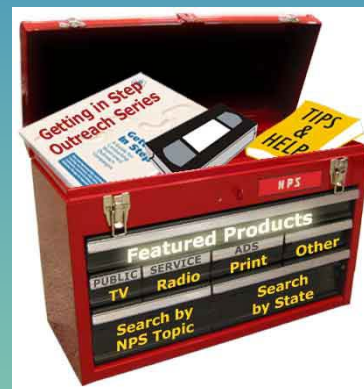
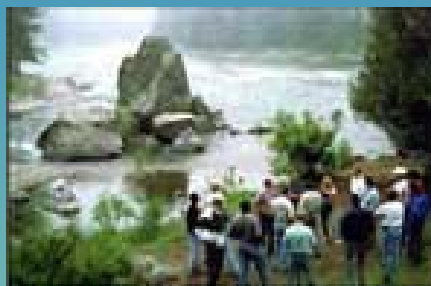


Water Resource Planning and Management Tools



United States Environmental Protection Agency

Stuart Lehman

Environmental Scientist

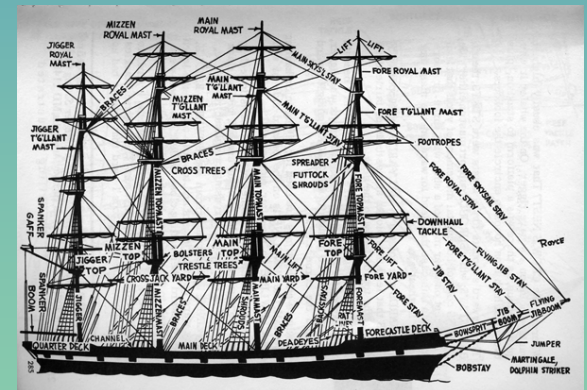
Nonpoint Source Control Branch

Washington, DC

Outline



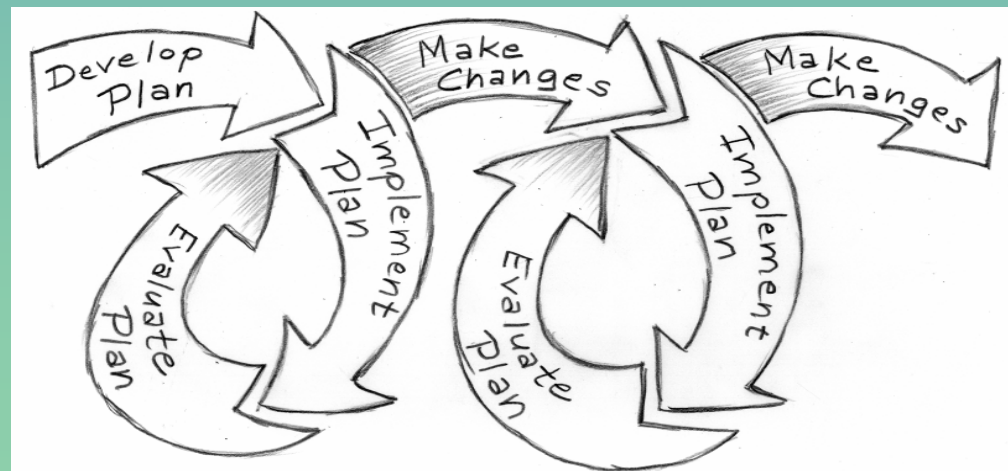
- Watershed planning steps, the importance of a good watershed plan and getting Section 319 Funds
- SRF (loans) and 604 b (watershed planning funds) as another source of \$\$\$ for watersheds
- Sustainable funding principles and funding plans
- “Watershed Central” a toolbox for watersheds



Major Watershed Planning Steps

The watershed planning process is iterative, adaptive, holistic, geographically defined, collaborative, and participatory. The watershed planning process should be integrated with other planning efforts.

1. Build partnerships
2. Characterize the watershed to identify problems
3. Set goals and identify solutions
4. Design an implementation program and assemble the watershed plan outline
5. Implement the watershed plan
6. Measure progress and make adjustments



Step 1: Build Partnerships

Involve stakeholders throughout the process to address community concerns, build support, and share resources

- Identify stakeholders
- Identify issues of concern
- Identify scope of effort & planning area
- Set preliminary goals
- Conduct outreach



Step 2: Characterize the Watershed

Identifying and gathering available data and information to assess the watershed and estimate pollutant loads

- Gather existing data
- Create a data inventory
- Identify data gaps
- Collect additional data if needed
- Analyze data
- Identify causes and sources
- Estimate pollutant loads



Step 3: Finalize Goals and Identify Solutions

Determine the reductions needed and identify management objectives to help you achieve your watershed goals

- Set goals and management objectives
- Develop indicators/targets
- Determine load reductions needed
- Identify critical areas
- Identify management measures needed



Step 4: Design an Implementation Program and Assemble Watershed Plan

Implementation plan: A guide for turning your management strategies from paper into reality and for determining how you're going to measure progress toward meeting your goals.

- Develop an implementation **schedule**
- Set Interim **milestones**
- Determine how **you will measure** success
- Develop a **monitoring** component
- Develop an **evaluation** process
- Identify **technical and financial assistance** needed
- Assign responsibility

Step 4 Continued: Develop Watershed Plan Outline

Provides a context and a road map for how you are going to manage the watershed

- Introduction
- Geographic area & description
- Partners/stakeholders
- Background
- **Water quality analysis & goals**
- Pollutants/stressors & sources
- Management measures
- **Load reductions needed and BMPs**
- Reductions expected from BMPs
- Implementation plan
- **Public education & outreach**
- Funding & project schedule
- Milestones
- Evaluation & monitoring plan

Step 5: Implement the Watershed Plan

Steps to follow:

- Implement management strategies
- Conduct monitoring
- Conduct outreach activities

Implementation includes:

- Project management
- Technical expertise
- Group facilitation
- Data analysis
- Communication
- Public relations



Step 6: Measure Progress and Make Adjustments

Monitoring water quality ensures timely implementation and measures progress towards goals

- Review and evaluate progress
- **Share results**
- **Prepare annual plans**
- Make adjustments



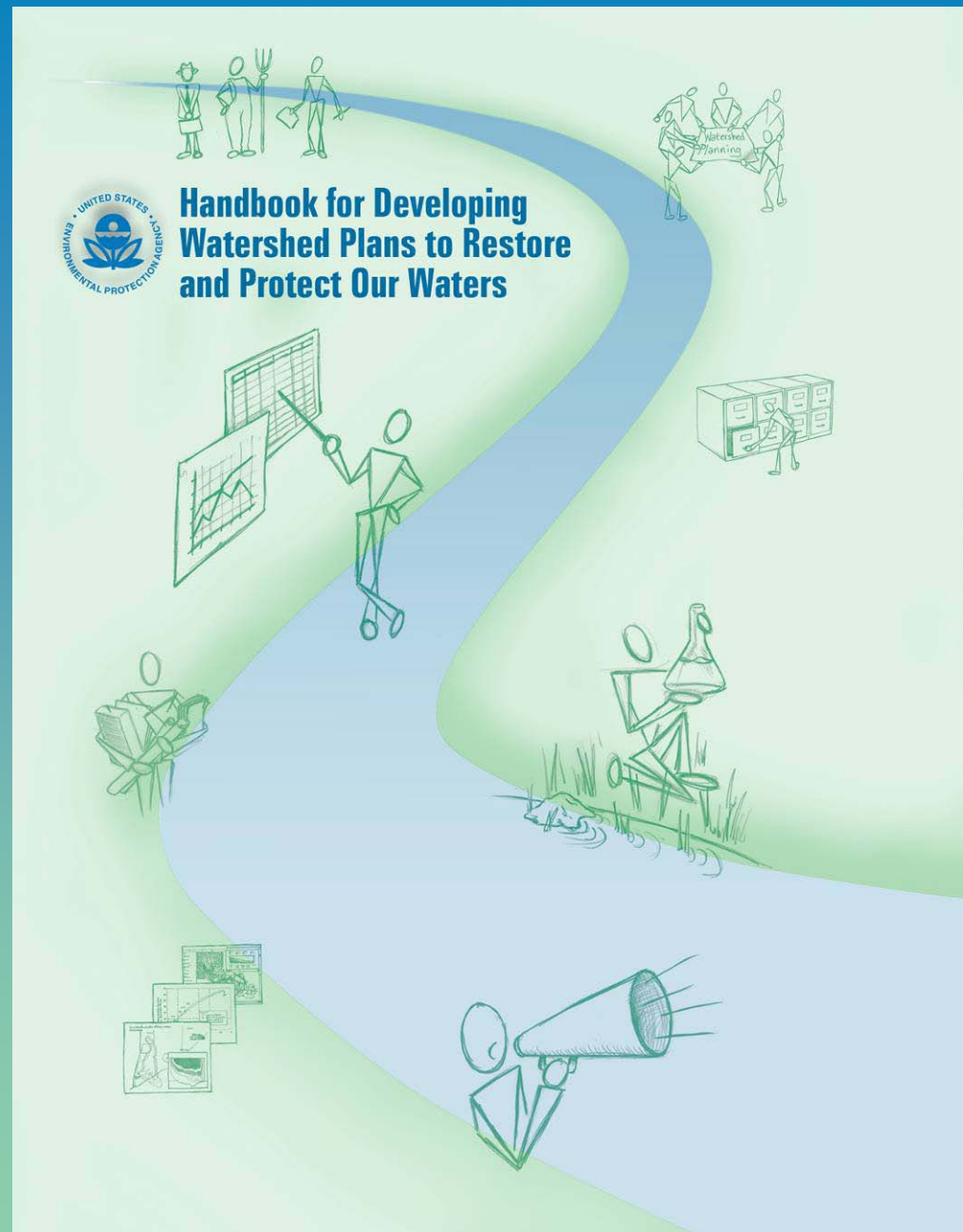
EPA's Nine Elements for Plans

Recommended for all plans, required for incremental 319 funds

- a. Identify and quantify causes & sources of pollution
- b. Estimate load reductions expected from BMPs & other controls
- c. Describe mgmt measures & targeted critical areas
- d. Estimate technical and financial assistance needed
- e. Develop outreach and education component
- f. Develop project schedule
- g. Describe interim, measurable implementation milestones
- h. Identify water, resource, & habitat indicators to measure progress
- i. Develop a monitoring component

Watershed Planning Handbook

http://www.epa.gov/owow/nps/watershed_handbook/





The Clean Water State Revolving (CWSRF)

The CWSRF was established in the version 1987 Clean Water Act

- **It was designed by Congress as a sustainable source of financial assistance**
- **The program consists of 51 state-managed water infrastructure banks**
- **Wide range of public purpose water quality projects**

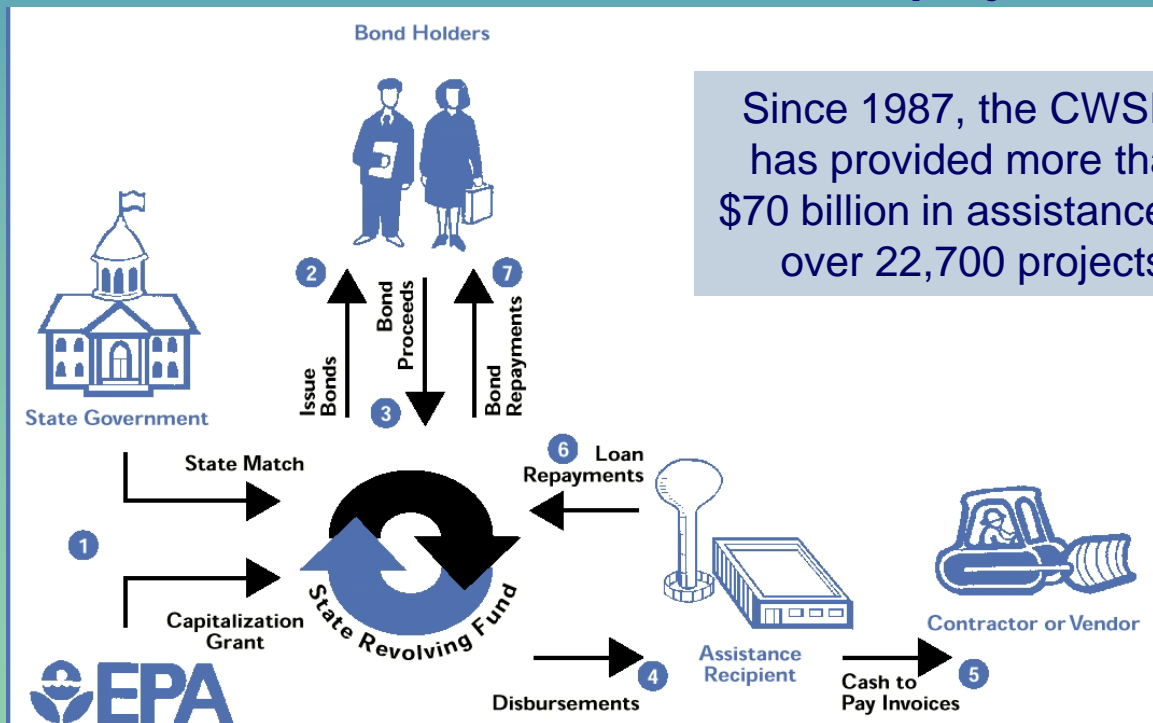
“The CWSRF ranks up there with the Eisenhower Interstate Highway System as one of the most successful infrastructure programs created in this country.”

**Robert Lenna
Executive Director of Maine Municipal Bond Bank**

PROGRAM STRUCTURE

Structure of the CWSRF

- EPA awards capitalization grants to the States
- States contribute a 20% state match
- States make loans with interest rates below market rate to eligible assistance recipients
- Recipients repay the loans, making the money available for new loans to finance new projects



Since 1987, the CWSRF has provided more than \$70 billion in assistance for over 22,700 projects

ELIGIBLE PROJECTS

CWSRF provides assistance for ...

(1) Section 212: Construction of Publicly-Owned Treatment Works

- Publicly-owned municipal wastewater treatment
- Public owned stormwater abatement wetlands

(2) Section 319: Implementation of Nonpoint Source Management Plans (*public and private projects)

- Stormwater abatement wetlands
- Wetlands to prevent runoff from agricultural fields
- Land purchase or easements to protect natural wetlands

(3) Section 320: Development and Implementation of Comprehensive Conservation Management Plans for the 28 National Estuaries (*public and private projects)

- Municipal wastewater treatment wetlands
- Stormwater abatement wetlands
- Wetlands to prevent runoff from agricultural fields
- Land purchase or easements to protection natural wetlands

ALTERNATIVE PROJECTS

Sponsorships

- A growing number of CWSRF programs choose to tackle **nonpoint source (NPS) pollution** with POTW sponsorships
- POTWs can sponsor a NPS project in their community in exchange for a reduced interest rate on their CWSRF loan

Project	POTW Project Only	POTW Project + NPS Project (Sponsorship)
Project Size	\$1,000,000	\$1,200,000
Interest Rate	2.98%	1.06%
Repayment Amount	\$33,366 (2x / year)	\$33,366 (2x / year)

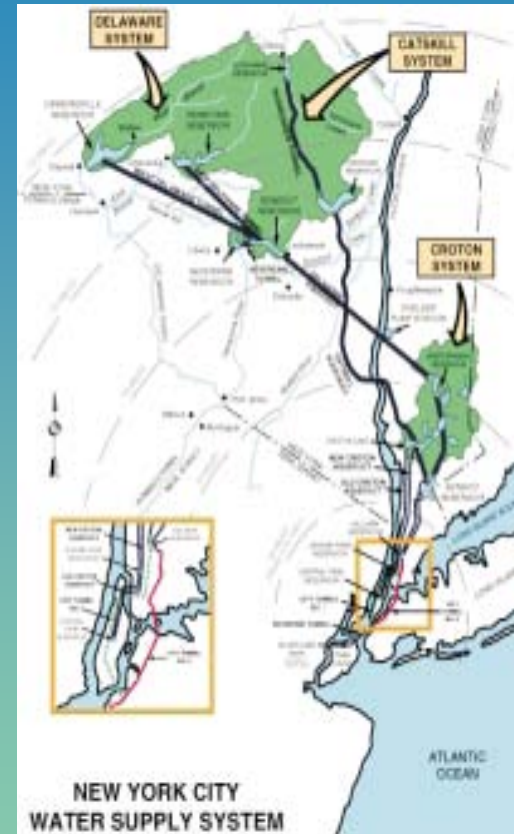
Interest rate is set so that repayments remain the same

- No financial impact to the POTW
- Projects without an easily identifiable repayment source get implemented
- States need to judiciously use this tool because it does impact the buying power of the CWSRF

EXAMPLE PROJECTS

Source Water Protection in New York

- City of New York received a \$27 million CWSRF loan for **land acquisition and conservation easements** in high priority areas
- The project provides financial **support for BMPs** as an alternative approach to ensuring the safety of New York's water supply
- This project has provided water quality improvements, open space, habitat protection, and economic savings (**\$1 billion over the next 10 years, instead of \$5 to \$8 billion for the construction of a new filtration plant**)
- Consistent with the New York's Nonpoint Source Management Plan





EXAMPLE PROJECTS

Land Acquisition and Wetlands Protection in CA

- The Nature Conservancy of California purchased 12,362 acres of rangeland in the Cosumnes River Watershed of southeast Sacramento County
- Protects rare vernal pools (springtime wetlands) for many rare plants and animals
- Will establish conservation easements on the land that will assure minimal development or disturbance to the property in perpetuity
- **Pays back via private donations and earned income**

“The Howard Ranch purchase... Will protect water quality, maintain a wildlife-compatible agricultural enterprise, and keep the land on the tax roll.... Everyone wins.”
-Mike Eaton, The Nature Conservancy



EXAMPLE PROJECTS

Green Infrastructure in Seattle, Washington

- **Seattle Public Utility** received a 20 year, \$2,715,000 CWSRF loan with an interest rate of 1.5% for their High Point Project. **Utility fees used to repay**
- The High Point project will install innovative natural drainage elements, such as bioswales, compost-amended soil reservoirs, and porous pavement designed to improve **stormwater management** in Longfellow Creek Watershed
- **Protects spawning salmon**
- 120 acres of the **redevelopment plan is for low-income communities** along one of Seattle's most important urban creeks.
- Upon completion of the project, 10% of the Longfellow Creek watershed will be restored to drainage conditions comparable to rural pastures



EXAMPLE PROJECTS

Wetlands Construction and Protection in Ohio

- **Hidden Creek Ltd** received \$1.1 million in CWSRF loans for the protection of the Big Darby Creek watershed – one of the highest quality warm-water aquatic ecosystems in the United States
- Hidden Creek Ltd **designed a housing project** to demonstrate that development can be both environmentally sensitive and financially profitable
- Project included construction of **vegetated swales, restoration of wooded stream corridor, and establishment of emergent wetland habitat**
- An additional 230 acres of the riparian stream corridor have been protected via a conservation easement held by the Natural Resources Conservation Service
- A program has also been developed to **educate homeowners and housing contractors** on wetlands protection and related deed restrictions are attached to each property
- Hidden Creek Ltd has since received a national wetland award for land stewardship and development from the Environmental Law Institute, and has **repaid the CWSRF loans with revenues from the sale of the housing lots**



ALTERNATIVE PROJECTS

In-Lieu of Fee

- CWSRF loans can be used to **supply capital for in-lieu of fee program activities**
- This, in turn, **generates compensatory mitigation credits**
- Compensatory mitigation credits are **acquired by the Clean Water Act 404 permit recipients** to satisfy their compensatory mitigation requirements
- Benefits:
 - (1) **Enables States to take a watershed approach**
 - (2) **Planning and design costs, land acquisition, construction/restoration of resource)**
 - (3) **Ensures that the required amount and type of credits will be constructed prior to impact**

AMERICAN RECOVERY & REINVESTMENT ACT

ARRA Funding

- \$4 billion for the CWSRF programs

Goals of ARRA

- Maximize job creation and economic benefit
- Give preference to **shovel-ready projects**, with goal of spending 50% of funds on projects that can be initiated by June 17, 2009
- Use at least 20% of ARRA funds for “Green Projects”
 - 1) Green Infrastructure
 - 2) Water Efficiency
 - 3) Energy Efficiency
 - 4) Environmentally Innovative Projects

State CWSRFs establish **Intended Use Plans** listing eligible projects, publish this list for public review, and fund projects from these lists.



CWSRF Contact in DC:

Stephanie vonFeck

U.S. EPA

202-564-0609

vonfeck.stephanie@epa.gov



Developing a Fundraising Plan



Sustainable Finance Web Page

U.S. ENVIRONMENTAL PROTECTION AGENCY



- Watershed Funding Home
- Resources for Nonprofit Organizations
- Resources for State and Local Governments
- Resources for Funders
- Sustainable Finance Tools
- Requests for Proposals
- Federal Funding Programs
- Funding Databases
- Sustainable Finance Training

Watershed Funding

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[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > Watershed Funding

Watershed Funding



Committed watershed organizations and state and local governments need adequate resources to achieve the goals of the Clean Water Act and improve our nation's water quality. To support these efforts, the U.S. Environmental Protection Agency (EPA) has created this Web site to provide tools, databases, and information about sources of funding to practitioners and funders that serve to protect watersheds.



[Resources for Nonprofit Organizations](#)



[Sustainable Finance Training](#)



[Resources for State and Local Governments](#)



[Federal Funding Programs](#)



[Resources for Funders](#)



[Funding Databases](#)



[Sustainable Finance Tools](#)



[Requests for Proposals](#)

Features

New Website:

[Financially Sustainable Water Infrastructure](#)

Funding Opportunities:

[Estuary Habitat Restoration Projects Applications due May 12, 2009](#)

Training:

["Developing a Sustainable Finance Plan" Module](#)

[Moving Beyond Grants: Financing Watershed Protection](#)

www.epa.gov/owow/funding.html

http://www.epa.gov/owow/funding/trainings.html

minebank run baltimore county

File Edit View Favorites Tools Help

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EPA@Work: The Agency Intr... Sustainable Finance Train... X

U.S. ENVIRONMENTAL PROTECTION AGENCY



Watershed Funding Home

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[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > [Watershed Funding](#) > Resources for State and Local Governments

Sustainable Finance Training

Future Training

None currently scheduled

Information from Past Live Trainings

[Targeted Watershed Grants Conference Finance Workshop](#) –February 1, 2008

The goal of the workshop was to provide Targeted Watershed Grantees resources to create long term, sustainable funding plans. The two main objectives were to build the capacity of participants to develop a realistic, sustainable funding plan and to familiarize participants with funding resources and tools. The workshop was attended by Targeted Watershed Grantees, as well as EPA Headquarters and Regional Staff. The workshop was developed through collaboration between the finance team and the Targeted Watershed Grantees Conference organizers.

[Mid-Atlantic Funding Workshop](#) - August 23, 2007

The purpose of this workshop was to build the capacity of local watershed organizations to finance and plan their watershed protection and restoration activities. The day-long workshop drew representatives from local nonprofit watershed organizations, as well as local, state, and federal governments. The workshop featured three tools: Plan2Fund OPT, Watershed Plan Builder tool, and an on-line learning module titled "How to Develop a Funding Plan."

[San Juan Bay Estuary Program Finance Workshop](#)- June 29-30, 2007

The purpose of this workshop was to create a fundraising plan for the San Juan Bay Estuary Program (SJBEP) to increase their organizational capacity and reduce their reliance on US Environmental Protection Agency (EPA) Section 320 funds. The EPA Office of Wetlands, Oceans, and Watersheds Sustainable Finance Team worked with SJBEP to: 1) establish organizational priorities, 2) assess organizational capacity, 3) establish a fundraising budget and goals, 4) explore relevant fundraising options, select effective fundraising strategies, and 5) create a plan to carry out each strategy.

On-line distance learning modules

[Developing a Sustainable Finance Plan](#)

This training modules, which is part of EPA's [Watershed Academy](#), is designed to help watershed organizations develop and implement a sustainable finance plan. It outlines the six key steps of fundraising plan development, introduces a diverse set of funding options, and provides case studies of successful finance mechanisms. It also includes interactive self-quizzes, downloadable exercises, and an extensive resources section.

Sustainable Funding for Watershed Groups

W E B C A S T

Sponsored by EPA's Watershed Academy

March 22, 2006

Wendy Wilson and Pat Munoz

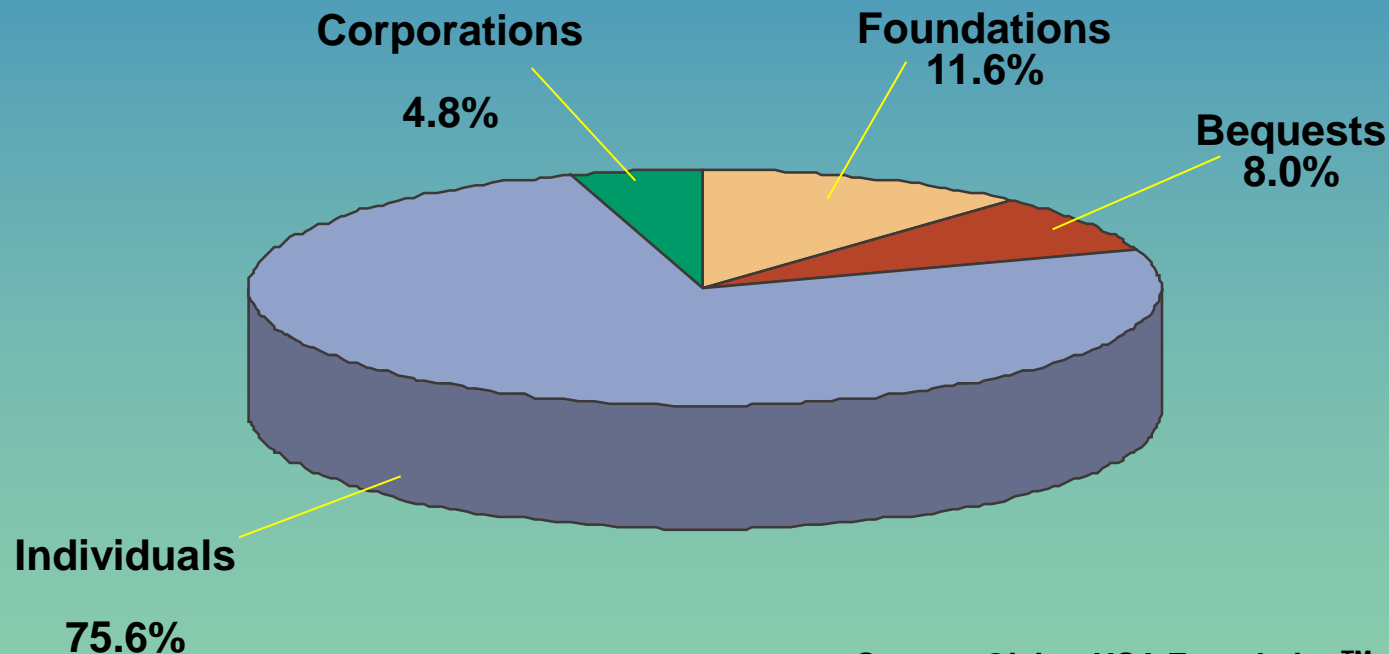
River Network



United States Environmental Protection Agency

Where do private charitable donations come from?

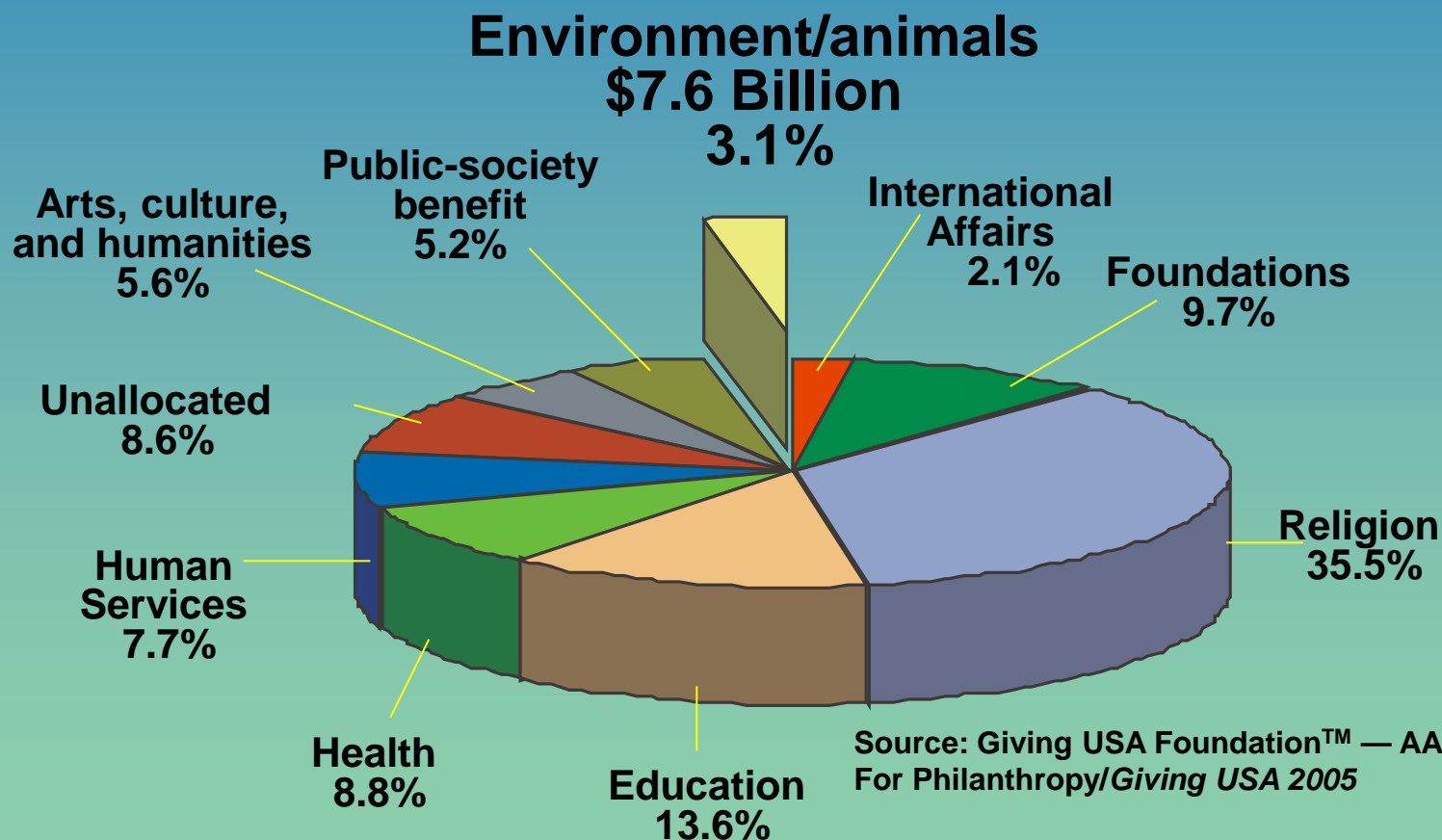
2004 Contributions: \$248.52 Billion By Source of Contributions



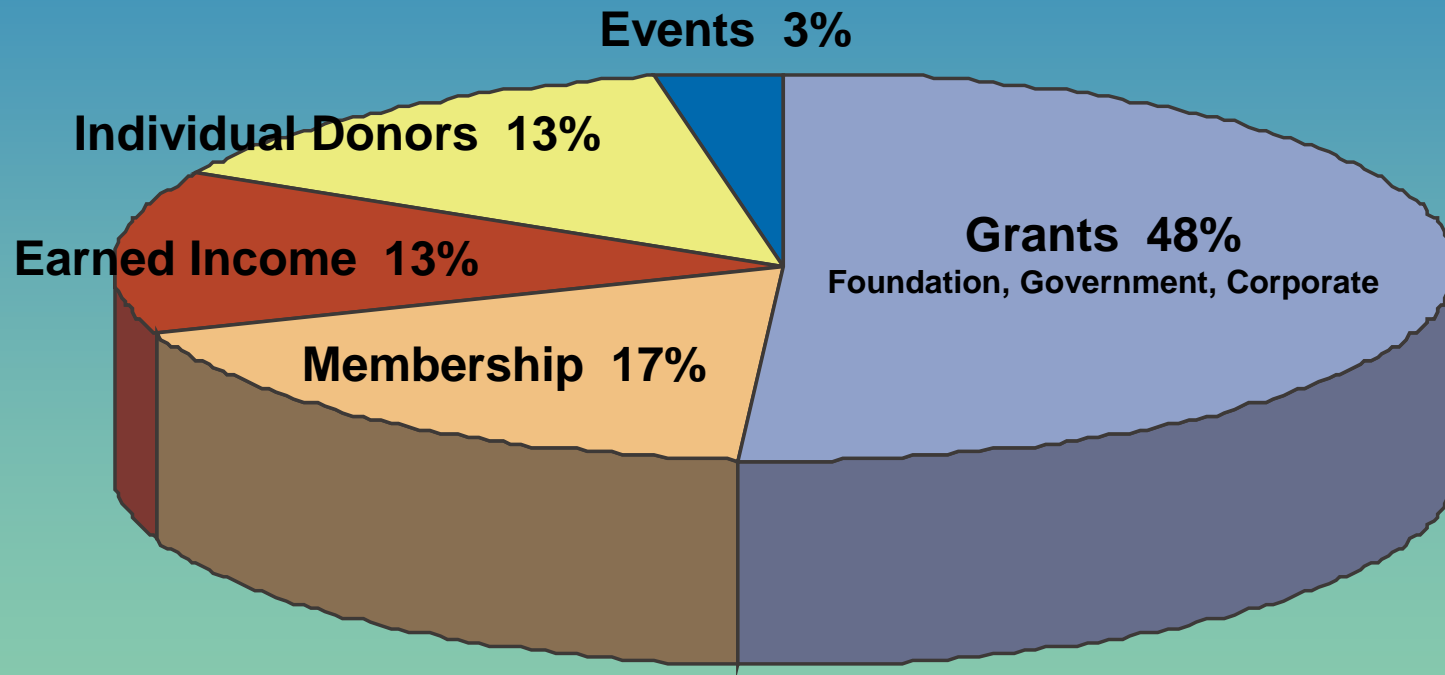
Source: Giving USA Foundation™ — AAFRC Trust For Philanthropy/*Giving USA 2005*

Where do private charitable donations go?

2004: \$248.52 Billion



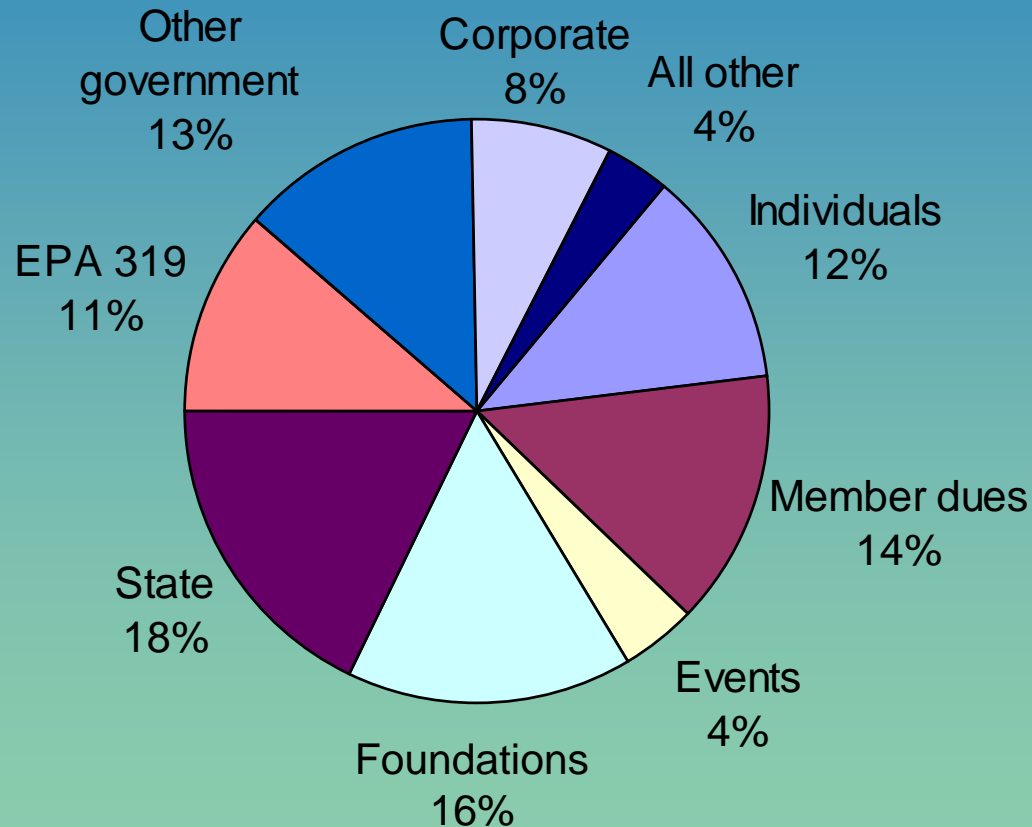
“Typical” funding profile for staffed land trusts and environmental groups*



*Source: Mott Foundation survey of 758 groups in the Great Lakes and Southeast States

What's typical for RN watershed groups?

Nonprofit Watershed Groups Sources of Income



2005 Data for groups seeking assistance with River Network and other trainers in the Watershed Support Network

Fundraising Readiness in the Watershed Community*

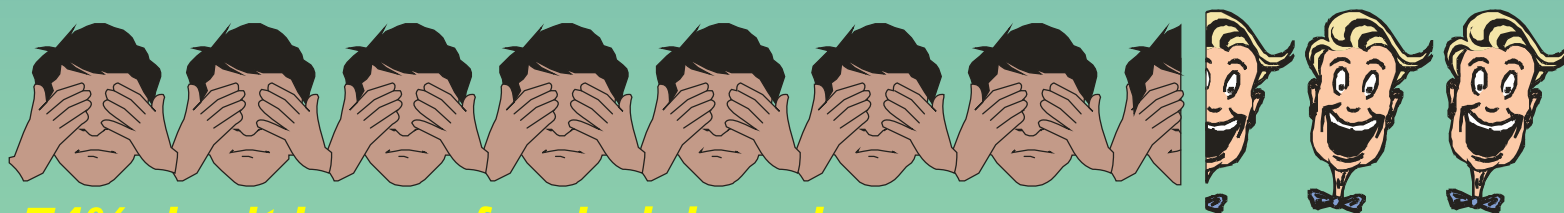
Of groups seeking fundraising help...



40% don't have a budget



45% don't have an annual plan or workplan



74% don't have a fundraising plan

* Groups seeking assistance in 2005 from River Network

Do you have...

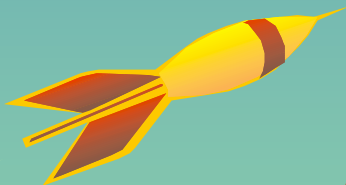
Fundraising Essentials



a clear mission and long-term purpose?

“To help people protect, restore and enjoy Minnesota’s 92,000 miles of rivers”

--Rivers Council of Minnesota



“Work with citizens and government to restore the river’s water quality to fishable, swimmable standards and to protect the river corridor”

--Organization for the Assabet River

Do you have...



an annual workplan with clear goals and objectives?

**RHODE ISLAND RIVERS COUNCIL
WORKPLAN SUMMARY 2006**

(I) POLICY DEVELOP/COORDINATE RIVER AND WATERSHED PROTECTION	(II) SUPPORT and EMPOWER WATERSHED COUNCILS	(III) FOSTER PUBLIC INVOLVEMENT IN RIVER PROTECTION
Update RI Rivers Policy and Classification Plan revisions -- committee recommendations -- incorporate flow considerations	Recognize new Watershed Councils to achieve goal of 100% coverage of the state's watersheds	Organize Third Annual Land and Water Conservation Summit (March 11, 2006)
Participate in RI Bays, Rivers and Watersheds Coordination Team as advocate for river issues and the role of local watershed councils.	Provide Targeted Organizational Assessment and Capacity Building to recognized watershed councils	Celebrate Rivers Month with Awards Celebration and Rivers Month Calendar
Review state legislation, policies and regulations for river and watershed protection, identify gaps and develop strategies to address these gaps.	Provide assistance to Watershed Councils on the Implementation of the Notice Regulation	Organize Environmental Awareness Day at Narragansett Beach
	Develop back-office support services for conservation non-profits (Donor/member management and volunteer support)	Organize and host Watershed Stewards Program to attract new members for Watershed Councils and provide basic understanding of watershed protection
	Develop and implement grant making program for 2006 using Legislative Grant	Develop river trail conceptual plan for urban rivers

Do you have...



**a Board of Directors, staff, and volunteers
who are committed to and involved in the
organization?**



Do you have...



fundraising expertise on the board or staff?

- recruit new board members
- seek training for staff and board
- hire consultant to provide guidance



Do you have...



an annual income and expense budget?

Friendly Watershed Council Operating Budget

Revenue and Support:	Annual Budget
Foundation	\$75,000
River Festival	55,000
Corp Giving/Sponsorships	40,000
Individual & Workplace Giving	40,000
Government Contract	34,000
Fees for Service	10,000
Board Contributions	10,000
Sale of Materials	5,500
Interest Income	1,000
In-kind Donations	5,000
Other	4,000
Total Revenue:	\$275,500
Costs and expenses:	
Salaries	\$108,275
Taxes & Fringe Benefits	26,550
Consultants	15,500
Workshops/Trainings	12,000
Printing	12,750
Staff Travel	4,000
River Festival	29,750
Telecommunications	8,500
Postage & Shipping	8,500
Materials & Supplies	13,125
Occupancy	11,000
Insurance	3,500
Donor Recognition	1,200
In-kind Expense	5,000
Total Expenses:	\$259,650
Net Surplus (deficit)	\$15,850

Do you have...



a fundraising plan?


SAMPLE FUNDRAISING PLAN-- ABC River Organization

Strategy	Goal(s)	Action Steps	Who	When/How Much
1. New Member Acquisition	200 new members \$4,000	1. Do a direct mail campaigns to 5,000 prospects, 1.5% response=75	Staff with help of consultant Board	May & Sept/\$4,000 monthly/no cost
		2. Each board members recruits 5 new members(45)	Staff	summer/no cost
		3. Participants in rafts trips become members(50)	Staff	fall/no cost
		4. Buyers of books of raffle tickets become members(30)		
2. Renewals	100 out of 154(65%)@ \$35 dues \$3,500	1. Call last year's unrenewed members, asking them to renew	Staff & volunteers	January/\$50
		2. Do 3 mailings to current members, spaced 1 month apart	Staff	Jan, Feb, Mar/\$400
		3. Call unrenewed members, asking them to renew	Staff & volunteers	May/\$50
3. Special Appeals	454 names @ 10% response, \$50 ave. gift= \$22,700	1. Prepare a special appeal to all members on lawsuit;	Staff	Mid-November/\$400

Do you have...



a database or other means for tracking donations?

ID: 27 12/27/2005 13:46:44 

Last Name: **Munoz**

First Name: **Pat**

Prefix: Middle: Const Type: **Individual**

Dear: **Pat** Suffix: Source: **R. by Staff**

Additional: P. Contact: **Ken**

Giving Potential: **Major Donors**

Address: **3814 Albemarle St., NW**

eStream:

Partner:

Former Board:

NO MAIL **DO NOT SOLICIT**

City: **Washington**

State: **DC**

Country: Zip Code: **20016** Membership Level: **8**

Renewal Date: **12/4/2001**

Phone 1: **202 364-3045** E-mail:

Phone 2: Web Page:

NOTE: Alt. ID:

Fax: Added: **4/6/1994**

Updated: **12/26/2005** admin

Constituent Giving Summary Report

Fiscal Year

Cash Total

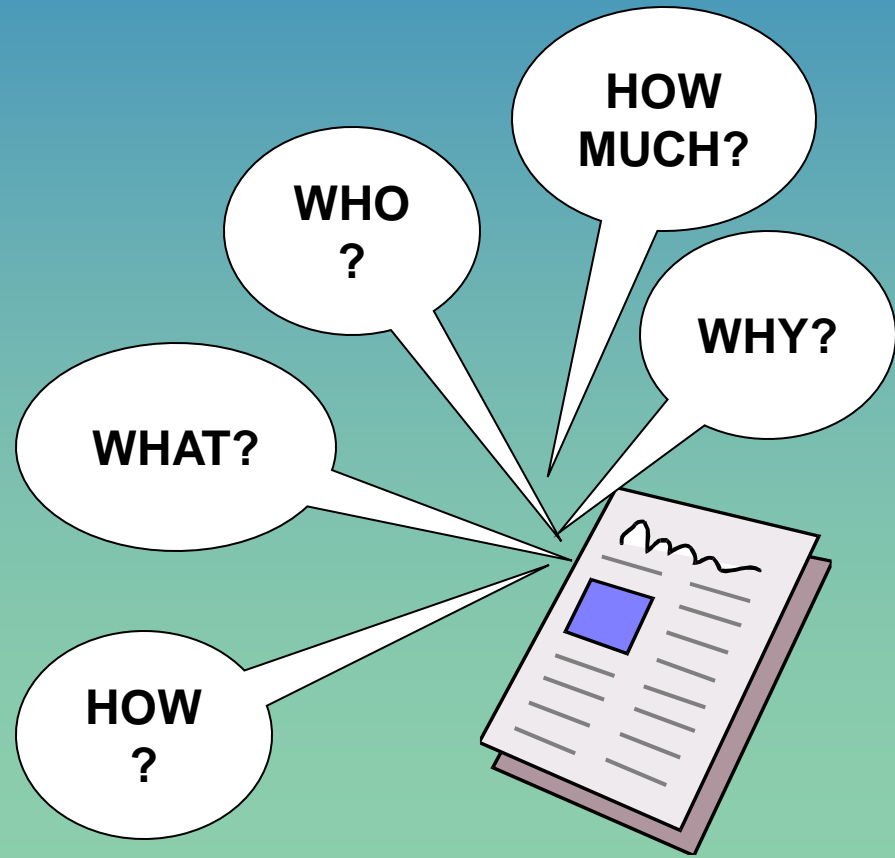
no

All Transactions

Consider writing...



a case statement which explains:



Consider getting...



nonprofit 501(c)(3) status or a fiscal agent?

Form **1023**
(Rev. October 2004)
Department of the Treasury
Internal Revenue Service

**Application for Recognition of Exemption
Under Section 501(c)(3) of the Internal Revenue Code**

OMB No. 1545-0058
Note: If exempt status is approved, this application will be open for public inspection.

Use the instructions to complete this application and for a definition of all bold items. For additional help, call IRS Exempt Organizations Customer Account Services toll-free at 1-877-829-5500. Visit our website at www.irs.gov for forms and publications. If the required information and documents are not submitted with payment of the appropriate user fee, the application may be returned to you.

Attach additional sheets to this application if you need more space to answer fully. Put your name and EIN on each sheet and identify each answer by Part and line number. Complete Parts I - XI of Form 1023 and submit only those Schedules (A through H) that apply to you.

Part I Identification of Applicant

1 Full name of organization (exactly as it appears in your organizing document)		2 c/o Name (if applicable)	
3 Mailing address (Number and street) (see instructions)		Room/Suite	4 Employer Identification Number (EIN)
City or town, state or country, and ZIP + 4		5 Month the annual accounting period ends (01 - 12)	



Why do government agencies give?

- \$ To enlist the aid of nonprofits in reaching their goals
- \$ To connect with populations that are difficult for government to reach
- \$ To meet the mission and strategic goals of the agency
- \$ To meet the goals outlined in policy (e.g., Clean Water Act)

Watershed Central

Providing access to data, the right tools for the job, & facilitating collaboration among watershed management partners



United States Environmental Protection Agency

Meeting Local Needs

Atlanta, Georgia
January 8-10, 2007



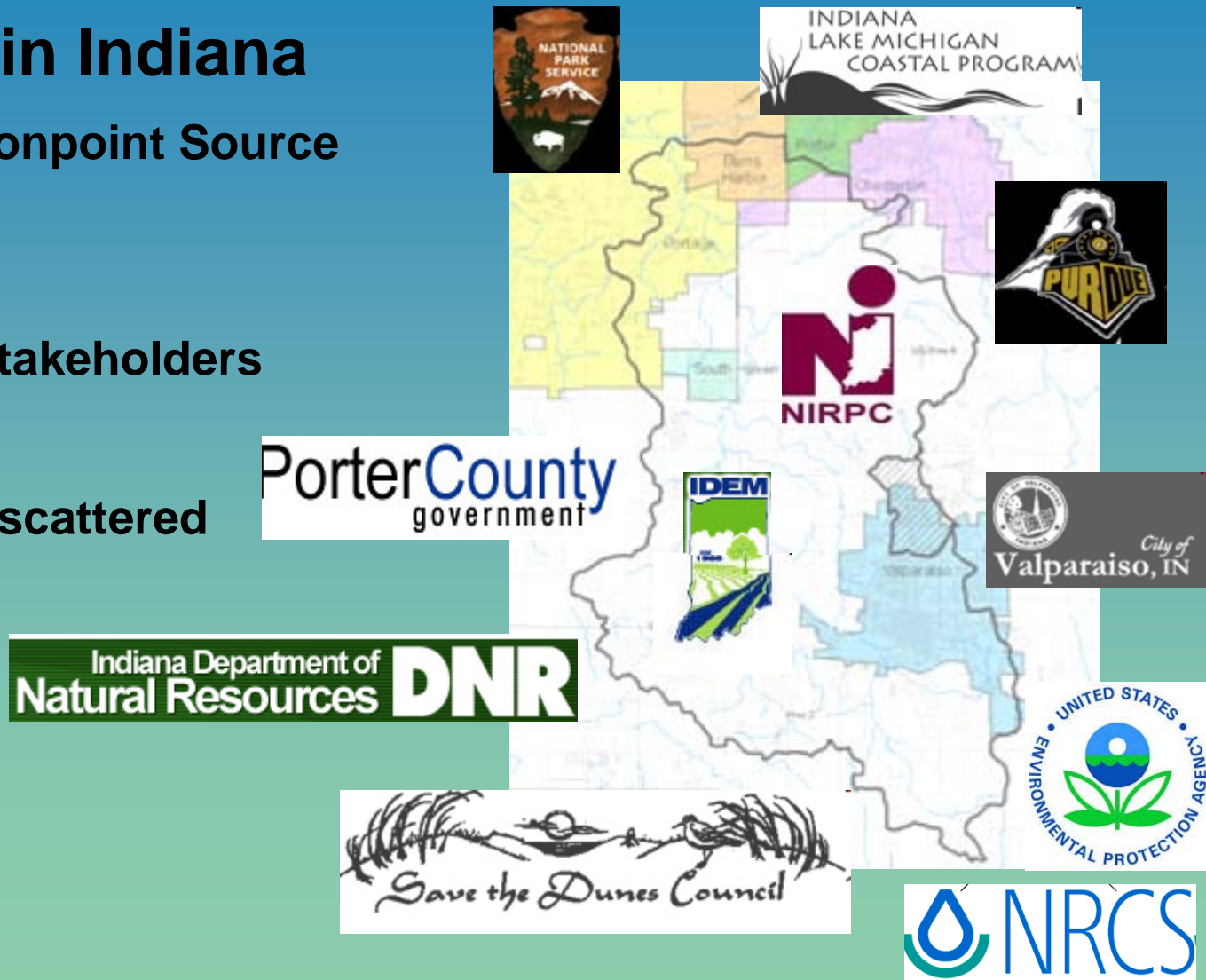
USEPA "Watershed Central" Workshop
Options for Organizing EPA Information & Tools for
Watershed Management



Why a Wiki?

■ Salt Creek in Indiana

- U.S. EPA Nonpoint Source Program
- Variety of stakeholders
- Resources scattered



Office of Water – A Recognition of Need

Watershed Group

Where to start?
How do we effectively manage
water resources?
Where to get information?



States

How to meet WQS?
How to meet federal
requirements?
How to communicate this?

Experts

How to get my information to
those who need it?
Get user feedback?
Where are people using my
information?



Watershed Central



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You are here: [EPA Home](#) » [Water](#) » [Wetlands, Oceans, & Watersheds](#) » [Watersheds](#) » Watershed Central

Watershed Central

-Designed to provide state, local, and voluntary watershed management entities with a variety of tools and information that will aide in successful watershed management.

[Watershed Management Process](#)

[Wiki](#)

[Calendars](#)

[New User](#)

News|Recent Updates

Watershed Central is up and running!! Check out the [Basic Information](#) page for more.



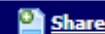
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Last updated on Wednesday, March 18th, 2009.

<http://www.epa.gov/watershedcentral/>

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Watershed Central

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Search:

 All EPA This AreaYou are here: [EPA Home](#) » [Water](#) » [Wetlands, Oceans, & Watersheds](#) » [Watersheds](#) » [Watershed Central](#) » Watershed Management Process

Watershed Management Process

This section of the Watershed Management website is designed to walk you through each step of the watershed planning and implementation process. You may wish to use this information after you have used the [Watershed Plan Builder](#) to create a customized watershed plan outline.

Effective watershed management includes both planning and implementation components. While the development of a watershed plan is a critical step in the process, the plan must be successfully implemented before results can be seen. The watershed management process uses a series of cooperative, iterative steps to characterize existing conditions, identify and prioritize problems, define management objectives, and develop and implement protection or remediation strategies as necessary. To get more information on the planning and implementation process see the [Handbook for Developing Watershed Plans to Restore and Protect Our Waters](#).

Move through each step of the watershed management process by clicking on the steps listed in the box on the right side of the screen. Each topic is divided into subsections that can be viewed by clicking on the appropriate heading in the right hand topics box. The topics box will show the name of the section you are currently working in.

Bookmark this page so you can return to this section of the Watershed Management site as often as you need to as you progress in developing and implementing your watershed plan.

Steps

- [Build Partnerships](#)
- [Characterize the Watershed](#)
- [Set Goals and Identify Solutions](#)
- [Design an Implementation Program](#)
- [Develop Watershed Plan Outline](#)
- [Implement the Watershed Plan](#)
- [Measure Progress and Make Adjustments](#)

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Last updated on Friday, March 13th, 2009.
<http://www.epa.gov/watershedcentral/process.html>
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Watershed Central

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Characterize the Watershed - Identify Data Gaps and Collect Additional Data

One of the most difficult challenges in watershed management is understanding when you have enough data to identify relationships between impairments and their sources and causes. There will always be more data to collect, but you need to keep the process moving forward and determine whether you can reasonably characterize watershed conditions with the data you have. Once you have gathered all the necessary data related to the watershed goals identified by your stakeholders, you must examine the data to determine whether you can link the impairments seen in the watershed to the causes and sources of pollutants.

Ask the following questions:

- Do I have the right types of data to identify causes and sources?
- What is the quality of the data?

The answers to these questions will tell you whether you need to collect additional data before proceeding with data analysis. Several different types of data gaps might require you to collect additional information. Further information on data gaps (informational, temporal, and spatial) is available in [Chapter 6 \(PDF, 513 kb, 26 pp.\)](#) of EPA's Watershed Planning Handbook.

Data Quality and Measurement Quality

Data are often available in various types from different sources and collected for a wide range of purposes. The acceptability of this data should be examined before used in your analyses. Data acceptability is determined by comparing the type and quality of data with the minimum criteria necessary to address the monitoring questions of interest. For each data source, focus on two areas: data quality and measurement quality. Data quality pertains to the purpose of the monitoring activity, the types of data collected, and the methods and conditions under which the data were collected. These characteristics determine the applicability of the data to your watershed management effort and the decisions that can be made on the basis of the data. Measurement quality describes data characteristics like accuracy, precision, sensitivity, and detection limit. These are critical issues for any monitoring activity, and you should consider them in detail when you design your own data collection program.

Reevaluate your data

At this point, you have collected existing data for your watershed, assessed its quality and relevance, and identified gaps. Compare your available resources against your tasks:

More info on Characterize the Watershed

- [Gather Existing Data and Create a Watershed Inventory](#)
- [Identify Data Gaps and Collect Additional Data](#)
- [Analyze Data](#)
- [Identify Causes and Sources That Need to Be Controlled](#)
- [Estimate Pollutant Loads](#)
- [Results and Next Steps](#)

[+] Steps
[Watershed Management Process](#)



Watershed Central Wiki

page discussion view source history watch

Main Page

Past versions of this page. [alt-h]

Welcome to the Watershed Central Wiki!

The watershed management resource website that you can edit

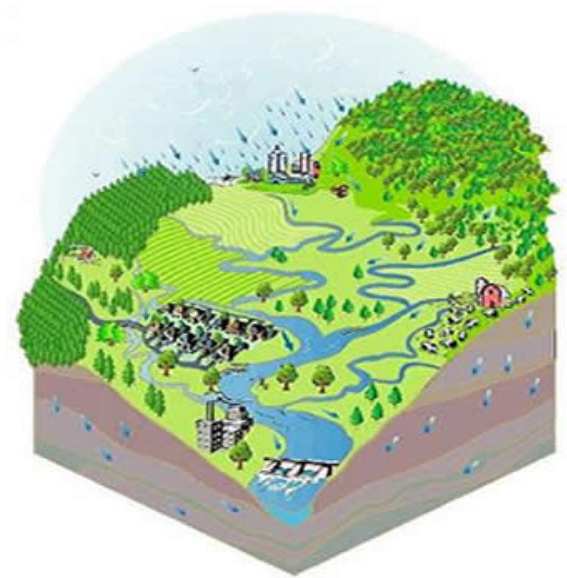
Why should I participate in the Watershed Central Wiki?

TO:

- Share your best practices, case studies and lessons learned;
- See what other watershed organizations are up to & learn from them;
- Identify partners in your watershed area;
- Rate and comment on watershed management tools or report on new tools;
- View a map with water monitoring stations, land use types, watershed boundaries, high-resolution aerial photography, and more for your watershed;
- Provide a link to your watershed management plan for others to learn from;
- Create a page about your organization, add a map, and share it amongst members of your group; and
- Build the community knowledge base for more effective watershed management and implementation!

New to the Wiki?? Check out the "Getting Started" Page.

Thanks for helping us build this resource! You can contact us at watershedcentral@epa.gov.



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community

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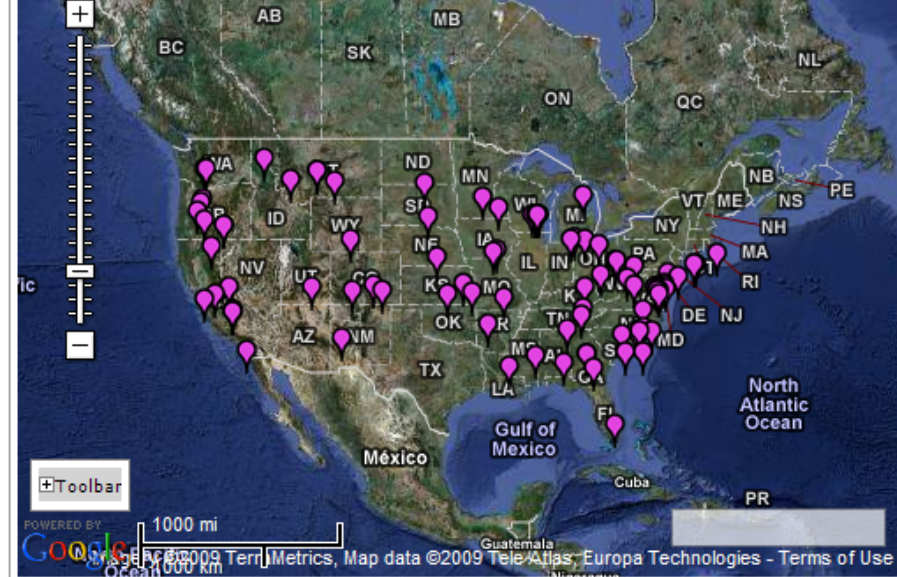
Watershed Question of the Month

This is where we want to hear from you. Help us generate content for our wiki by taking the time to answer our Watershed Question of the Month!

What are your greatest information challenges for managing watershed problems in your region?

Calendar of Events

March 2009							April 2009							May 2009					
M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	
						1				1	2	3	4	5					1
2	3	4	5	6	7	8	6	7	8	9	10	11	12	4	5	6	7	8	



Top 10 Rated Pages

Page Title	Avg Rating	Votes
LSPC	5.0	2
USGS StreamStats	5.0	2
GIS-Based Phosphorus Loading Model (GISPLM)	5.0	2
Causal Analysis / Diagnosis Decision Information System (CADDIS)	5.0	2
BATHTUB	5.0	1
Water Pollution Control Montana State Fund	5.0	1
Maryland Biological Stream Survey (MBSS)	5.0	1
USACE CorpsMap	5.0	1
Causal Analysis/Diagnosis Decision Information System (CADDIS)	5.0	1
Montana Watershed Approach to Source Water Protection	5.0	1

Top 10 Active Users

User	Revision Count	Content Length
Meloroj	1792	69098
Tkerchkof	1022	1988361
Jsturman	675	19905583
Tkerchko	669	1455392
Mhurd	423	1650073
Adam	386	1137332
Stulehman	213	342645
Ccooper	207	365134
Mapgirl	148	466786
Rhindin	146	572641

Latest Additions/Updates

Page Title	Added/Updated
Hewitt Creek Performance-based Project	05/20/2009
TMDL Database	05/20/2009
Kalamazoo River	05/20/2009
Lower Grand River Watershed Interactive Tool (WIT)	05/20/2009
Urban BMP Database	05/20/2009
AVGWLF	05/20/2009
June 09 2009	05/20/2009
Measure Progress and Make Adjustments	05/20/2009
Conduct Information/Education Activities	05/20/2009
Conduct Monitoring	05/20/2009

5 Newest Users

New User	Registration Date

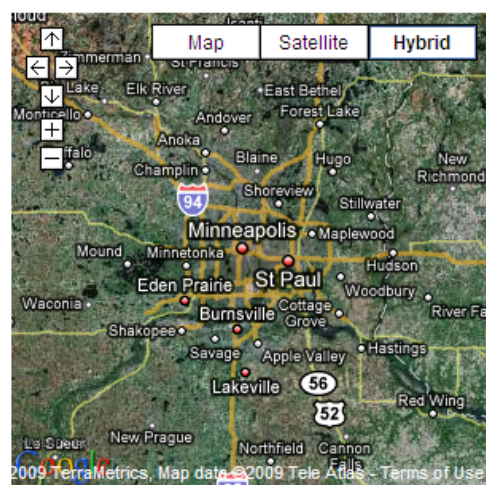
Mapping Your Information

Map Your Watershed

Zoom to your local watershed here on this Google map! It also features geotags - each pushpin represents a link to a wiki article helping to link you to potential partners in your watershed. You can also view impaired waters, monitoring stations and more, as well as link to EPA's ArcGIS Server [EnviroMapper for Water](#) (EMR) map application featuring many of the Agency's waters-related geospatial data (just click on the small graticule floating over the lower left-hand corner of the mapper). [How to Add a Pushpin in the Map](#)

page discussion edit history move watch

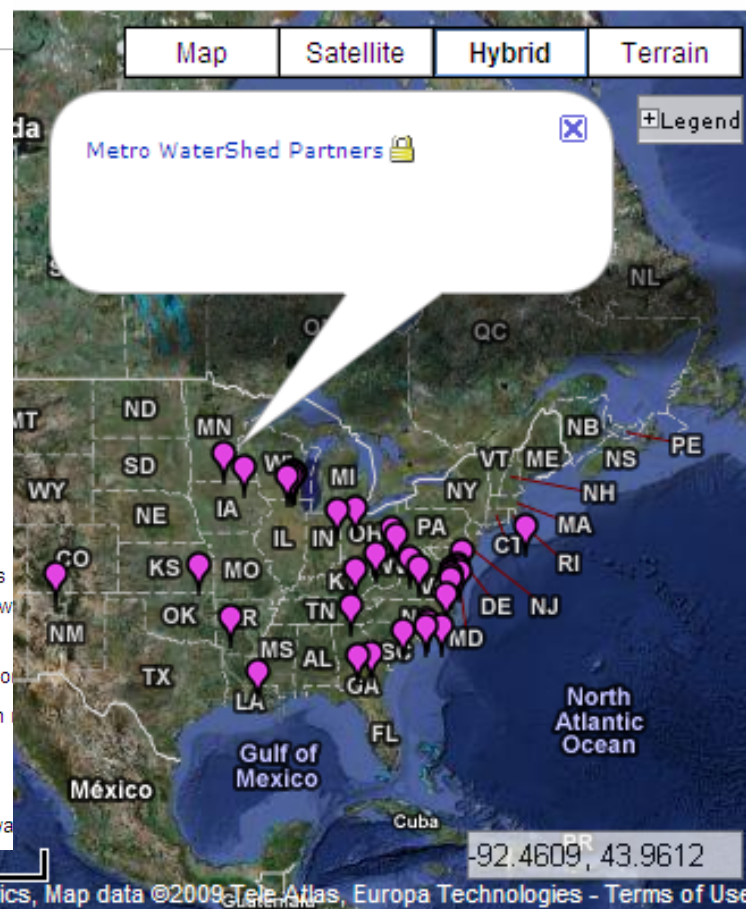
Metro WaterShed Partners



The [Metro WaterShed Partners](#) is a coalition of more than sixty public, private and non-profit organizations. Partners promote public understanding that inspires people to take action to protect and improve their local watersheds through educational projects, networking, and resource-sharing.

The WaterShed Partners launched the "Minnesota Water- Let's Keep It Clean!" media campaign, which works to:

1. Provide municipalities and other MS4s with public education media products and materials for inclusion in Minnesota Pollution Control Agency; and
2. Place public stormwater pollution prevention messages in the mass media; and
3. Maintain the [cleanwatermn.org](#) website with resources for stormwater educators, students, municipal & watershed groups.



Source Water Protection Outreach Campaign

Category: Outreach and Communication

Subcategories

Wiki Outreach & Communication Resources

Create an Article to this category

There is one subcategory to this category.

T

- [\[+\] Category: Tools for Developing the Information/Education Component](#)

Pages in category "Outreach and Communication"

There are 21 pages in this category.

A

- [Alliance for Water Efficiency](#)
- [Arkansas Watershed Advisory Group](#)

E

- [EPA Office of Water Resource Center \(OWRC\)](#)
- [EPA Section 319 Nonpoint Source Success Stories](#)

G

- [Groundwater Guardian](#)

M

- [May 11 2009](#)
- [May 12 2009](#)

M cont.

- [May 13 2009](#)

N

- [NC Clean Water Education Partnership](#)
- [National Drinking Water Clearinghouse \(NDWC\)](#)
- [National Environmental Services Center](#)
- [Nonpoint Source Outreach Toolbox](#)

S

- [Source Water Collaborative](#)
- [Stream Care: A Guide for Property Owners in the Clark Fork Watershed](#)
- [Students and Teachers Restoring A Watershed \(STRAW\)](#)

V

- [Volunteer Water Quality Monitoring National Facilitation](#)

W

- [WATERSHED PLAN DEVELOPMENT: LESSONS LEARNED FROM BEAVER CREEK](#)
- [Watershed Advocate Toolkit](#)
- [Watershed Groups in Arkansas](#)
- [World Water Monitoring Day](#)

Y

- [Your Water, Your Decision](#)

Source Water Protection Program for Zuni Pueblo



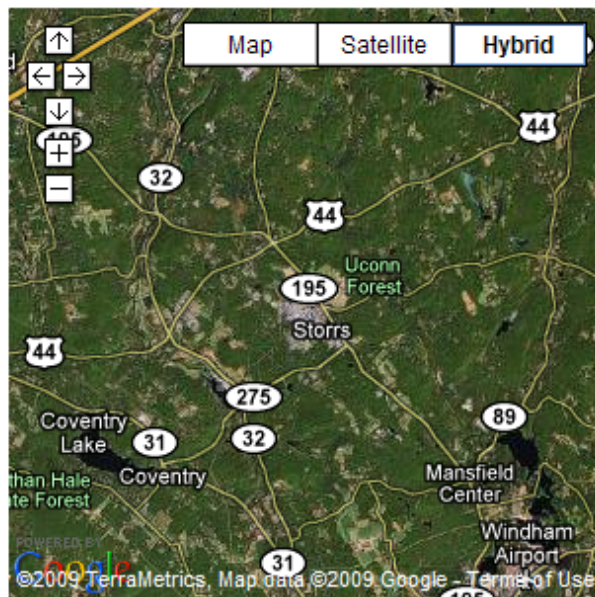
On the Pueblo of Zuni in west-central NM, the Zuni Water Department's (ZWD) ground water is threatened by septic systems, abandoned wells, and above ground fuel storage tanks. The Zuni Environmental Protection Program (ZEPP) and the ZWD worked together to develop and implement a SWP program. Key elements of the program include BMPs near the wells to divert runoff, a SWP ordinance for consideration by the Zuni Tribal Council, outreach and education through radio announcements and posters, and development of well plugging and abandonment procedures. These measures were implemented with support from Region 6's SDWA set-aside funds.

Contents [\[hide\]](#)

- 1 Background
 - 1.1 Location:
 - 1.2 Water Supply:
 - 1.3 Source Water Assessment:
- 2 Priority Contamination Threats
- 3 Local Team and Developing the Protection Plan
- 4 Management Measures
- 5 Contingency Planning
- 6 Measuring Program Effectiveness

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Connecticut Forest Fragmentation Analysis



The University of Connecticut Center for Land Use Education and Research [-\(CLEAR\)](#) is pleased to announce that the results of our statewide forest fragmentation analysis are now up on the CLEAR website: [- Model Results](#)

About 60% of the state is classified as "forested," i.e., covered with trees (as determined by our Connecticut's Changing Landscape project). However, tree cover alone is not a reliable indicator of the functional health of forested ecosystems, which are greatly impacted by proximity to non-forested areas. By applying CLEAR's forest fragmentation model to our land cover data, we can get a feel for these issues. For instance, from 1985-2006, the amount of "core" forest decreased by about 264 square miles; this includes conversion both to non-forest, and to the other (impacted) forest classes. The analysis results are available as statewide, town level, and watershed level maps, data tables, and downloadable data.



Rating: 0.0/5 (0 votes cast)

[Comment on this tool](#)

[Watershed Central Wiki](#)

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Wiki – Collaboration on “articles”

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special

Recent changes

Track the most recent changes to the wiki on this page.

Below are the last 50 changes in the last 7 days, as of 15:41, 12 March 2008.

Show last 50 | 100 | 250 | 500 changes in last 1 | 3 | 7 | 14 | 30 days

[Hide minor edits](#) | [Show bots](#) | [Hide anonymous users](#) | [Hide logged-in users](#) | [Hide patrolled edits](#) | [Hide my edits](#)

Show new changes starting from 15:41, 12 March 2008

Namespace: Invert selection

12 March 2008

- [\(diff\)](#) [\(hist\)](#) . . [Tools list](#); 15:39 . . **(+41)** . . [Jsturman](#) ([Talk](#) | [contribs](#))
- [\(Upload log\)](#); 14:14 . . [Ccooper](#) ([Talk](#) | [contribs](#)) (*uploaded "Image:CCTest MBSSR1R2Public MATT.xls": Cooper Test for upload options*)
- [\(diff\)](#) [\(hist\)](#) . . [m Mattawoman Creek Monitoring Data](#); 13:59 . . **(+26)** . . [Ccooper](#) ([Talk](#) | [contribs](#)) ([→Data -](#))
- [\(diff\)](#) [\(hist\)](#) . . [Mattawoman Creek Monitoring Data](#); 13:54 . . **(+18)** . . [Ccooper](#) ([Talk](#) | [contribs](#)) ([→Data -](#))
- [\(diff\)](#) [\(hist\)](#) . . [HSPF](#); 13:49 . . **(+6)** . . [Ed Partington](#) ([Talk](#) | [contribs](#))
- [\(diff\)](#) [\(hist\)](#) . . [m Mattawoman Creek Monitoring Data](#); 13:45 . . **(0)** . . [Ccooper](#) ([Talk](#) | [contribs](#)) ([→Description -](#))
- [\(diff\)](#) [\(hist\)](#) . . [BASINS](#); 13:43 . . **(0)** . . [Ed Partington](#) ([Talk](#) | [contribs](#))
- [\(diff\)](#) [\(hist\)](#) . . [BASINS](#); 13:42 . . **(+65)** . . [Ed Partington](#) ([Talk](#) | [contribs](#)) ([→Other Data Available Through the BASINS Data Download Tool -](#))
- [\(diff\)](#) [\(hist\)](#) . . [BASINS](#); 13:40 . . **(+5)** . . [Ed Partington](#) ([Talk](#) | [contribs](#)) ([→Environmental Monitoring Data Available \(Via Download\) Through BASINS -](#))
- [\(diff\)](#) [\(hist\)](#) . . [N National Estuaries Projects](#); 13:39 . . **(+1,041)** . . [Stulehman](#) ([Talk](#) | [contribs](#)) (*New page: {{tools|experience=none|time=none|data=guidance and case studies|support=none|software=none|cost=no cost}} <http://epa.gov/owow/estuaries/> Estuaries are places where rivers meet the sea...*)
- [\(diff\)](#) [\(hist\)](#) . . [BASINS](#); 13:37 . . **(+61)** . . [Ed Partington](#) ([Talk](#) | [contribs](#)) ([→Environmental Monitoring Data Available \(Via Download\) Through BASINS -](#))
- [\(diff\)](#) [\(hist\)](#) . . [BASINS](#); 13:36 . . **(+61)** . . [Ed Partington](#) ([Talk](#) | [contribs](#)) ([→Spatially Distributed Data Available \(Via Download\) Through BASINS -](#))
- [\(diff\)](#) [\(hist\)](#) . . [BASINS](#); 13:33 . . **(-4)** . . [Ed Partington](#) ([Talk](#) | [contribs](#))
- [\(diff\)](#) [\(hist\)](#) . . [BASINS](#); 13:30 . . **(-59)** . . [Ed Partington](#) ([Talk](#) | [contribs](#)) ([→Spatially Distributed Data Available \(Via Download\) Through BASINS -](#))
- [\(diff\)](#) [\(hist\)](#) . . [BASINS](#); 13:27 . . **(+63)** . . [Ed Partington](#) ([Talk](#) | [contribs](#)) ([→Spatially Distributed Data Available \(Via Download\) Through BASINS -](#))

11 March 2008

- [\(diff\)](#) [\(hist\)](#) . . [N IDLMAS](#); 23:17 . . **(+786)** . . [Jsturman](#) ([Talk](#) | [contribs](#)) (*New page: {{tools|experience=Moderate|time=Days|data=Unknown|support=None|software=GIS|cost=Unknown}} <http://www.epa.gov/nrmrl/pubs/600r05149/600r05149diasidlams.pdf> IDLMAS*)

Questions?



- Stuart Lehman
- Lehman.stuart@epa.gov
- <http://www.epa.gov/nps>
- <http://www.epa.gov/owow/funding.html>
- <http://www.epa.gov/owm/cwfinance/cwsrf/>
- <http://www.epa.gov/watershedcentral>