands Program Director  
Environmental Law Institute,  
San Francisco  
[kihslinger@eli.org](mailto:kihslinger@eli.org)

**Mark P. Smith**  
Deputy Director  
North America Water Program  
The Nature Conservancy,  
Boston, MA  
[mpsmith@TNC.ORG](mailto:mpsmith@TNC.ORG)

**Palmer Hough**  
Environmental Scientist  
Wetlands Division  
U.S. Environmental Protection  
Agency  
[Hough.Palmer@epa.gov](mailto:Hough.Palmer@epa.gov)

**Nicholas Miller**  
Science Director  
The Nature Conservancy,  
Madison, WI  
[nmiller@TNC.ORG](mailto:nmiller@TNC.ORG)



## Next Watershed Academy Webcast



Check Back at  
[www.epa.gov/watershedwebcasts](http://www.epa.gov/watershedwebcasts)



## Participation Certificate

If you would like to obtain participation certificates  
**type the link below into your web browser:**

<http://water.epa.gov/learn/training/wacademy/upload/2015-03-18-certificate.pdf>

You can type each of the attendees names into the PDF and print the certificates.

61



## Questions

62