EPA's Targeted Watershed Grants 2005 Annual Report

Many Faces, Many Reasons, One Watershed

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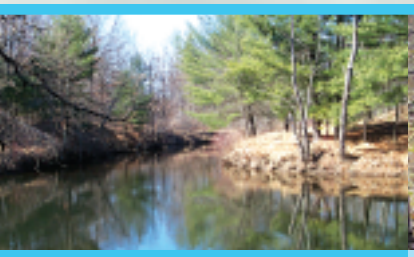
Bear River | Cape Fear | Dungeness River | Fourche Creek

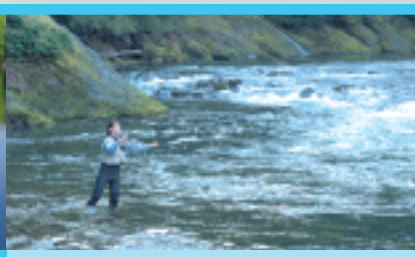
Innovative Solutions

- Water quality trading between point and nonpoint sources (Bear River)
- Economic incentives for conservation development techniques, including low impact development, clustering, and other approaches to preserve open space (Cape Fear River)
- Use of native fungi to control bacteria and excess nutrients (Dungeness River)
- Protection and revitalization of wetlands functions through conservation easements and stream bank restoration (Fourche Creek)
- Incentive based trading within permitting programs (Ipswich River)
- A model trading framework for agricultural participation, including phosphorus credit banking (Kalamazoo River)
- Vouchers and other incentive programs to reduce the use of two stroke outboard motors (Kenai River)
- A watershed scale matrix of best management practices with numeric load reduction potentials (Lake Tahoe)
- New pollutant reduction technologies, including nitrate-removing wetlands (Upper Mississippi River)
- Use of GIS combined with precision agriculture technology to reduce nutrients (Upper Sangamon River)
- New incentive programs for foresters to enhance stewardship and land protection (Nashua River)

Targeted Watershed G

The thirty-four watersheds funded in 2003
Program are spread out across the U.S. a
few of the watersheds are in urban areas,
deserts, forests, mountains, coastal areas,
of the watershed partnerships reflect the u





Nashua River | Passaic River | Schuylkill River | Siuslaw River

Ipswich River

Kalamazoo River

Kenai River

Lake Tahoe

Grant Awards

3 and 2004 under EPA's Targeted Watersheds Grant (TWG) nd include large and relatively small watersheds. While a most are in rural and agricultural areas, flowing through and a bayou. Although they differ in size and scope, all nique customs and cultural values of the region.

Map Source: USGS data sets for land characteristics, state boundaries, Hydrologic Unit Boundaries, and Digital Elevation Model (www.national.atlas.gov) Major Rivers (ESRI)

The Bottom Line

- Major reductions in pollution, including nutrients, sediment, and bacteria
- Protected drinking water supply
- Increased aquatic habitat and wildlife
- Return of native fish and endangered species
- Enhanced recreation opportunities
- Reduction in health advisories
- Innovative market solutions
- Stronger community partnerships
- Improved environmental stewardship
- Shared success stories and methods
- Public education and communication
- Catalyst for additional projects
- Greater awareness of relationship with environment

"This Targeted Watershed Grants Program provides shining examples of the real results we can achieve when government, communities, private landowners, and businesses collaborate to achieve our shared goals of a healthy environment and a strong economy."

- Benjamin H. Grumbles
Assistant Administrator for Water
United States Environmental Protection Agency

Upper Mississippi River

Upper Sangamon River

2004 Grantees

- Bear River
- Cape Fear River
- Dungeness River
- Fourche Creek
- Ipswich River
- Kalamazoo River
- Kenai River
- Lake Tahoe
- Nashua River
- Passaic River
- Schuylkill River
- Siuslaw River
- Upper Mississippi River
- Upper Sangamon River

Bear River

UT, ID, WY

WHY IS THIS WATERSHED SPECIAL?

The 7,500-square-mile Bear River watershed begins in the high country of Utah and flows north and west through southwest Wyoming and southeast Idaho. After abruptly turning to the south, the Bear River returns to Utah and eventually ends its journey as the largest tributary of the Great Salt Lake. The Conservation Corridor connecting the northern and southern Rockies is a critical pathway for migratory birds. Surrounded by arid desert lands, the Bear River marshes provide for an abundance of bird life with over 200 waterfowl and other bird species. Currently, 52 streams and nine lakes are listed as being impaired in the three states of the watershed.

ENVIRONMENTAL CHALLENGES

Water quality management is compounded by the transboundary nature of the river, which meanders through three states and two EPA regions with multiple jurisdictions and planning authorities.

- Water quality problems include sediment, nutrients, fecal coliform bacteria, low dissolved oxygen, and high water temperature.
- Pollutant sources include animal feeding operations, grazing, agriculture, wastewater treatment, degraded stream banks, urban development, roads, phosphate mining, oil and gas exploration, and logging.

A late summer sunrise over the Bear Lake Marina. Bear Lake is the recreational gem of the watershed and provides opportunities from boating and camping to ice fishing.

RESTORATION ACTIVITIES

The Bear River Commission will use grant funds to develop and demonstrate:

- An integrated Watershed Information System (WIS)—www.bearriverinfo.org—to facilitate "one stop shopping" for data collection, data analysis, information transfer, and public outreach
- A water quality trading program to allow point and nonpoint pollutant sources to trade water quality credits
- Dynamic water quality modeling to support water quality trading and analysis of potential water quality management scenarios

Project participants examine a restoration site.

A STRONG PARTNERSHIP FOR CHANGE

The Bear River Commission is working with the Bear River Water Quality Steering Committee, a group composed of the water quality agency specialists from Utah, Idaho, and Wyoming. The project has broad-based participation from many partners, including:

- Utah, Idaho, and Wyoming Departments of Environmental Quality
- Bear River Commission
- Bear Lake Regional Committee
- Bear Lake Watch
- Utah State University
- Utah Water Research Laboratory
- Bear River Water Quality Task Force

Project personnel scope out potential sites for real time streamflow and water quality monitoring.

"The Bear River Watershed Information System is providing unprecedented access to data in the Bear River Basin."

– Jeff Horsburgh, Utah Water Research Laboratory, Utah State University, a Project Leader

Cape Fear River

NC

WHY IS THIS WATERSHED SPECIAL?

The Cape Fear River watershed, North Carolina's largest, includes 23 percent of the state's land area and many of the state's most actively growing urban areas. Home to 27 percent of the state's population, the area supports jobs in a variety of industries, including both manufacturing and agriculture. Almost 300 point source dischargers share the basin with more than five million head of swine. Growth rates currently exceed the statewide average and water usage within the basin is expected to increase nearly 95 percent by 2020.

ENVIRONMENTAL CHALLENGES

- Twenty percent of the basin's waters are impaired.
- Jordan Lake experiences eutrophication due to nutrient enrichment. Excess nutrients are also a concern all along the river and may contribute to the low dissolved oxygen in the estuary.
- Continued economic growth can potentially cause a variety of problems associated with urban and suburban development, such as erosion and nonpoint source pollution. Accordingly, communities are challenged with striking a balance between strengthening stormwater management requirements and supporting economically beneficial growth.

A farmer discusses a new animal waste management system that will help reduce nutrient runoff. (Bob Nichols)

RESTORATION ACTIVITIES

The Cape Fear River Assembly will launch a water quality trading program in the Jordan Lake watershed of the Upper Cape Fear River Basin. Specifically, they will:

- Design a trading program that will identify pollution control responsibilities, control options, types of management practices that should be considered for defining credits, and protocols for debiting and crediting transactions
- Examine combining traditional land management practices with nonstructural management practices, such as land banking, riparian buffers, and wetland restoration
- Create economic incentives for developers to adopt conservation development techniques such as low impact development, clustering, and other approaches that preserve open space and provide more permeable surfaces

A STRONG PARTNERSHIP FOR CHANGE

Formed in 1973, the Cape Fear River Assembly is a nonprofit organization governed by a 39-member board of directors with equal representation from industry, agriculture, public utilities, elected officials, and environmental and conservation interests. They are further supported in this project by six organizations:

- Upper Cape Fear River Basin Association
- Middle Cape Fear River Basin Association
- Sampson County Friends of Agriculture
- Fayetteville Public Works Commission
- Yarborough Law Firm
- Lower Cape Fear River Program

Sunset at the entrance to the Cape Fear River. (Capt. Albert E. Theberge, NOAA Corps (Ret.)

"Watersheds are waters shared, a shared resource and a shared responsibility. Accordingly, this resource can be best managed as a team effort. If the rivers were the circulatory system in the body called North Carolina, then the Cape Fear River system would be the coronary artery."

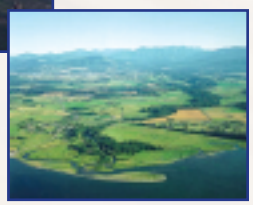
– Don Freeman, Cape Fear River Assembly

Dungeness River

WA

WHY IS THIS WATERSHED SPECIAL?

The Dungeness River of Washington State, located on the Olympic Peninsula of northern Puget Sound, originates in the steep Olympic Mountains and flows 32 miles through wilderness, forest, and valley before reaching its bay. The 200-square-mile watershed is home to more than 200 fish and wildlife species and an important stop for migratory waterfowl. The river supports seven salmonid species, and the bay is noted for bountiful crab and other shellfish. Over the years, the area has been steadily converted from forest to agricultural and residential land uses. An extensive irrigation system, diverting water for lawns, crops, and hobby farms, adds to the pastoral setting of the valley. The Jamestown S'Klallam Tribe, which has historically depended on the watershed's cultural and natural resources, retains treaty rights to fish, hunt, and gather shellfish here.



Aerial photos of the Dungeness watershed.

ENVIRONMENTAL CHALLENGES

Human-induced impacts have impaired the natural river and bay processes of the Dungeness. The combination of watershed health problems has resulted in human risk, three threatened salmonid species under the Endangered Species Act, and closure of Dungeness Bay to tribal and nontribal shellfish harvests, inhibiting economic and recreational use of the river and bay. The river has also been placed on the state's §303(d) water quality list for fecal coliform and low instream flows.

- Land use changes and physical alterations – such as floodplain development, riparian vegetation removal, and construction of an extensive irrigation system – are factors in flooding, stormwater pollution, and overall degraded aquatic habitat.
- Failing septic systems, poor animal keeping practices, and inadequate management of stormwater runoff have increased nutrient and bacterial levels in the river, bay, and irrigation ditches.

RESTORATION ACTIVITIES

The Jamestown S'Klallam Tribe will use its Targeted Watersheds grant in two areas. The first is to apply microbial source tracking technologies to at least six sites to more precisely define bacterial pollutant sources. The second is to institute four pollution prevention techniques.

- A bio-remediation project will use native fungi to control excess nutrients and bacteria.
- A homeowner sewage management program will provide education and cost-sharing incentives in septic maintenance and repair.
- A stormwater management project will focus on best management practices for homes, roadsides, and parking lots.
- An irrigation ditch piping project will prevent pollutants from entering the irrigation system (by joining ditches and enclosing them in pipe) and improve in-streams flows (by eliminating leakage and reducing the amount of flow diverted from the river for irrigation).

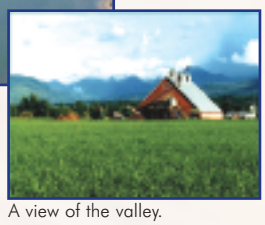
A STRONG PARTNERSHIP FOR CHANGE

The Jamestown S'Klallam Tribe is leading an interjurisdictional partnership consisting of:

- Jamestown S'Klallam Tribe
- Clallam County
- Clallam Conservation District
- Cline Irrigation District, Clallam Ditch Company and Dungeness Irrigation Group
- The Dungeness River Audubon Center
- Battelle Marine Science Laboratory

Scenic image of the river from the south.

Aerial view of the Bay.



A view of the valley.

"The cooperative efforts of the tribe and our project partners have been key to understanding the water quality problems in the Dungeness watershed. Integrating our water quality improvement projects will help to restore our watershed's health."

– W. Ron Allen, Tribal Chairman/Executive Director, Jamestown S'Klallam Tribe

Fourche Creek

AR

WHY IS THIS WATERSHED SPECIAL?

The Fourche Creek watershed in Arkansas drains and filters over 99 percent of the Little Rock metropolitan area and encompasses at least six third-order streams and numerous tributaries that discharge into it. The creek catches, stores, and releases floodwater from the Little Rock area. A classic urban watershed, the City of Little Rock cites the economic value and savings from natural purification in the Fourche Bottomlands to be in the millions of dollars. However, despite decades of neglect and abuse, Fourche Creek still boasts more than 50 species of fish, stands of 300-year-old bald cypress, and core bottomland region that still maintains its wetland functions. An estimated 90,000 of the watershed's 108,000 acres lie within the city limits of Little Rock, and of those, approximately 2,000 are intact wetlands. The core intact wetland area of Fourche Creek remains undeveloped, but is surrounded by encroaching commercial and industrial sites and crisscrossed by utility corridors.

ENVIRONMENTAL CHALLENGES

In 2003, Fourche Creek was identified by EPA as a federal priority with its Brownfield designation. The greatest threats to the Fourche watershed include sedimentation and floodplain encroachment:

- Streambank erosion and stormwater runoff problems exist due to development and urban sprawl.
- Dwindling wetland habitats and floodwater storage capacity threaten the watershed's ability to act as a natural filter.

Students learn water quality monitoring techniques.

RESTORATION ACTIVITIES

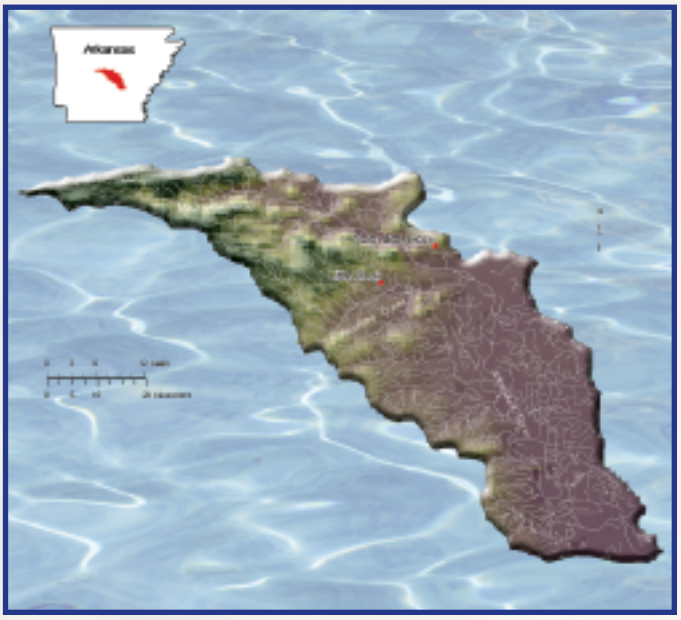
As the largest urban environmental restoration project ever undertaken in Arkansas, the Targeted Watersheds Grant funds will allow Audubon Arkansas to improve water quality, restore wetland functions, and enhance educational opportunities and community awareness. The project has six primary goals:

- Revitalizing wetland function by stabilizing 4,500 linear feet of rock vane and crib wall; reforesting 50 acres; enhancing 4,500 linear feet of stream corridor; establishing six stormwater retention basins; reducing sediments by five percent, plus facilitating one large-scale stream restoration project
- Increasing habitat and wetland floodwater storage capacity by bringing 20 critical acres of stream corridors in the floodplain into perpetual conservation easement status
- Establishing education and watershed awareness programs for the public, including students and developers
- Reducing floatable trash by 20 percent through a partnership with the City of Little Rock and a Central Arkansas waste management firm, which has agreed to accept free of charge all litter collected in the watershed, as well as build a trash collection device across the main stem of the creek
- Using the project web site, www.fourchecreek.org, as a center for outreach and communication
- Continuing to conduct monthly water quality sampling at eight sites along Fourche Creek for more than 40 parameters

A STRONG PARTNERSHIP FOR CHANGE

Audubon's broad array of partners includes:

- State, county, and local level public partners such as Arkansas Forestry Commission, City of Little Rock, and Pulaski County Conservation District
- Private partners such as Sierra Club, Central Arkansas Chapter of Audubon Society, and the Ross Foundation
- Other supporting groups such as Boy Scouts of America, US Army Corps of Engineers, Natural Resource Conservation Service



Interns learn about wetland and forest habitats.

A project goal is to reduce floatable trash by 20 percent.

"The Fourche Creek float was an experience I never thought I would have in the heart of Little Rock. The ancient trees, the shade, the winding stream channels, and the flash of birds: green heron, great horned owl, and Mississippi kites. I would never have known about it had I not been involved with Audubon."

– David Stafford, Sturgis Scholar UALR

Ipswich River

MA

WHY IS THIS WATERSHED SPECIAL?

The Ipswich River winds 45 miles from northeast Massachusetts to the Atlantic Ocean, where it becomes part of the 17,000-acre Great Marsh estuary ecosystem. The 155-square-mile watershed encompasses all or part of 22 communities and is a critical source of drinking water for over 330,000 residents and businesses. The river has been an economic and ecological asset within the area since before colonial times, supporting productive fisheries and shellfish beds, and, for more than a hundred years, it supported shipbuilding, tanneries, and textile mills.

ENVIRONMENTAL CHALLENGES

The Ipswich River was designated by American Rivers as the third most endangered river in the nation because of its extremely low flows and extended periods of no flow.

- Eighty percent of the water pumped from the river and the aquifers within the watershed is shipped out of the basin as drinking water or wastewater, creating a large new outflow.
- Additionally, increasing areas of impervious surface from development cause flooding and erosion, degrade water quality, and prevent natural recharge to aquifers within the watershed.
- Low flows and increased nonpoint source pollution result in extremely low dissolved oxygen, high temperature, algal blooms, elevated nutrients and pathogens.
- Low and no-flow events and degraded water quality have led to repeated fish kills and near full replacement of river-dependent fish species with species associated with ponds and still water.

Marilyn McCrory of MA Department of Conservation and Recreation (foreground) during a site tour with EPA and the Ipswich River Watershed Association. (Sandra Fancieullo)

RESTORATION ACTIVITIES

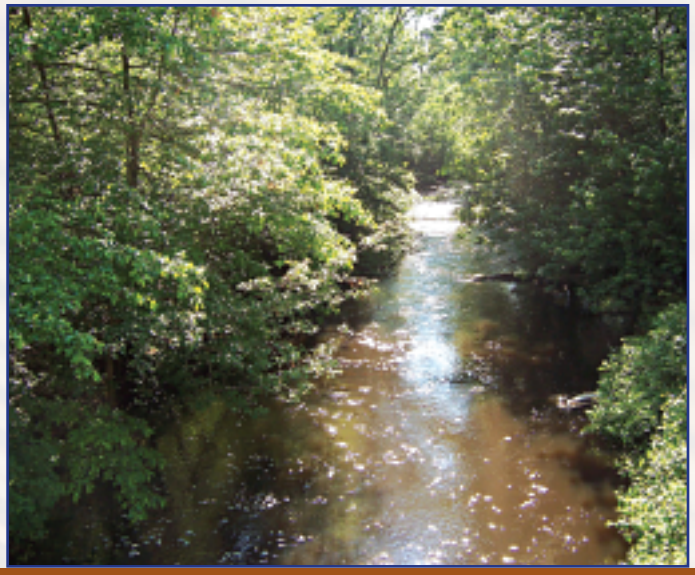
The Massachusetts Department of Conservation and Recreation will use its watersheds grant to address the impacts caused by extensive pumping for municipal water supply and land development. The project will:

- Quantify the benefit of specific low-cost, natural stormwater infiltration and recharge techniques, and water conservation techniques
- Quantify the potential impact of these techniques on a watershed-wide scale, through modeling
- Form the basis for local "water banks," and provide essential information to regulators to employ incentive-based trading mechanisms within permitting programs

A STRONG PARTNERSHIP FOR CHANGE

The Massachusetts Department of Conservation and Recreation is supported in its project through the collaborative efforts of several groups:

- The Ipswich River communities of Reading, Wilmington, North Reading, and Topsfield
- The Ipswich River Watershed Association
- Rainwater Recovery Systems, LLC
- AquaSave
- The U.S. Geological Survey



View of Ipswich River from bridge. (Sandra Fancieullo)

"With many projects up and running, monitoring underway, and awareness and interest in what we're doing growing within the watershed, I feel very hopeful about advancing the understanding of and adoption of low-impact development and water conservation techniques, with noticeable benefits to the Ipswich River."

– Sara Cohen, Department of Conservation and Recreation, Grant Project Manager

Kalamazoo River

MI

WHY IS THIS WATERSHED SPECIAL?

The 2,020-square-mile Kalamazoo River watershed in southwest Lower Michigan supports a population of nearly 500,000 and is comprised of 41 percent forest and rural open areas, 45 percent agriculture, seven percent urban, and seven percent open water and wetlands. Historically, the 160-mile river has been used as a fishery and for extensive paper milling. Significant ecological, cultural, and spiritual interests link the Match-E-Be-Nash-She-Wish Band of the Pottawatomi (the Gun Lake Tribe) to this basin. The current City of Kalamazoo was the center of the tribe's dedicated homelands until the mid-1800s. The tribe maintains existing and ceded lands within the watershed.

ENVIRONMENTAL CHALLENGES

From a once-prized small-mouth fishery to an oxygen-starved, milky-white receiving stream for mill waste, the river now meets most ambient water quality standards. Significant water quality challenges remain:

- Eighty miles of the river are still plagued with PCB-laden sediments from the paper mill legacy, resulting in fish consumption advisories
- Other select areas are impaired by nonpoint source runoff, nutrient enrichment, and habitat loss
- Lake Allegan – a 1,500-acre impoundment 21 miles upstream of Lake Michigan in the lower reaches of the watershed – suffers from phosphorus over-enrichment and the attendant frequent algal blooms, low oxygen levels, and poor water clarity

Lake Allegan is a beautiful lake, but the water is heavily nutrient enriched and affected by PCBs.

RESTORATION ACTIVITIES

The tribe is involved in this effort by addressing eutrophication issues through trading in two phases:

- Developing a model trading infrastructure and applying mechanisms to include both market-based tools, and a model trading registry
- Developing a transferable model trading framework for agricultural participation, phosphorus credit banking, education and implementation of conservation practices for trading

Both aspects of the project will be tested and verified with real reductions through agricultural participation and other partners.

A STRONG PARTNERSHIP FOR CHANGE

More than 150 watershed stakeholders have participated in watershed activities since 1998. The Gun Lake Tribe is coordinating its efforts through partnerships that include:

- Kieser & Associates
- The World Resources Institute
- Area Conservation Districts
- The Environmental Trading Network
- Michigan Department of Environmental Quality
- Michigan Department of Agriculture
- USDA Natural Resource Conservation Service

Lake Allegan was one of the first in the state to have an approved Total Maximum Daily Load that covers the headwaters to the lake.

Project partners work with farmers on conservation practices to reduce nutrients. (Lynn Betts)

"We are delighted to make a contribution that can improve conditions within our ceded territories in the Kalamazoo watershed. Many American Indians still rely upon subsistence practices in their lives. Improved water quality and habitat can only create better living conditions for all Americans."

– Tribal Chairman D.K. Sprague

Kenai River

AK

WHY IS THIS WATERSHED SPECIAL?

One of the most important watersheds in Alaska, the Kenai River provides world-class salmon fishing and wilderness recreation. It drains more than 2,200 square miles and is home to 34 fish species. Its watershed supports a variety of multiuse recreational activities that include rafting, kayaking, motor boating, drift guiding, hunting, snowmobiling, hiking, and camping. Within a two-hour drive from Anchorage, the watershed is accessible to over 70 percent of the state's population and accounts for 19 percent of the state's sport fishing.

ENVIRONMENTAL CHALLENGES

The most immediate concerns facing the Kenai are related to recreational impacts from in-river motorized boat use.

- Hydrocarbon levels exceed water quality standards established for fish and aquatic life in areas of heavy boat use.
- Habitat loss due to boat wakes, all-terrain-vehicle crossings of stream channels, and culverts are a primary source of accelerated erosion.

The Kenai River supports numerous recreational activities, including world class salmon fishing.

RESTORATION ACTIVITIES

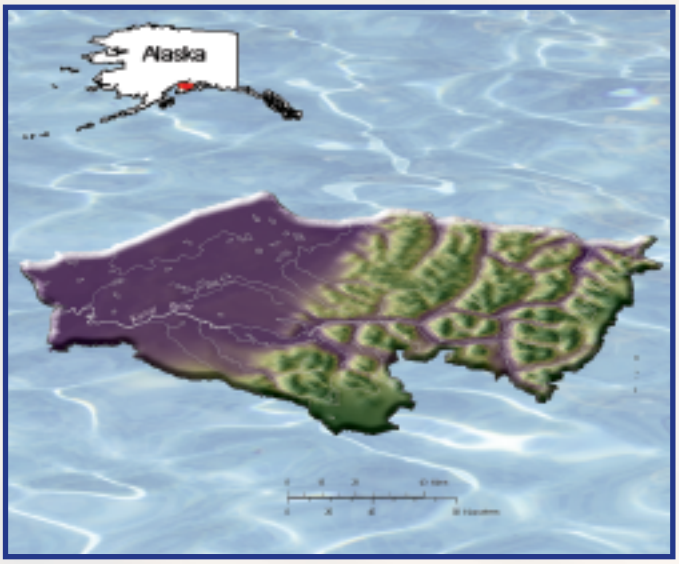
The Kenaitze Indian Tribe, I.R.A. will use its grant award to address these two watershed threats – hydrocarbon pollution caused by outboard motors and stream bank erosion caused by boat wakes. Project activities will protect and preserve the river by implementing market-based and stewardship incentives and by engaging community members.

- The Two-Stroke Boat Motor Buyback Incentive Program aims to reduce the effects of hydrocarbon emissions from two-stroke boat motors by providing cash vouchers to private consumers toward the purchase of a nonmotorized drift-boat or a 2006 manufacture emission compliant motor when the two-stroke motor is traded in.
- The Boat Wake Erosion Reduction Program will reduce the effects of boat wakes on stream bank erosion, through a "river-friendly guide" incentive program featuring permit fee reductions, a voucher program to encourage private consumers to select flat bottom or nonmotorized boats when purchasing a boat for use on the Kenai River, and continued monitoring and evaluation of boat wake effects on stream banks.
- Ongoing water quality monitoring by the Kenai Watershed Forum will help measure hydrocarbon concentrations from outboard motors. Weekly sampling will occur during peak recreation times.

A STRONG PARTNERSHIP FOR CHANGE

Under the EPA Targeted Watershed Grant, the Kenaitze Indian Tribe I.R.A., the Alaska Department of Natural Resources, and the Kenai Watershed Forum will collaborate to implement project activities. Further support comes from:

- Kenai River Special Management Area Advisory Board
- Kenai National Wildlife Refuge
- Kenai Peninsula Borough
- Kenai River Center
- Kenai Watershed Forum



Sunset over the Kenai.

The Kenai River

"This grant offers an excellent opportunity for the tribe to work with our community partners for the protection of a river which has been the lifeblood of Kenaitze people for generations."

– Brenda Trefon, Kenaitze Indian Tribe I.R.A

Lake Tahoe

CA, NV

WHY IS THIS WATERSHED SPECIAL?

Because of its extraordinary water clarity, Lake Tahoe is designated an Outstanding National Resource, which affords it the highest level of protection under the federal Clean Water Act. At 6,223 feet above sea level in the Sierra Nevada mountains, the lake spans portions of both California and Nevada and is a national scenic and recreational treasure. The second deepest lake in North America, with a maximum depth measured at 1,645 feet, it is the tenth deepest in the world. It contains enough water to cover the entire State of California to a depth of 14.5 inches. The region's annual $1 billion economy depends heavily on the beauty of this sapphire-blue lake, which attracts millions of visitors each year to its stunning peaks and beautiful shorelines.

ENVIRONMENTAL CHALLENGES

Since 1968, scientists have measured a decline in the lake's famous water clarity at the alarming rate of one foot per year due to algae growth and suspended sediments associated with human activity. During this time, Lake Tahoe's clarity, as measured by a plate sized secchi disk, has declined from 29.5 meters (97 feet) to 22.5 meters (74 feet).

- Recent research indicates that in-basin atmospheric pollutants contribute significantly to the decline in clarity.
- Population increases, air pollution, stream channel erosion, upland erosion, loss of wetlands, and historical sewage disposal have contributed to lost water clarity.
- Nitrogen, phosphorus and fine sediment from streams, groundwater, urban runoff, and atmospheric deposition are responsible for degrading water quality.

Eagle Falls (Jon Paul)

RESTORATION ACTIVITIES

Numeric limits on urban runoff, construction controls, and stormwater treatment for existing and new development as established by the Tahoe Regional Planning Agency's Regional Plan have been in place since 1987. Although both point and nonpoint source controls are more prevalent in Tahoe than many places in the United States, work currently underway to develop a Lake Tahoe Nutrients and Sediment Total Maximum Daily Load (TMDL) will allow for more scientific, market-based approaches to restoring lake clarity to be developed and evaluated. EPA Targeted Watersheds Grant funds will be used to:

- Evaluate the potential for, and if determined to be feasible, develop a water quality trading strategy that will include cross media (air-water) opportunities and will link land use, air pollution, and best management measures to water clarity goals
- Evaluate new approaches and technologies for pollution control at Lake Tahoe, including measures to control air-borne pollutants from transportation sources
- Incorporate data on new and traditional Best Management Practices (BMP) into a matrix to determine their basin-wide potential to achieve required numeric load reductions, information that will help guide watershed management decisions and potentially enable trading

A STRONG PARTNERSHIP FOR CHANGE

To restore lake clarity, the Lahontan Regional Water Quality Board and the Nevada Division of Environmental Protection will collaborate on developing the Lake Tahoe Nutrients and Sediment Total Maximum Daily Load, a holistic watershed plan to address water quality impairments. The Lake Tahoe Basin is unique in that two states (Nevada and California) and numerous entities have been engaged in watershed protection efforts for years. The number, nature, and longevity of active stakeholder groups demonstrate the high degree of coordination already occurring. These groups include:

- Water Quality and Transportation Coalition
- Lake Tahoe Interagency Monitoring Program
- Storm Water Quality Improvement Committee
- Lake Tahoe Environmental Education Coalition
- Lake Tahoe Science Consortium
- Numerous government agencies at the federal, state and local level

Alpine Morning (Jon Paul)

"The Targeted Watershed Grant could not have happened at a better time. The grant will greatly expand on our ability to strategically plan for the protection of Lake Tahoe and improve the water clarity for which the lake is famed."

– Dave Roberts, Environmental Scientist, Lahontan Regional Water Quality Control Board, Lake Tahoe Sediment and Nutrients TMDL Project Manager

Nashua River

MA, NH

WHY IS THIS WATERSHED SPECIAL?

The Nashua River watershed encompasses 31 communities in north central Massachusetts and southern New Hampshire. Nearly 240,000 people live and work within its 538 square miles. Still largely rural, yet at the edge of a major metropolitan area, the watershed is over 60 percent forested. The Massachusetts portion includes a designated Outstanding Natural Resource Area for cold water fisheries and supports more than 20 rare or endangered species. Because groundwater and surface water are closely linked, the watershed serves as an ideal study area for integrating drinking and surface water protection efforts.

ENVIRONMENTAL CHALLENGES

Protecting existing and future drinking water supply sources in the face of strong development pressures is a critical issue for rapidly growing states. Sharply increasing pressures from rapid growth and the resultant decline of open space contribute to two overarching water problems: nonpoint source pollution of the surface waters and increasingly comprised groundwater supplies. The growth rate in the Massachusetts towns in the study area is projected to be 25 to 40 percent through 2010, and 70 to 140 percent in the New Hampshire towns.

- Build out analyses project water demand in Massachusetts to far exceed safe yields of ground water resources.
- Public water supply land is not adequately protected despite state requirements.
- New development poses threats to water quality from sodium and chloride, pesticides and fertilizers, fecal coliform, and chemicals and solvents.
- Impervious surfaces are about 7 percent, but studies suggest 10 percent is the threshold percent to protect water resources in the study area.
- About 79 percent of the Squannacook subbasin and 66 percent of the Nissitissit subbasin are forested (research suggests 75 percent as the threshold percent to protect water resources).
- Forest land overall is at most only 25 percent actively managed.

RESTORATION ACTIVITIES

The Nashua River Watershed Association (NRWA), which has a proven record of success in taking on difficult environmental issues, will use EPA Targeted Watersheds Grant funds to:

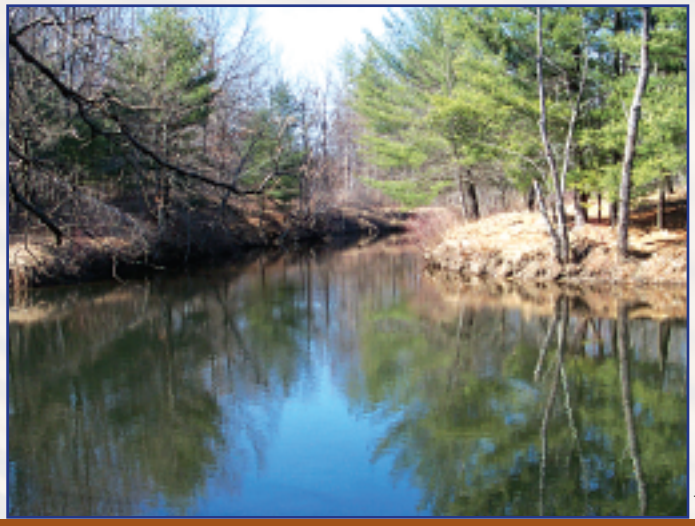
- Increase incentives to individual and municipal forest landowners to voluntarily expand their stewardship and land protection
- Explore market-based opportunity for collective landowners through a forestry cooperative
- Increase incentives for foresters to receive training in ecological approaches
- Provide practical model conservation and restoration sites
- Develop forward-looking smart growth regulatory approaches at the municipal and state level
- Provide baseline water quality information
- Act on new understanding of why some landowners can be resistant to pro-activity

Gulf Brook, a tributary of the Nissitissit River.

A STRONG PARTNERSHIP FOR CHANGE

EPA Targeted Watersheds Grant funds will allow the NRWA to continue in its strong collaborative work. This project follows directly from the recently completed bi-state Source Water Stewardship Demonstration Project, in which NRWA, the State of New Hampshire, the Commonwealth of Massachusetts, and the Trust for Public Land and other organizations all participated. NRWA is currently partnering with:

- Beaver Brook Association
- New England Forestry Foundation
- Trust for Public Land
- A broad interstate coalition of stakeholders



The mouth of the Nissitissit River.

"Working as a broad coalition, the NRWA and its partners are honored that the U.S. EPA is supporting our proactive project to 'protect today's water for tomorrow' in a threatened region of our watershed."

– Elizabeth Ainsley Campbell, Executive Director, Nashua River Watershed Association

Passaic River

NJ

Headwaters of the Passaic River in the Highlands of New Jersey.

WHY IS THIS WATERSHED SPECIAL?

The Passaic River, which traverses both New Jersey and a small portion of New York, has historically been an area of significant industrial activity and is now one of the most impacted rivers in the northeast. Approximately two million people—one quarter of New Jersey's population—live within 669 square miles of the 803-square-mile watershed. In addition, 23 reservoirs, all within the nontidal portion of the river, provide potable water to New Jersey's residents.

ENVIRONMENTAL CHALLENGES

The New Jersey Department of Environmental Protection recently funded watershed characterization and assessment studies. These revealed that surface water quality standards for nutrients, dissolved oxygen, pH, temperature, pathogens, metals, and pesticides are often exceeded.

- Phosphorus loads must be reduced to restore water quality in the rivers, lakes, and reservoirs.
- Nineteen wastewater treatment plants within the nontidal portion of the Passaic River watershed each discharge more than 1 million gallons per day of treated effluent. The plants, studies assert, contribute a large percentage of the phosphorus load.
- Upgrading wastewater treatment plants to meet an effluent limitation for total phosphorus would be extremely costly. All additional costs would be passed on to taxpayers in the form of higher sewer rates unless a water quality trading program with the potential to significantly lower costs is implemented.

RESTORATION ACTIVITIES

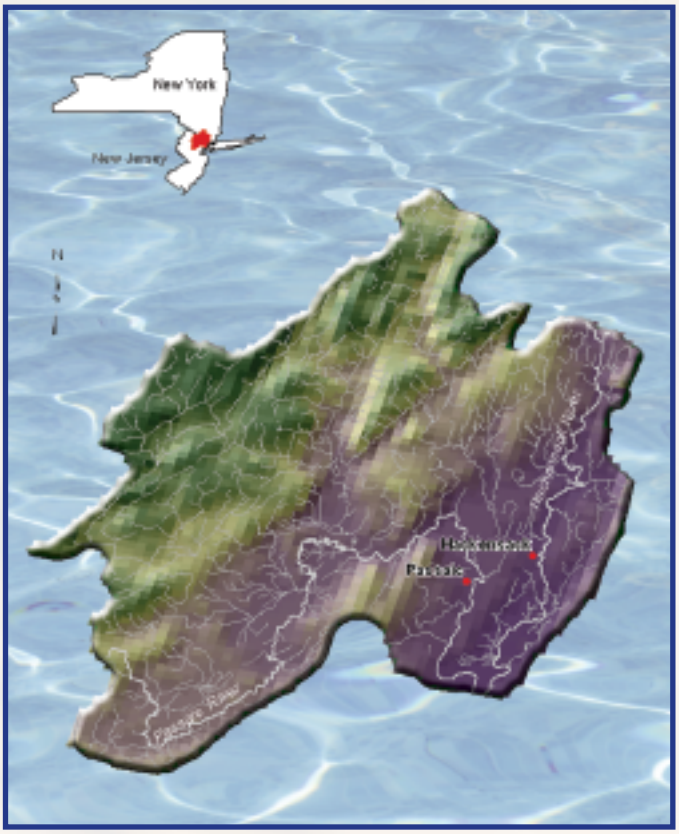
EPA Targeted Watersheds Grant funds will be used to develop, implement, and evaluate an effective water quality trading program for the nontidal Passaic River Watershed that adheres to EPA's Water Quality Trading Policy. The focus of the program will include both point-point source trading and point-nonpoint source trading. The partners will:

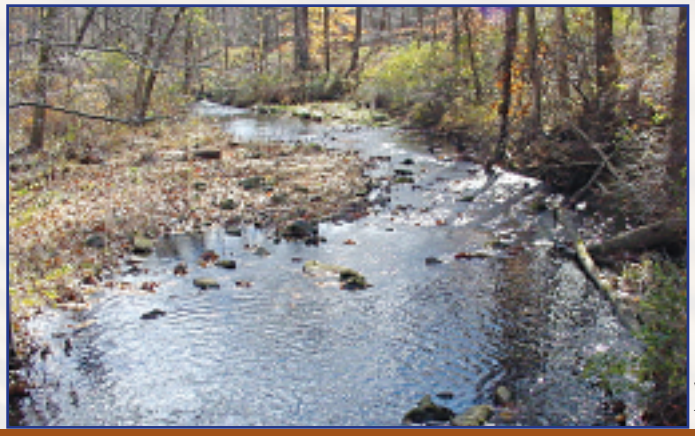
- Review available studies to identify potential trading scenarios and examine ongoing projects around the country to identify models that can be adopted
- Evaluate potential trading scenarios from a scientific and economic perspective and develop a model that will quantify potential load reductions and cost savings
- Evaluate the public policy and legal aspects, including permitting and enforcement implications, of water quality trading as it pertains to the Passaic River watershed and New Jersey statutes, regulations, and policies
- Develop and implement a trading program, including facilitating trading negotiations and recommending modifications to permits
- Report results at local, regional, and national meetings and in peer-reviewed journals
- Develop a website for the project. A website has been initiated for the project at **www.water.rutgers.edu/projects/trading/WQTrading.htm**

A STRONG PARTNERSHIP FOR CHANGE

The watershed contains 19 major point sources. Each may require different levels of upgrade to achieve water quality standards, making a trading program very attractive. An active coalition assembled to complete this endeavor includes:

- The Passaic River Basin Alliance, a nonprofit coalition of wastewater treatment plants in the Passaic Basin
- Experts from Rutgers and Cornell Universities
- The New Jersey Department of Environmental Protection
- A nonprofit organization of New Jersey municipalities
- The New Jersey Association of Environmental Authorities, a nonprofit organization of state wastewater treatment plants, water utilities, solid waste facilities, and collection system operators





Whippany River, one of the many tributaries to the Passaic River that will be protected through the water quality trading project.

"The EPA Targeted Watershed Grants Program has provided a unique opportunity to develop a water quality trading program for the Passaic River Basin that brings together stakeholders with diverse goals, and align their efforts to improve water quality at reduced cost. We aim to achieve a win-win result for the environment and our stakeholders."

– Christopher C. Obropta, Ph.D., P.E., Rutgers Cooperative Extension

Schuylkill River

PA

WHY IS THIS WATERSHED SPECIAL?

The historic Schuylkill River is not only a working river but also the source of drinking water for more than 1.5 million people. At 130 miles long, with more than 180 tributaries, the Schuylkill drains 2,000 square miles of southeastern Pennsylvania and is the largest tributary to the Delaware Estuary. The watershed is diverse, flowing from the Appalachians through rich farmland and low rolling hills into the highly urbanized Atlantic coastal plain.

ENVIRONMENTAL CHALLENGES

Industrialization and mining in the 19th and 20th centuries left the Schuylkill as one of the nation's most polluted rivers. In recent years, however, the river's water quality has improved and migratory fish are returning, but problems remain. Major causes of degradation include stormwater runoff, agricultural practices, abandoned mine drainage, and sewage overflows.

- Stormwater is the primary cause of impairment, with a total of 273 stormwater impaired stream miles. Most of these are within Montgomery and Philadelphia counties, the watershed's most populous.
- A restoration analysis found that it would cost approximately $288 million to design and reconstruct all impaired stream miles according to natural stream channel design principles. Because this is not a feasible restoration strategy, the Stormwater Workgroup must ensure that the most recent and proven stormwater controls are used in future development and when retrofitting older areas developed without adequate controls.

Last year's winner of the Annual Urban Fun Fishing Fest in the Schuylkill River.

RESTORATION ACTIVITIES

A near-term restoration initiative was developed to address stormwater runoff, agricultural practices, and abandoned mine drainage, to promote market-based strategies, and to evaluate the efficacy of the Schuylkill Action Network as an interjurisdictional approach to water quality management. These efforts will help meet the requirements and balance the priorities of the Safe Drinking Water Act and the Clean Water Act, by creating a "fishable, swimmable, and drinkable" Schuylkill River. EPA Targeted Watersheds Grant funds will be used to achieve four specific goals:

- Achieve measurable pollution reductions
- Provide a model for moving from source water assessment to protection and demonstrate a cooperative approach to maintaining coordinated actions under the Safe Drinking Water Act and Clean Water Act for a large watershed
- Conduct demonstration projects and explore market-based initiatives
- Implement, over the next 3 years, more than 40 demonstration projects relating to stormwater impacts, agricultural impacts, abandoned mine drainage impacts, and market-based strategies

A STRONG PARTNERSHIP FOR CHANGE

EPA Targeted Watersheds Grant funds will be used under the leadership of Philadelphia Water Department and the Partnership for the Delaware Estuary to aid the Schuylkill Action Network's many partners. These include:

- State agencies
- Local watershed organizations
- Water suppliers
- Local governments
- Federal government agencies

School children signing the Constitution of the Schuylkill Action Network (SAN), which is an agreement of watershed residents to join in the SAN's efforts to restore and protect the Schuylkill River.

Various boats on the Schuylkill River along Boathouse Row near Philadelphia.

"This is a truly collaborative initiative, with thirteen organizations and agencies implementing 40 diverse projects spread throughout a watershed almost 2,000 square miles in size. The project managers are all committed and energized for putting the funds to work on the ground, and I'm excited to be part of making that happen."

– Jennifer Adkins, Schuylkill Targeted Watershed Grant Coordinator, Partnership for the Delaware Estuary

Siuslaw River

OR

WHY IS THIS WATERSHED SPECIAL?

The Siuslaw River meanders 150 miles through Oregon from the edge of the Willamette Valley to the Pacific Ocean. Half of its watershed is managed by federal agencies, industrial timber companies own a third, and the flat valley bottoms, lower hill slopes, and estuary are privately owned and not industrially used. The watershed includes inland valley oak savanna forests and meadows; the Coast Range mountains, one of the best tree-growing areas in the United States; and the tidally influenced estuary zone. The Siuslaw's stands of old-growth forest are the largest remaining tracts of intact coastal temperate rainforest on the north coast of Oregon. The basin once supported huge runs of Pacific salmon, including the largest run of coho salmon south of the Columbia River, which is now at less than 2 percent of its historical population and listed as threatened under the Endangered Species Act. Because of the fertile soil and moderate climate in the Willamette Valley, the watershed includes some of the most productive farming land in the nation.

Landowners along the Willamette Valley put buffers along the river to improve habitat and water quality. (Gary Wilson)

ENVIRONMENTAL CHALLENGES

Eight watershed assessments have been developed for parts of the basin, in addition to a whole-basin assessment. Based on these findings, restoration activities will focus on debris flow cycle, the movement of organic material, sediment, and water, as well as riparian connections to streams. Major threats include:

- Draining, diking, and installing numerous tidegates in the estuary and valley bottoms, which prevent tidal flows in the estuary
- Aggressive forest practices on steep slopes and in riparian areas, which have led to an increased risk of sediment delivery to streams
- Elevated lead and temperature levels in the river, which exceed EPA standards

RESTORATION ACTIVITIES

This project seeks to implement a basin-wide restoration initiative to improve the economic integrity in local communities through restoring natural processes in the upper basin. It combines innovative market-based incentives with specific habitat restoration and monitoring and evaluation projects. Targeted Watersheds Grant project tasks include:

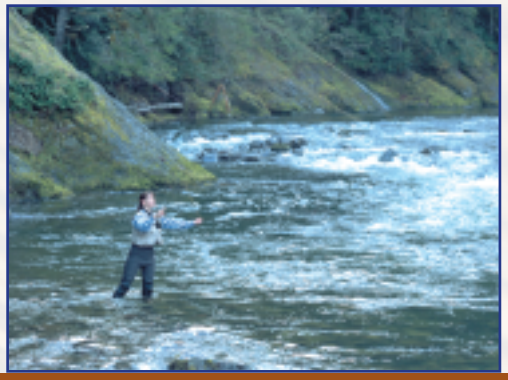
- Restoring natural landscape processes by repairing culverts and roads
- Using market incentives to reduce the risk of sediment delivery to stream channels from 10,000 acres
- Restoring 30 miles of riparian habitats and processes
- Protecting and restoring a 5-mile estuary corridor
- Developing and implementing a water quality monitoring and evaluation program

A STRONG PARTNERSHIP FOR CHANGE

Since the 1980s, academic researchers, agency personnel, and community members have been working to develop and implement an integrated ecosystem-based approach to restore the Siuslaw. Five entities – Ecotrust, the Siuslaw Watershed Council, Siuslaw Soil and Water Conservation District, Siuslaw Institute, and Siuslaw National Forest – will manage this project under the EPA Targeted Watersheds Grant. Other partners include:

- Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians
- McKenzie River Trust
- Shorebank Enterprise Pacific
- Pacific Coast Watershed Partnership
- Siuslaw and Mapleton School Districts
- Natural Resources Conservation Service
- Bureau of Land Management
- Private landowners and many others

Stream in the Coast Mountain Range in Oregon. (Ron Nichols)



Recreational fly fishing in a mountain stream. (Ron Nichols)

"The Siuslaw Basin Partnership is working to restore what was historically one of the most productive salmon-producing rivers in the Pacific Northwest. With help from the EPA's Targeted Watershed Grants program, we will not only restore the watershed but develop a monitoring plan and conservation incentives that can be replicated in watersheds all over the region."

– Brent Davies, Coordinator, Pacific Coast Watershed Partnership, Ecotrust

Upper Mississippi River

IA

WHY IS THIS WATERSHED SPECIAL?

The Des Moines Lobe, the central focus of this project, is drained mostly by the Des Moines, Raccoon, Iowa, and Skunk rivers in the "prairie-pothole" region in north-central Iowa. Thanks to artificial drainage, this land boasts some of the most valuable and productive farmland in the country. In 2002, the average land value for the 22-county area making up most of the Lobe was approximately $2,500 an acre, and more than 80 percent of that area was used for row crops, 42.9 percent for corn and 37.6 percent for soybeans.

ENVIRONMENTAL CHALLENGES

Nitrate leaching from extensive areas of drained cropland in Iowa and other areas along the Corn Belt is transported down the Mississippi River and is believed to be a contributor to hypoxic (low in dissolved oxygen) conditions in the Gulf of Mexico and to local drinking water quality concerns. Although mismanagement and overuse of fertilizer and manure contributes to water quality problems, hydrological and land-use changes (that is, the conversion of prairies and marshes to row crops) are the leading causes of degradation.

- Extensive subsurface drainage of the Corn Belt (25 percent of Iowa is drained) accelerates the transport of nitrate entering the Mississippi River.
- Subsurface drainage creates very productive croplands and reduces other water quality concerns.

Scientists examine a soil sample. (Charlie Rahm)

RESTORATION ACTIVITIES

A permanent solution to this watershed's challenges involves "structural modifications" of the drainage systems that could have both water quality and crop production benefits. EPA Targeted Watersheds Grants funds will be used to test new technologies involving modified drainage systems, combined with nitrate-removing wetlands. Project partners will:

- Use actual soils, topography, and weather data with improved crop growth, hydrologic, and wetland models to design integrated wetlands and controlled or shallow drainage systems to reduce nitrate loading while maintaining or improving crop performance
- Develop an optimum drainage-wetland system design for specific study areas with landowner cooperation, install it, and monitor its water quality performance
- Conduct outreach to publicize the results to other landowners, the farm media, downstream water users, and policy makers at all levels and explore technology transfer opportunities to other areas in Iowa and beyond

A STRONG PARTNERSHIP FOR CHANGE

The Iowa Department of Agriculture and Land Stewardship and Iowa State University, which together developed the nitrate removal wetland technologies that led to Iowa's Conservation Research Enhancement Program, lead the project team. Further support through expertise, staff, and financial resources comes from:

- Iowa Drainage District Association
- Agri Drain Corporation
- Natural Resources Conservation Service
- Iowa Farm Bureau Federation
- Iowa Environmental Council
- City of Cedar Rapids
- Des Moines Water Works

A restored wetland. (Lynn Betts)

"Our TWG project is developing new approaches for managing water on cropped landscapes to reduce the movement of nitrate to streams, and ultimately, to the Gulf of Mexico hypoxic zone. Farmers will be able to see these technologies through demonstrations under actual field conditions, both to demonstrate the environmental gains as well as impacts upon crop production and farming practices."

– Dean W. Lemke, P.E., Iowa Department of Agriculture and Land Stewardship

Upper Sangamon River

IL

WHY IS THIS WATERSHED SPECIAL?

The Upper Sangamon River watershed, which lies in central Illinois, is part of the Upper Mississippi River Basin. Lake Decatur, formed in 1922 to provide water for domestic use and processing of agricultural products, is a prominent feature. The portion of the watershed above the lake covers 925 square miles in seven counties, approximately 87 percent of which is in crop production. Decatur, population 82,000, is the largest city in the watershed.

ENVIRONMENTAL CHALLENGES

The Upper Sangamon River watershed has water quality problems typical of agricultural watersheds in the upper Midwest. Numerous problems affect the environment and the people of the area.

- Erosion and sedimentation from cropland and stream banks have been concerns since Lake Decatur's creation.
- Tile drainage, which is used extensively in the watershed, provides agricultural benefits but also contributes to erosive forces and nutrient losses.
- Peak nitrate concentrations in Lake Decatur have exceeded the 10 mg/l drinking water standard most years since 1980. Monitoring by the Illinois State Water Survey in the mid 1990s found the average annual nitrate yield to Lake Decatur to be 23 lbs/acre.
- Scientists suspect that nutrient loads from this watershed and other agricultural watersheds exacerbate hypoxia (low dissolved oxygen) in the Gulf of Mexico.
- The primary objectives of ongoing soil and water conservation efforts are to reduce erosion, sedimentation, and nutrient losses to surface waters without adversely affecting the agricultural economy of the region.

RESTORATION ACTIVITIES

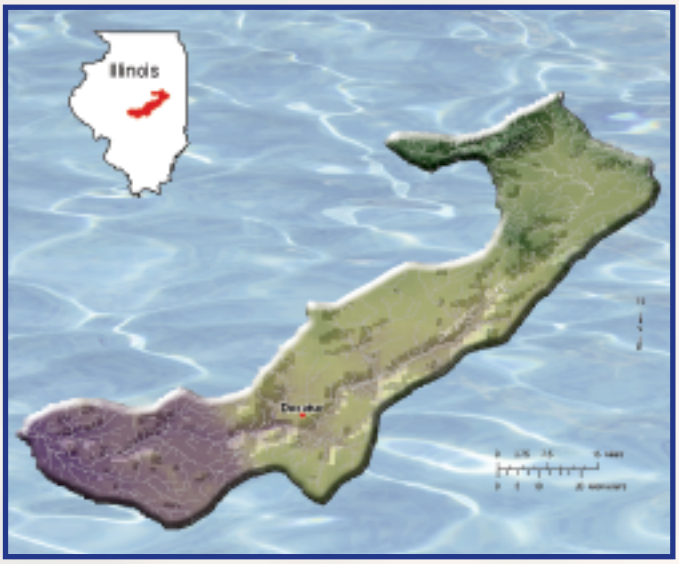
EPA Targeted Watersheds Grant funds will go towards a coordinated set of projects to improve water quality locally, regionally, and in the Gulf of Mexico by enhancing nutrient management for crop production and reducing loss of nutrients.

- One project will use GIS-based software and precision agriculture technology in on-farm experiments to optimize nitrogen management. Risk management instruments to protect farmers against income losses from reduced application rates will be demonstrated and refined.
- A second study will demonstrate drainage water management and subsurface bioreactors to reduce movement of nitrates through drainage tiles to surface waters. Cost-effectiveness will be evaluated, allowing for this approach to be scored for point and nonpoint source trading.
- The third study will address economic and environmental benefits from soil testing and variable rate technology to improve phosphorus management. Economic and environmental results will be measured. Stakeholders will evaluate projects, disseminate findings, and identify added strategies to improve nutrient management and reduce losses.

A STRONG PARTNERSHIP FOR CHANGE

Many watershed management programs for the Upper Sangamon have already been implemented by various groups. EPA Targeted Watersheds Grant funds will support the continued cooperation under the lead of the Agricultural Watershed Institute. Key participants and supporters include:

- University of Illinois Departments of Crop Sciences, Agricultural and Consumer Economics, and Agricultural and Biological Engineering
- County Soil and Water Conservation Districts (SWCD)
- American Farmland Trust's Agricultural Conservation Innovation Center
- Illinois State Water Survey
- USDA's Natural Resources Conservation Service
- Individual farmer-cooperators
- Technical service providers in the fertilizer industry



Macon County SWCD watershed tours educate urban and rural residents about conservation practices.

Illinois State Water Survey personnel monitor stream flow and water quality in the Upper Sangamon Watershed.

"The largest component of this grant is trying to improve the efficiency of nitrogen fertilizer management. We'll be working with University of Illinois researchers, Conservation Districts, farmers, and fertilizer dealers to test nutrient management measures and to use information technology. We hope to not only improve farm income, but improve water quality as well."

– Steve John, Acting Executive Director, Agricultural Watershed Institute

2003 Grantee Updates

Bayou Bartholomew

AR

MAJOR ENVIRONMENTAL CHALLENGES

- Excess sediments
- Loss of habitat for aquatic and terrestrial species
- Log jams affecting stream flow
- Agriculture, deforestation, and land clearing activities

The Bayou Bartholomew Alliance Captain.

PROJECT HIGHLIGHTS

The Bayou Bartholomew Alliance is addressing these issues through various improvement projects focused on protecting and preserving the area's vast diversity of aquatic life. Thus far, the alliance's accomplishments include:

- Removing 148 tons of trash from the bayou with the help of citizen volunteers
- Redesigning an old weir to demonstrate to landowners how weirs should be constructed to allow for fish and small watercraft passage, and to help maintain stream function
- Continuing to provide hardwood tree seedlings at no cost to landowners to restore riparian corridors
- Establishing a conservation easement program to protect existing riparian hardwood forests, allowing landowners the opportunity to preserve the forests while still obtaining some financial benefits
- Completing a carbon site feasibility analysis and an analysis of areas of high aquatic biodiversity
- Conducting workshops to educate landowners about methods to minimize impacts on water quality

Canoeing among the cypress trees.

2003 Grantee

UPDATE

"By taking a realistic approach, the Bayou Bartholomew Alliance has helped to educate landowners like myself on how to protect and improve this important ecosystem with methods in harmony with my agricultural and recreational objectives. There is definitely an improvement in the aesthetic appearance of the Bayou due to the Alliance's trash removal efforts. Continued improvements to the delicate fishery and bird habitats are certain to produce far reaching benefits as well."

– John McClendon large landowner along Bayou in Drew County

2003 Grantee

UPDATE

Charles River

MA

MAJOR ENVIRONMENTAL CHALLENGES

- High fecal coliform bacteria levels
- Water shortages
- Rapid development and urbanization

Cisterns help conserve water and reduce runoff.

PROJECT HIGHLIGHTS

The Charles River Watershed Association (CRWA) is committed to utilizing innovative approaches to reduce polluted discharges, increase recharge of rainwater, and restore fisheries. To help advance these restoration objectives, projects emphasize the use of flow trading, stormwater recharge, education, habitat, and research. To date, the association has:

- Installed fourteen 400-gallon, residential cistern-drywall water retention systems to allow homeowners to use stored rainwater for irrigation or other uses
- Conducted in-stream bacteriological monitoring, collected precipitation data, and implemented statistical computer models to predict water quality levels
- Continued to report water quality conditions by flying color-coded flags at boathouses during the summer recreational season
- Completed an economic analysis of flow trading in the basin and water banking model to determine subbasin water quantity deficits
- Developed a computer model of the Upper Charles River that simulates the water budget in terms of impervious areas, water consumption, drinking water withdraws, and other uses
- Helped launch stormwater mass media educational campaign

Blue flags fly over the Charles River when water quality is good.

"The Charles River Watershed Association has played a key role in improving the water quality of the Charles River for over two decades. We are seeing a cleaner Charles River every year."

– Ralph Boynton Charles River Flagging Program volunteer

Christina Basin

PA, DE

2003 Grantee **UPDATE**

MAJOR ENVIRONMENTAL CHALLENGES

- Point and nonpoint source pollution
- Toxic chemicals
- Fish consumption advisories
- Habitat loss
- Excess sediment and nutrients

Pike Creek stream restoration project.

PROJECT HIGHLIGHTS

The Christina Basin Clean Water Partnership is making strides to reduce pollution through agricultural best management practices, stream bank restoration, stormwater management, and residential landscape and runoff control. To date, the partnership has:

- Developed site specific nonpoint source remediation and monitoring programs
- Completed one key stormwater retrofit project
- Completed two nutrient management plans to manage farm runoff
- Continued enlisting local property owners in residential landscape and runoff control efforts as part of its Smartyard™ Program
- Completed site selection for three stormwater retrofits, two contiguous stream restorations, and seven wetland and stream restoration projects

Rain gardens provide an attractive, environmentally friendly landscape.

"With the implementation push provided by the EPA's Watershed Grant Program, the partners and residents of the Christina Basin have a renewed commitment to achieve the water quality management goals established for the Christina Basin."

– Pamela V'Combe
Watershed Planner
Delaware River Basin Commission

2003 Grantee

UPDATE

Clark Fork-Pend Oreille

MT, ID, WA

MAJOR ENVIRONMENTAL CHALLENGES

- Degradation of riparian areas
- Excessive nutrients and algae growth
- Rapid population growth and urbanization

Macroinvertebrate sampling on Warren Creek.

PROJECT HIGHLIGHTS

The Tri-State Water Quality Council is focusing both on reducing nutrients that are causing excessive algae blooms and threatening to remobilize heavy metals contamination, and on addressing the effects of population growth on water quality. It is working with the Blackfoot Challenge, the Flathead Basin Commission, and the Watershed Restoration Coalition to improve livestock management practices, expand water quality monitoring efforts, and complete restoration work on key tributaries to the Clark Fork River and Pend Oreille Lake. Thus far, the council and its partners have:

- Installed six off-stream livestock watering tanks, miles of riparian fencing, and over 37,000 feet of pipeline to divert cattle away from stream and river corridors, thereby reducing sediment and nutrients
- Initiated streambank restoration measures to reduce erosion and sedimentation, restore riparian habitat, and improve stream channel morphology on over five miles of streams
- Implemented a land application system for dairy cow manure effluent at a major dairy farm to reduce phosphorous loading
- Expanded monitoring programs, analyzed and assessed trends in nutrients and algae growth, and developed a nutrient pollutant model

Stream restoration work on Warren Creek, a tributary to the Blackfoot River.

"From growth and urban issues to ranching and rural issues, this grant enabled our basin-wide organization to form a new partnership with three large, existing watershed groups in our main tributary rivers, to address both point and nonpoint sources with some 15 on-the-ground projects, to leverage a vast amount of matching funds, and to monitor our progress towards improving water quality."

– Diane Williams
Executive Director
Tri-State Water Quality Council
Sandpoint, Idaho

Cumberland Basin

TN, KY

2003 Grantee **UPDATE**

MAJOR ENVIRONMENTAL CHALLENGES

- Increased development and impervious surfaces
- Water shortages due to rapid stormwater runoff
- Excessive sediment and erosion

Collecting macroinvertebrates to measure stream quality.

PROJECT HIGHLIGHTS

The Cumberland River Compact's (CRC) Building Outside the Box (BOB) Project promotes sustainable building techniques and low impact development principles through partnerships and education. Developers are embracing the project to such a degree that impacts are expanding beyond the BOB sites to across the region. CRC achievements, thus far, are wide ranging.

- Now successfully launched, BOB boasts a list of participating professions that has grown from 30 to more than 110 members, including many private, public, and nonprofit organizations.
- Sustainable building workshops have been held for more than 60 homebuilders.
- The project has educated a host of professional associations about BOB Model Site Design principles focused on protecting water quality.
- The first certified low-impact house has been built and a multiple-family residence project completed.
- BOB development sites have increased from two to four and a second partnering developer with a 600-acre, 1,000-home development site has joined the project.
- A matching grant to carry out groundbreaking site runoff monitoring on BOB sites has been secured.

A BOB housing development incorporates low impact principles.

- The Southeast Watershed Assistance Network, an interactive website (www.watershed-assistance.net) to transfer success stories and lessons learned to watershed groups and developers in the southeast and across the nation, is up and running.

"We're excited and encouraged about the level of interest and commitment to water-friendly, low-impact housing from the development community."

– Margo Farnsworth
Executive Director
Cumberland River Compact

2003 Grantee

UPDATE

Dunkard Creek

PA, WV

MAJOR ENVIRONMENTAL CHALLENGES

- Acid mine drainage
- Toxic chemicals
- Habitat loss

Community outreach is an important part of the Dunkard project.

PROJECT HIGHLIGHTS

The Greene County Watershed Alliance is collaborating with Stream Restoration, Inc. to address the impacts from acid mine drainage using clean-up technologies, partnership building, and hands-on environmental education. To date, the alliance has:

- Cleaned up an illegal dumping site
- Formed a broad-based watershed organization called The Friends of Dunkard Creek that will bring together industry, environmentalists, scientists, government agencies, and local citizens to help solve the water quality problems
- Conducted numerous presentations to educate the public about the negative environmental impacts of acid mine drainage
- Created educational displays on acid mine drainage, passive wetland treatment systems, and water quality

Fishing is a popular recreational pursuit, but species are in decline because of acid mine drainage.

"The local chapter of the Rotary Club has donated to the Greene County Watershed Alliance a Memory Medallion that will be installed at the EPA project site. It will provide on microchip a historical description of the Dunkard Targeted Watersheds Grant project and will be accessible to the public with the use of a Personal Digital Assistant."

– Terri Davin
Greene County Watershed Alliance

Great Miami River OH

2003 Grantee **UPDATE**

MAJOR ENVIRONMENTAL CHALLENGES

- Excess sediments and nutrients
- Alterations to the channel shape
- Loss of streamside vegetation
- Degradation of habitat for aquatic life
- Urban stormwater runoff
- Flood control

Site of Hidden Hills wetlands enhancement project.

PROJECT HIGHLIGHTS

The Miami Conservancy District (MCD) is restoring valuable water resources by implementing a sound watershed management approach devoted to projects focused on reducing nutrients and sediments through performance-based cost sharing and innovative conservation practices, reducing urban stormwater runoff, and providing incentives for communities to implement conservation-minded development. Through a unique network of diverse partnerships, the district has:

- Completed water quality data collection plans for seven project sites
- Identified project sites and established agreements with participating landowners
- Finalized project designs and construction plans
- Developed and conducted education and outreach programs to educate local communities about water resource protection efforts

Landowners discuss wetlands conservation practices.

"The Hidden Hills project will restore and expand a wetland that will reduce pollutants to the Hebble Creek and Mad River, and function as wildlife habitat, flood detention, and an outdoor classroom."

– Pete Bales
City of Fairborn Parks and Recreation Superintendent

2003 Grantee

UPDATE

Greater Blue Earth River

MN, IA

MAJOR ENVIRONMENTAL CHALLENGES

- Excess nutrients and sediment
- Algae blooms
- Loss of wetland habitat and aquatic life
- Lost recreational opportunities

Rain gardens reduce runoff and provide aesthetic benefits.

PROJECT HIGHLIGHTS

The Three Rivers Resource Conservation and Development Council is actively demonstrating effective ways to improve water quality within the basin as well as downstream through partnership-based projects focused on conservation cost-share, wetland restoration, and public education. To date, the council has:

- Awarded 107 cost-share contracts for conservation practices
- Implemented 180 on-the-ground conservation practices
- Encouraged third crop rotation to minimize erosion through participation at County Fairs with a project called "Conservation on Wheels"
- Worked with various partners to restore 139 acres of wetlands to help improve habitat and other valuable functions
- Collaborated with the University of Minnesota, Minnesota Pollution Control Agency, and Martin County to monitor restoration sites and conduct a comparative watershed analysis of corn soybean rotation vs. same with Best Management Practices
- Conducted its first, of several, nutrient trials
- Conducted 36 educational presentations for approximately 1,200 people on erosion control and rain gardens
- Constructed four rain gardens, which will help reduce runoff and improve filtration
- Established a thriving network of citizen stream monitoring volunteers

"The Targeted Watershed Grants Program brought partners of the Greater Blue Earth Watershed closer together. This occurred through the application process and even more so with implementing the workplan. Unification and partnerships are major components of what watershed management is all about."

– Lauren Klement Greater Blue Earth River Targeted Watersheds Grant Coordinator

Hanalei Bay

HI

2003 Grantee **UPDATE**

MAJOR ENVIRONMENTAL CHALLENGES

- Landslides
- Fragile coral reef ecosystem
- Excess sediments and nutrients
- Feral pig landscape damage
- Loss of habitat and aquatic life
- High levels of fecal coliform indicating bacteria
- Agriculture and ranching activities
- Groundwater contamination by sewage

Scientific diver removes coral larval panels in Hanalei Bay each summer to estimate coral recruitment rates.

PROJECT HIGHLIGHTS

The Watershed Hui is committed to restoring the health of their watershed through a community-based approach geared towards improving wastewater treatment of individual septic systems and a centralized wastewater facility. Additional projects are aimed at extensive public involvement, research, and education. With the help of many diverse stakeholders, the Hui has:

- Solicited community input on a prioritized list of cesspools to be upgraded to septic systems
- Finalized site engineering of replacement septic systems and initiated construction on key sites
- Continued to work with government agencies, local organizations, and university scientists to assess non-point sources of pollution on a watershed basis
- Worked with commercial firms to design various centralized wastewater treatment options
- Solicited community input and achieved consensus for long-term solutions, including the use of constructed wetlands as a method of treatment

Hydrologist Matt Rosener measures streamflow in a small tributary of the Hanalei River.

"The work the Hui is doing with the money from EPA is helping us learn about the problems in the water. Fixing these will result in more fish for our families."

– Jeff Chandler fisherman and Hui member and Chair of Hui Ho'omalu I Ka'Aina, a local community stewardship group

2003 Grantee

UPDATE

Lower Columbia Estuary

OR, WA

"In our collaboration with the Lower Columbia River Estuary Partnership, Targeted Watersheds funding has been critical to accomplish significant restoration work in the Columbia River estuary. It has been thrilling to see the water flowing on the land, the fish returning to the tidal channels, and the return of native wetland vegetation (and many other species of wildlife) to sites that have been disconnected from the river and the estuary for over 100 years. We cannot wait to see what the future holds for these habitat areas."

– Ian Sinks
Stewardship Coordinator, Columbia Land Trust

MAJOR ENVIRONMENTAL CHALLENGES

- Threatened and endangered species
- Loss of wetlands and habitat
- Rapid development
- Runoff of toxic and conventional pollutants
- Excess sediments

Volunteers with the Scappoose Bay Watershed Council use trap nets to assess fish populations in Scappoose, Oregon.

PROJECT HIGHLIGHTS

The Lower Columbia River Estuary Partnership is protecting and restoring the river and its critical ecosystems through collaborative projects emphasizing on-the-ground restoration, monitoring, and education. To date, the partnership has:

- Leveraged funding for restoration and protection of more than 2,000 acres
- Leveraged $3.8 million dollars in cost-share funds to complete four restoration projects
- Completed restoration on 1,265 acres
- Completed all phases of a multi-site project, including the reconnection of 555 acres of floodplain, removal of four tidegates, and two culverts
- Conserved 173 acres of land and developed a cattle grazing management plan for 300 additional acres

Ian Sinks of the Columbia Land Trust leads a stakeholder tour of the Grays River Conservation and Restoration project in Washington.

- Removed invasive plants and planted native species on 22 acres of wildlife refuge
- Established a long-term restoration site maintenance agreement with new partners

Manistee River

MI

2003 Grantee **UPDATE**

MAJOR ENVIRONMENTAL CHALLENGES

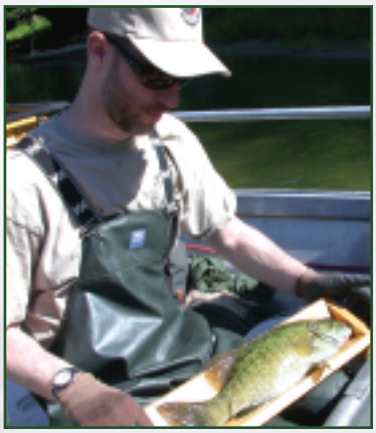
- Extensive logging
- Loss of vegetation
- Extreme erosion
- Excess sediments
- Loss of habitat for aquatic species
- Potential extinction of threatened or endangered species

Streambank restoration projects will improve water quality and habitat.

PROJECT HIGHLIGHTS

The Little River Band of Ottawa Indians is focusing on reducing pollution problems attributable to extensive logging, and on revitalizing impaired streambanks and road-stream crossings to improve water quality. To date, they have:

- Completed three stream bank restoration projects
- Completed one road crossing to reduce streambank erosion
- Improved river access and minimized erosion to two sites by building trails and steps in high traffic areas
- Concluded preliminary water quality investigations to improve sturgeon habitat and channel conditions
- Continued efforts to monitor water quality
- Promoted watershed health through numerous presentations addressing water quality issues and public involvement



Assessing the fish species helps measure water quality improvements.

"It is through this continued evolution of understanding that we strive to facilitate lasting solutions which will ensure that the next seven generations of our people proceed, complete with our inherent cultural identity intact; an identity which humbly defines us as a small yet intrinsic element to the great scheme of life that was placed here to flourish along the Manistee."

– Jimmie Mitchell
Tribal Natural Resources Commissioner

2003 Grantee
UPDATE

Meduxnekeag River

ME

MAJOR ENVIRONMENTAL CHALLENGES

- Soil erosion from agriculture and livestock activities
- Instream impairments
- Loss of fishery habitat, spawning, and nursery areas
- High levels of E. coli bacteria from improper sewage connections

Aerial view of the watershed.

PROJECT HIGHLIGHTS

The Houlton Band of Maliseet Indians are using an innovative combination of winter cover crops, mulching practices, and storm drain management to improve water quality. Progress so far includes:

- Assisting 20 growers to plant winter cover crops and apply mulch on 1,809 acres, saving an estimated 542 tons of soil
- Conducting a seminar, attended by 24 farmers, about mulching practices in potato growing
- Conducting a seminar, attended by 13 farmers, to demonstrate the use of innovative winter cover crops and mulching practices
- Initiating work on Winter Cover Study by compiling input from six growers
- Identifying and removing a sewer line connected to a storm drain with high levels of bacteria to prevent water contamination

The TWG project is helping minimize sediment buildup by working with farmers on conservation practices.

"This conservation practice (mulching) is the most 'makes sense' program we've done in years. I've even applied it on my own—on a farm next to the river but outside the project area."

– Danny Corey
Farmer

Narragansett Bay

RI, MA

2003 Grantee **UPDATE**

MAJOR ENVIRONMENTAL CHALLENGES

- Land and coastal development
- Toxic metals and bacterial pollution
- Hypoxic conditions due to nutrient overloading
- Fishery declines
- Loss of shellfish and other aquatic organisms

Fish ladder at Bradford Dam will help restore migratory fish runs. (Wood-Pawcatck Watershed Association)

PROJECT HIGHLIGHTS

The Partnership of Narragansett Bay is reducing sediment and nutrient loadings to improve water quality by focusing projects on fish run sustainability and restoration as well as on research and education. To date, achievements include:

- Funding a mariculture facility that has produced 26,000 seedlings planted over four acres at two sites, seedlings that will support eelgrass restoration without additional pressure on natural eelgrass beds
- Securing additional mariculture funding from project partners
- Donating numerous plants to support an elementary school's eelgrass program
- Completing a fish passage feasibility study to support anadromous fish and ecosystem restoration
- Conducting pre-project monitoring to evaluate numerous treatment technologies for reducing excess pathogens and nutrients
- Engaging project partners and volunteers in site monitoring activities

Eelgrass seedlings counted and ready for transplant. (Univ. of Rhode Island Coastal Institute and Graduate School of Oceanography)

"Hundreds of years of industrial development have virtually destroyed migratory fish runs on the river. The Targeted Watersheds Grant is helping watershed communities to repair this damage by providing funding to restore native shad and herring runs to the lower Pawtuxet River. The project will benefit the entire bay ecosystem, as well as Rhode Island's commercial and recreational fisheries."

– Tom Ardito
Rhode Island Department of Environmental Management

2003 Grantee

UPDATE

Raritan River

NJ

MAJOR ENVIRONMENTAL CHALLENGES

- Aquifers highly vulnerable to drought
- Rapid development and urbanization
- Reduced ground water recharge
- Loss of wetlands and riparian areas
- Increased pollutant loadings and stormwater flows
- High fecal coliform bacteria levels

Project partners celebrate a successful restoration at Mulhockaway Creek.

PROJECT HIGHLIGHTS

The Stony Brook-Millstone Watershed Association, in partnership with the New Jersey Water Supply Authority, is carrying out a comprehensive watershed management plan to address these environmental problems. Projects are focused on restoration, protection, and pollution prevention. Accomplishments so far include:

- Partnering with 23 municipalities to implement new land ordinances to protect and preserve natural resources
- Working with nine local businesses, 10 golf courses, and 20 residents through an innovative River Friendly pollution prevention program to address water conservation through public involvement
- Restoring stream corridors with vegetated buffers to improve water quality and provide wildlife habitat
- Continued biological monitoring to assess stream quality
- Conducting outreach activities to educate the public and local officials about ways to improve water quality

A restored streambank.

"Thank you so much for your guidance in helping the Township achieve an important environmental protection milestone through the enactment of the [stream corridor] ordinance protecting environmentally sensitive areas."

– Bob Wagner
Mayor
Hillsborough Township

Rathbun Lake

IA

2003 Grantee **UPDATE**

MAJOR ENVIRONMENTAL CHALLENGES

- Excess sediments and nutrients
- Erosion along stream banks and shoreline
- Algal blooms
- Excess pesticides and herbicide atrazine
- Failing septic systems

Forage and livestock workshop.

PROJECT HIGHLIGHTS

The Rathbun Lake and Water Alliance is reducing water quality impairment through collaborative projects focused on agricultural best management practices, on-the-ground restoration activities, innovative technology, and education. The alliance and its partners have to date:

- Developed and applied Geographic Information System (GIS) technology to identify priority land that is the source for more than 70 percent of the sediment and phosphorous entering Rathbun lake from the watershed
- Assisted more than 200 farmers to evaluate and plan best management practices, well over half of whom are applying conservation practices to nearly 6,500 acres of land, including terraces, grade stabilization structures, and water and sediment control basins
- Conducted farm demonstrations, field days and workshops for more than 300 farmers on alternative uses for priority land, and on forage and livestock production as an economically viable alternative to row crop agriculture

The construction of a terrace will reduce sediment and phosphorus runoff.

- Leveraged more than $4 million from project partners to provide technical and cost share assistance to farmers to apply best management practices for priority land
- Leveraged an additional $4 million from project partners to restore 1,700 acres of wetland areas that will benefit water quality

"Since we bought our farm in 1998, we've wanted to do something about the sediment runoff. We don't want our farm at the bottom of the lake . . . stewardship of the land is important. With this [Rathbun Lake Special Project] funding, we can now afford to do something about it. We are very appreciative of the efforts of this Alliance."

– Charlene Vote, Monroe County farmer, Rathbun Lake Watershed

2003 Grantee

UPDATE

Rio Puerco

NM

MAJOR ENVIRONMENTAL CHALLENGES

- Excess sediment loss and high erosion rates
- Degraded rangeland
- Multi-year drought
- Altered stream channels and stream instability
- Dirt roads that capture and channel runoff

Jute bag structures help stop erosion and the advance of headcuts.

PROJECT HIGHLIGHTS

The Rio Puerco Management Committee is actively addressing these issues through a community-based strategy emphasizing stream restoration, erosion control technology, monitoring, and education. Youth crews were assisted by the New Mexico Youth Conservation Corps and supported by Navajo Chapters. Their accomplishments include:

- Building 25 picket weirs and baffles, as well as 900 "one-rock dams" and other structures to reduce erosion
- Covering 2,600 square feet of ground with lopped branches to check sediments
- Building jute bag structures to stop the advance of headcuts, which entails sewing jute erosion control matting into a long bag filled with wood chips and native soil, then seeding the bags with deep-rooted plant species to hold the slope in place
- Holding two rangeland health workshops and a herding clinic with multiple stake holders to highlight methods to improve grazing lands
- Conducting numerous onsite educational demonstrations for school children and rural residents about the importance of using soil cover to slow erosion
- Demonstrating the effectiveness of goat grazing to control sagebrush and salt cedar

The Rangeland Health Kiosk is used with youth crews to demonstrate the importance of maintaining soil cover to slow erosion.

"Beyond assessing the land's current state, planning a strategy for recovery becomes a priority. In cases where arroyos are removing tons of topsoil, stabilizing the water cycle has to be the priority."

– Grady Grissom
Rancher

2003 Grantee

UPDATE

Upper South Platte

CO

MAJOR ENVIRONMENTAL CHALLENGES

- Vulnerability to forest fires
- Deforestation
- Excess sediments and erosion
- Severe flooding
- Habitat loss

Pete Gallagher of Fin-Up Habitat Consultants and Jeff Spohn, Biologist for the Colorado Division of Wildlife, supervise placement of trees in Eleven Mile Canyon along the South Platte River. The trees provide habitat for trout and improve water quality by stabilizing streambanks.

PROJECT HIGHLIGHTS

The Coalition for the Upper South Platte (CUSP) is still battling the environmental devastation caused by the 2002 Hayman fire. By far, their greatest achievement has been galvanizing numerous volunteers for on-the-ground restoration work. With the help of many, the coalition has:

- Restored a total of 6.5 miles of river on three sites
- Coordinated more than 10,000 hours of volunteer efforts in raking, seeding, and mulching more than 120 acres of burned lands, and in planting more than 2,500 trees and shrubs
- Treated more than 225 acres of property vulnerable to fire

A contractor harvests trees from the Hayman fire area for use in restoring rivers throughout the watershed as part of CUSP's Trees for Trout program

"Our volunteer program is absolutely phenomenal, and I am especially proud of it. Since 2002, we have had almost 60,000 volunteer hours doing on-the-ground work."

– Carol Ekarius
Executive Director
Coalition for the Upper South Platte

2003 Grantee

UPDATE

Upper Susquehanna River

NY, PA

MAJOR ENVIRONMENTAL CHALLENGES

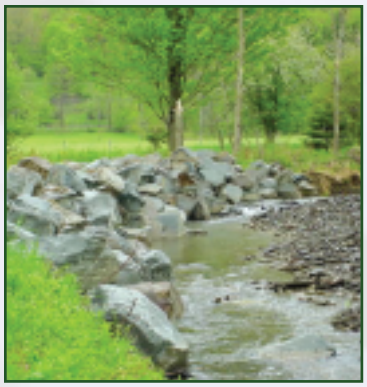
- Steep topography and land use conversion
- Flooding
- Excess sediments and nutrients

Chesapeake Bay Foundation's Farm Stewardship Program site. Funds provided by USC helped plant trees and shrubs in this riparian forest buffer and protect them with tree shelters.

PROJECT HIGHLIGHTS

The Upper Susquehanna Coalition (USC) is implementing a results-oriented approach to protect wetlands and reduce flooding through projects focused on restoration, stewardship, and education. To date, the coalition has:

- Buffered 10 miles of streams, including 82.4 acres of stream-side buffers and 38.3 acres of wetlands
- Continued to restore two wetland complexes totaling more than 30 acres
- Completed road surveys on 65 percent of the project site area to map eroding ditches, which are significant sources of sediment
- Used Geographic Information Systems (GIS) to help locate high priority restoration sites



USC paid for credits to install rip-rap for two stream stabalization projects on Choconut Creek.

"I've been managing grants for 30 years and the Targeted Watershed Initiative has been one of the best for gaining recognition and leveraging additional funds."

– Jim Curatolo
USC Watershed Coordinator

2003 Grantee

UPDATE

Upper Tennessee River

VA, TN, NC

MAJOR ENVIRONMENTAL CHALLENGES

- Excess sediments, nutrients, toxic chemicals, and bacteria
- Agriculture, mining, and logging activities
- Rapid urbanization
- Loss of aquatic species
- Loss of endangered or threatened species

Upper Tennessee River Roundtable volunteers teach children and their parents about the Save Our Streams method of water quality monitoring in Washington County, Virginia. Children search for bugs that are indicators of stream health.

PROJECT HIGHLIGHTS

Taking an innovative watershed management approach, the Upper Tennessee Roundtable is committed to reducing pollution to enrich the river's vast resource capacity. Projects focus on restoration, technology, conservation, and education. Accomplishments include:

- Removing 9,780 cubic yards of sawdust near an impacted creek and applying it to strip mined land as a soil amendment
- Co-sponsoring six conferences on low-impact development
- Conducting two conferences about environmental emergency response
- Conducting a rain barrel workshop attended by 36 teachers who made 16 rain barrels to aid in stormwater management at schools and homes
- Fencing cattle out of stream and installing water system on a farm to implement a controlled grazing system
- Promoting use of rain gardens to control storm water runoff
- Restoring wetlands and streambanks in a priority region

A stormwater model developed by the Blue Ridge RC&D helps manage runoff from a nearby parking lot. Thanks to TWG funding, this model design is being exported by the Upper Tennessee River Roundtable.

"So far, one of the best outcomes of the EPA Targeted Watersheds Grant is that the Upper Tennessee River Roundtable is expanding and strengthening partnerships. Because of the involvement of citizens, watershed coalitions and agencies, we've been able to meet or exceed some of our objectives."

– George Price
Upper Tennessee River Roundtable Chair

2003 Grantee

UPDATE

Upper White River

MO, AR

MAJOR ENVIRONMENTAL CHALLENGES

- Rapid urbanization and development
- Excess sediments and nutrients
- Agriculture activities
- Faulty septic systems

Volunteers learn how to monitor water quality on the Kings River.

PROJECT HIGHLIGHTS

As it continues to face some of the highest developmental pressures in the region, the Upper White River Basin Foundation is working diligently to reduce pollution. To tackle threats, the foundation is taking a bi-state watershed management approach emphasizing strategic planning, scientific expertise, monitoring, and education. To date, the foundation has:

- Completed several components of a watershed management plan, including a comprehensive watershed assessment
- Held watershed summits to discuss water quality issues
- Distributed follow-up reports to summarize the proceedings of the summits
- Continued to monitor water quality

Floating down the scenic Kings River.

"Our greatest resource, and the single most important factor in the continued economic success in the Ozarks, is the abundant sources of clean water. Whether it's our leading industries of agriculture and tourism, or the continued phenomenal population growth, it all depends on clean water."

– Steve Stewart
Executive Director
Upper White River Basin Foundation

2005 Grantees

Cheat River, WV
Friends of the Cheat
www.cheat.org
304-329-3621

Huff Run, OH
Rural Action
www.ruralaction.org
740-767-4938

Lake Hopatcong, NJ
Lake Hopatcong Commission
www.lakehopatcong.org
973-601-1070

Little River, TN
Blount County Soil Conservation District
www.littleriverbigfuture.org
865-983-2011

Presumpscot River/ Casco Bay, ME
Casco Bay Estuary Project
www.cascobay.usm.maine.edu
207-780-4820

Skagit River, WA
The Nature Conservancy
www.nature.org/washington
360-419-9825

Tangipahoa River, LA
Lake Pontchartrain Basin Foundation
www.saveourlake.org
504-836-2215

Trinity River/ Lower Klamath, CA
Yurok Tribe Environmental Program
707-482-1377

Tuttle Creek Lake, NE & KS
Tuttle Creek Lake Watershed Partners
402-471-4227

Upper Sevier River, UT
Utah Department of Environmental Quality
801-539-6825

Vermillion River, MN
Vermillion River Watershed
Joint Powers Organization
www.co.dakota.mn.us/planning/vermillionjpo
952-891-7011

Willamette River, OR
The Willamette Partnership
503-434-8033

Capacity Building Grantees

COOPERATIVE CONSERVATION AT WORK

In addition to supporting community-driven watershed projects through Targeted Watershed Grants (TWG), EPA also supports developing and disseminating tools, training, and technical assistance to strengthen the effectiveness of community-based partnerships. In 2003, EPA awarded approximately $2.1 million, spread over three years, in training and education grants to five leading organizations. The grant goals are to teach local watershed groups critical skills necessary to improve watershed health. The five awards, which varied in funding levels, reflect models at the national, regional, and state levels. Their success illustrates the powerful potential of collaborative watershed partnerships to achieve environmental improvements. Recognizing the high return on these modest investments, the Agency plans to increase funds for capacity building. The specific goal of these grants is to better serve both the needs of the thousands of local watershed groups working for cleaner water across the country, and the statewide, regional, and national organizations that support them.

CAPACITY BUILDING GRANTEES

- The Center for Watershed Protection is a national organization dedicated to the protection and restoration of watersheds by advancing effective land and water management techniques.
- The International City/County Management Association (ICMA) is a professional and educational association for appointed administrators in local government, serving nearly 8,000 members worldwide.
- The River Network, a national organization founded in 1989, assists grassroots river and watershed groups by providing watershed training, capacity building resources, networking, and consultation services.
- The Southeast Watershed Forum is dedicated to building the capacity of individuals, organizations, and communities to better protect land and water resources in a nine state region.
- The University of Alaska Anchorage – Resource Solutions develops and conducts skill-building workshops to facilitate watershed projects that benefit both water quality and economic development in rural Alaska.

The Center for Watershed Protection

Using EPA's capacity building grant, the Center for Watershed Protection (CWP) conducted seven Watershed Institutes for practitioners from across the country, reaching a broad mix of local officials, government agencies, and watershed groups. Designed to equip leaders with the skills, tools, and confidence to assess, design, and implement effective programs in their home watersheds, the Institute combines classroom time, design exercises, and field visits. When the formal training ends, the learning continues for the organizations in their home watersheds through consultations and extensive online resources. Milestones in CWP's Institute training include:

Institute participants learn methods to assess stream health, such as identifying insects that live in streams.

- Leveraged more than $1.5 million in local watershed implementation activity for groups across the country
- Generated 110 new programs on watershed restoration, protection, and stormwater management techniques
- Trained more than 800 watershed professionals
- Generated 14,000 person hours of training
- Matched over $400,000 of non-federal funds to conduct the Institutes

After graduating, members of the Upper Neuse River Basin Association used their new skills in planning and restoration to develop a comprehensive watershed plan for Little Lick Creek. This effort brought together experienced partners from local governments and the North Carolina Ecosystem Enhancement Program. Working with the City of Durham, the partners successfully linked watershed assessments to infrastructure maintenance programs, illicit discharge enforcement measures, stormwater program requirements, and the development of regional indices for stream quality. Restoration projects are now being prioritized.

The Bronx River Alliance (BRA) worked with CWP to build their technical capacity in identifying watershed restoration projects. Working with CWP, the alliance organized and interpreted data from field assessments to generate candidate restoration opportunities and identify next steps for implementation.

"I learned how to think about my watershed work in a totally new way. I have been so focused on water quality improvement and remediation projects that I never thought about how land conservation and the health of my forests affect my streams. I now have a much more holistic perspective."

– Watershed Institute Participant

The International City/County Management Association (ICMA)

With capacity building funding from EPA, ICMA conducted training for about 200 community leaders and local government officials through successful webcasts broadcast live over the Internet. These interactive training programs emphasized consensus-building skills as well as conservation financing for watershed and wetlands protection – critical skills necessary for successful watershed planning and management.

Each webcast attracted more than 100 participants from around the country.

ICMA's first webcast – Collaborative Problem Solving and Consensus Building: Effective Approaches for Watershed Protection and Restoration – introduced participants to the principles of collaboration, conflict resolution, and consensus building. The program featured an expert from the University of Virginia's Institute for Environmental Negotiation and local watershed leaders. The webcast successfully provided information and tools, shared lessons learned, and assisted in the delivery of effective watershed management strategies.

The second webcast – Protecting Water Resources through Land Conservation: Funding Options for Local Governments – developed in collaboration with the Trust for Public Lands showcased local government success stories. Attendees gained an understanding of current conservation finance trends, revenue sources being used by local governments, voter opinions on water protection, and the importance of good performance measures in designing funding campaigns.

ICMA is also developing a Web-based curriculum for watershed groups and plans to deliver the information at various local government forums. A CD-ROM and other resources have been developed to supplement the webcast training. To order a copy of the CD-ROM, contact LGEAN at 877/TO-LGEAN or lgean@icmb.org or visit www.lgean.org.

"Webcast participants gained an understanding of current conservation finance trends, revenue sources being used by local governments, voter opinions on water protection, and the importance of good performance measures in designing funding campaigns."

– Barbara Yuhas
ICMA

The River Network

The River Network's Watershed Support Network (WSN) represents a model collaborative approach – bringing together state, regional, and local partners to form a formidable cadre of expert watershed trainers. Last year, the network used EPA funds and other leveraged resources to provide intensive watershed training programs in six states. These programs included more than 175 watershed groups and one-on-one support services for 94 organizations in Colorado, Kentucky, New Mexico, Ohio, West Virginia, and Wisconsin.

The first group of watershed trainers from six states that kicked off he Watershed Support Network.

The watershed groups served by the Watershed Support Network are making a profound difference in water quality conditions. Examples of the improvements include:

- 40 percent reduction in acid mine drainage from the Majestic Mine into the Hocking River (Ohio)
- Improved basinwide sewage plan for the Big Darby, a watershed highly valued for its ecological diversity (Ohio)
- Improvements in the Bad River, including improved fish passages and instream flows thanks to the repair and replacement of 1,000 culverts identified by citizen volunteers (Wisconsin)
- Pollutant reductions in the Gallinas and Rio Grande tributaries, which has made the water safer for swimming and human use (New Mexico)

Participants learned concrete skills that dramatically strengthened their effectiveness. The groups increased and diversified their funding sources, raised membership, leveraged additional dollars (including corporate sponsors), built community support, learned to utilize vital financial and strategic planning tools; and learned technical skills like monitoring and assessment. Representatives from 14 states graduated as skilled watershed trainers.

EPA's support for River Network's capacity building program has allowed us to establish a new, collaborative model for watershed assistance. By increasing the strength and stability of watershed partnerships, this program will result in measurable improvements in hundreds of watersheds across the nation in the next few years."

– Don Elder
President and CEO
River Network

The Southeast Watershed Forum

Train-the-Trainer Academy

Using EPA funds, the Southeast Watershed Forum hosted a highly successful Watershed Leadership Train-the-Trainer Academy – an intensive, 3-day course covering watershed protection and assessment, best management practices, community consensus building and conflict resolution – all aimed at protecting water quality and supplies through wiser land use practices. Every attendee was required to commit to training a minimum of four other groups in their community; thereby reaching more than 5,000 additional watershed leaders and practitioners.

Growth Readiness Workshops

In addition, the forum hosted 27 Growth Readiness workshops reaching 80 communities in four states, with communities in four additional states slated to receive training in 2005 and 2006. These workshops are helping city and county planners, stormwater managers, and municipal officials design best management practices and growth patterns that will protect their local rivers, lakes, and groundwater as well as comply with EPA Total Maximum Daily Load (TMDL) and Stormwater Phase II regulations.

Thanks to the Southeast Watershed Forum, 110 local leaders are actively involved in fostering watershed-friendly land use practices throughout the Southeast. Examples of trainer outcomes include:

- A county-wide watershed permitting program (NC)
- A bay-wide nutrient management partnership (FL)
- Source water protection provisions in county comprehensive plans (VA)
- New riparian conservation easements (GA)
- New state requirements to review water quality monitoring programs from major new developments to ensure compatibility with the Total Maximum Daily Load process. (FL)

The staff and graduates from the Southeast Watershed Forum's 2004 Watershed Leadership Train-the-Trainer Academy include representatives from cities, counties, watershed groups, land trusts, regional planning agencies, RC&D Councils, Soil and Water Conservation Districts and state and federal agencies.

"Initial estimates show that nearly 140 cities, counties and townships evaluated development rules and identified changes to reduce the impact of growth on local water resources."

– Christine Olsenius Southeast Watershed Forum

The University of Alaska, Anchorage

Using EPA Capacity Building Grant funds, the University of Alaska Anchorage, Resource Solutions set out to build a diverse network of skilled leaders from government agencies, Alaskan native communities, environmental groups, and development interests to promote a more sustainable economy and environment.

A diverse group of stakeholders gathered at the Sustainable Partnership Workshop.

Among its accomplishments, the university developed and conducted a successful workshop, Building Sustainable Partnerships, which strengthened collaborative problem solving capabilities and fostered community-based watershed efforts. Workshop participants represented three geographic sections of Alaska, including areas with large new gold mining developments and a remote area renowned for its world-class salmon fishery. This fishing area, located in a small rural village in southwest Alaska (population 600), is known to attract up to 30,000 visitors monthly. The area has no public restrooms or sanitation systems. Because of its remote location, state camping regulations are rarely enforced. Consequently, public health issues, including hepatitis, are a growing concern for the local community.

Outcomes of the Sustainable Partnership Workshop:

- A remote southwest Alaska village agreed to pursue a grant for the upcoming fishing season in order to institute a "honeybucket" system, whereby visitors would be given a bucket upon their arrival and provided instructions for how to safely dispose of waste.
- A dialogue with local community members was initiated to share information in areas where extensive gold mining exploration activities are occurring.
- A Watershed Steering Committee was formed to guide community-based restoration efforts. The committee held their first regional meeting in Bethel, Alaska in September 2005.

Jane Oakley facilitates a break-out session at the workshop.

"It was great – the Corps of Engineers said they wanted to sign an MOU for a project that helps us share mapping data across the Kenai Peninsula."

– Robert Ruffner
Executive Director
Kenai Watershed Forum

"We forget that the water cycle and the life cycle are one." – Jacques Cousteau

For more information about the selected watersheds, please visit: ***www.epa.gov/twg***

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