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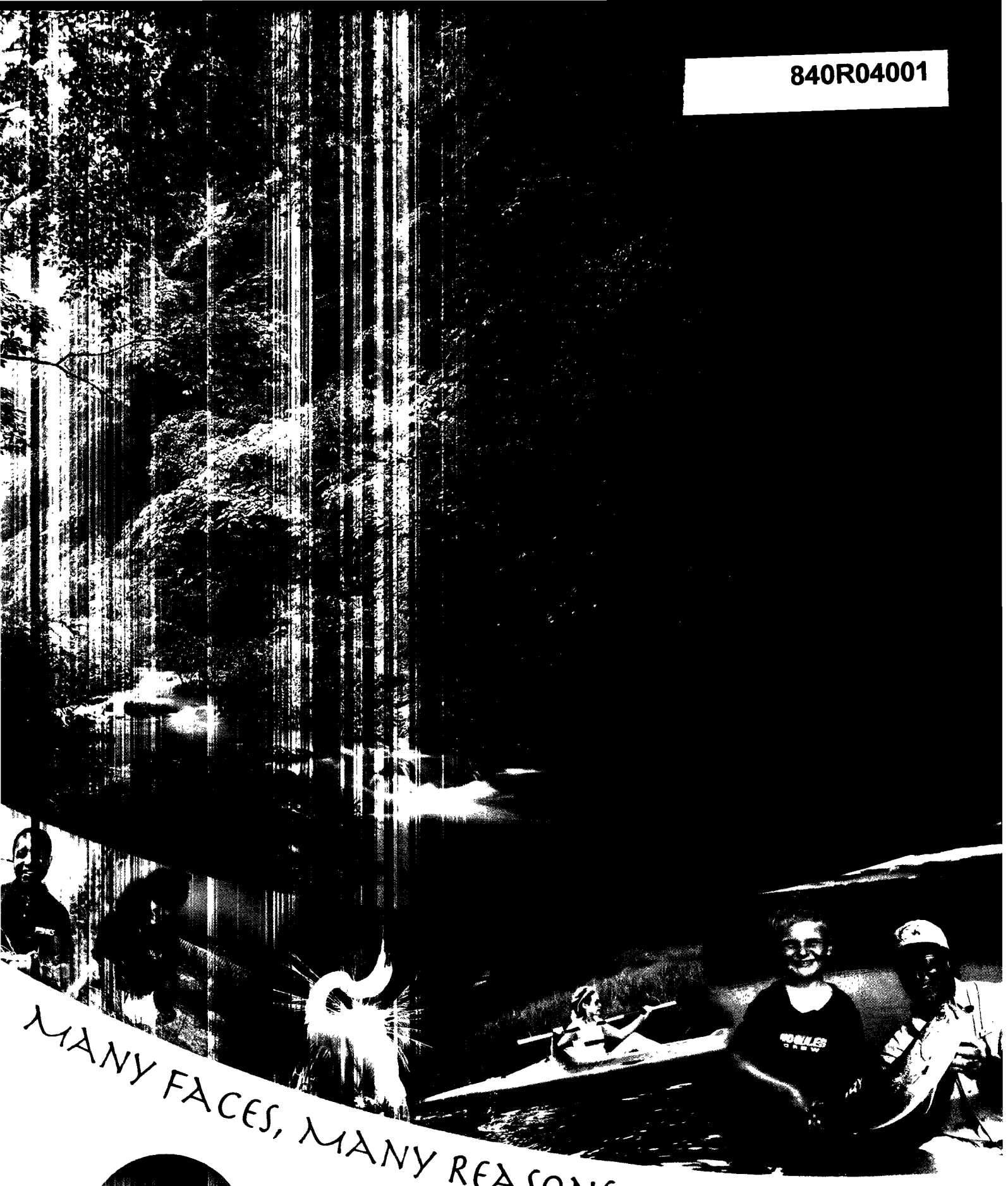

MANY FACES, MANY REASONS, ONE WATERSHED

Targeted Watersheds

EPA's 2003 Targeted Watershed Grants

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C 20460

OFFICE OF
WATER

Message from the Office Director

The Targeted Watersheds Grant Program

I am very pleased to present this inaugural report for the Targeted Watersheds Grant Program. In May of 2003, the Environmental Protection Agency announced the first round of recipients for this exciting new grant program designed to encourage community-driven efforts to meet clean water goals. The twenty watershed projects selected and described in this report are shining examples of how collaborative partnerships are driving important water quality improvements throughout our country.

While national standards and regulations are essential to make our waters clean and safe, we must also rely on the active participation of many partners at the federal, state and local level to meet our goals. We also need the support of the local citizenry – the farmers, homeowners, and businesses who call the watershed their home. Solutions must be tailored to meet their needs and the needs of the community as a whole. Each of these twenty projects represents a formidable partnership for change – bringing together a broad spectrum of interests to achieve a common vision for watershed protection and restoration. This Targeted Watersheds Grant program recognizes the importance of community-based solutions in the context of national clean water goals.

When these projects are complete, we expect to see real environmental results – such as the return of native fish species, clearer lakes, and increased recreational opportunities. We also hope to discover some new approaches. For example, several projects are studying innovative, market-based solutions to attaining water quality and are testing new possibilities such as environmental banking, pollutant trading, and experimental measures to control runoff.

I am truly impressed by the dedication and caliber of these watershed organizations across the country. As part of this report, we want to recognize each of them and the many individuals and partnerships who have exhibited outstanding leadership and creativity in achieving cleaner water. Their work shows the commitment to innovative and collaborative approaches that advance the goals of clean and safe water and healthy communities and ecosystems.

Diane Regas, Director
Office of Wetlands, Oceans and Watersheds
United States Environmental Protection Agency

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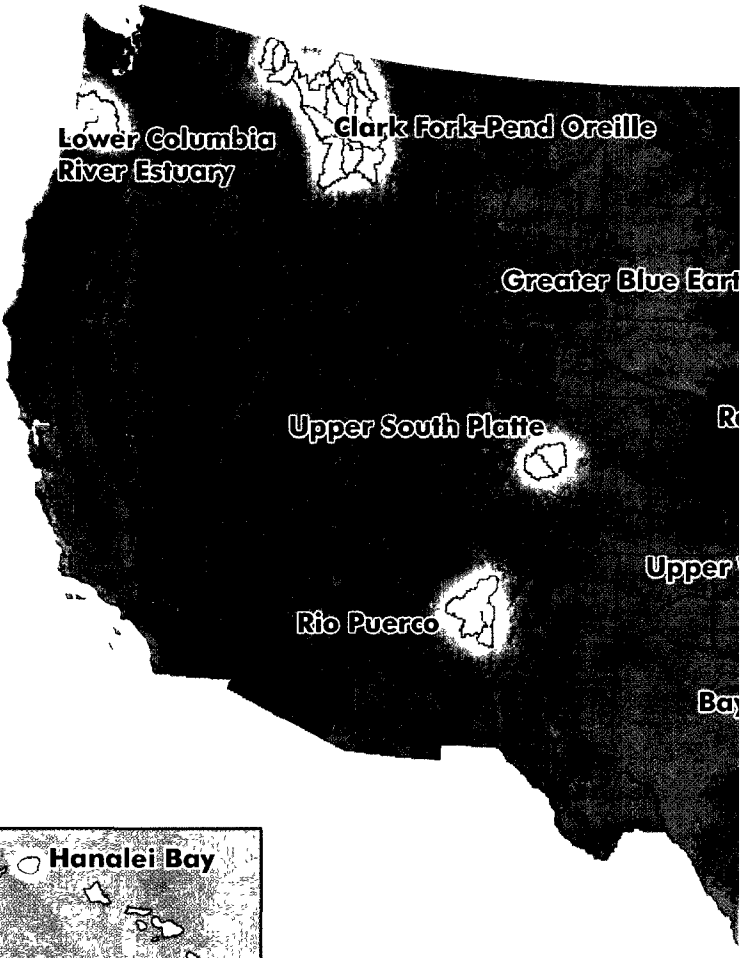
Targeted Watershed Gran

The twenty significant EPA grant awards stretc
small watersheds. While some are urban, mos
desert, several are in forests, and two reach in
eral are coastal. Some are managed by Indian
watershed partnerships reflect the unique cust

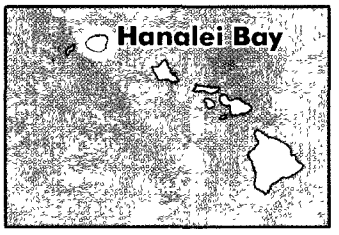
"This Targeted Watershed Grants Program provides shining examples of the real results we can achieve when government, communities, private landowners, and businesses collaborate to achieve our shared goals of a healthy environment and a strong economy."

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

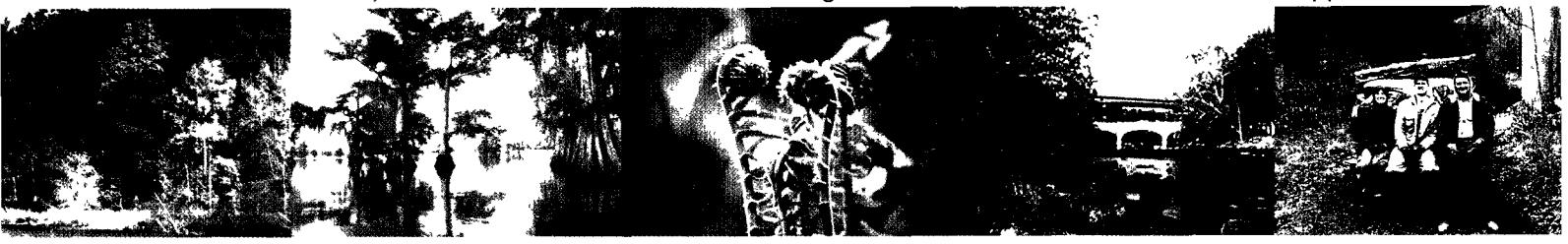


The Bottom Line

- 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

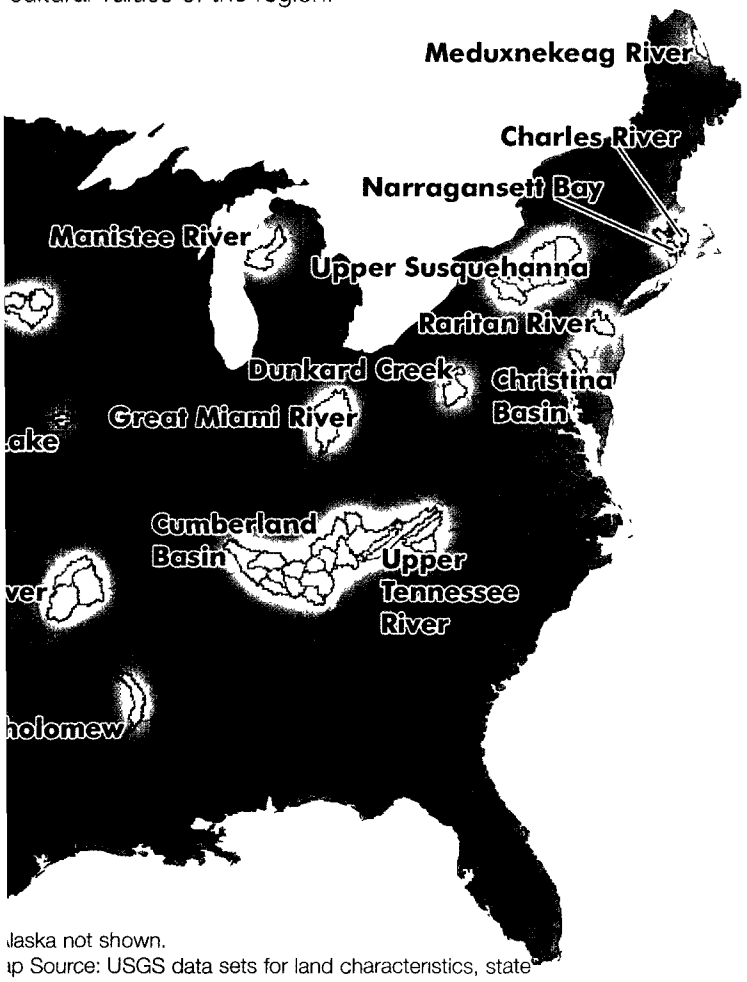


Manistee River | Bayou Bartholomew | Meduxnekeag River | Christina Basin | Upper Tennessee River



ards • 2003

ɔss the country include both large and relatively
rural and agricultural lands. Some are in the
pine rocky mountains. One is in a bayou; sev-
ılthough they differ in size and scope, all of the
cultural values of the region.

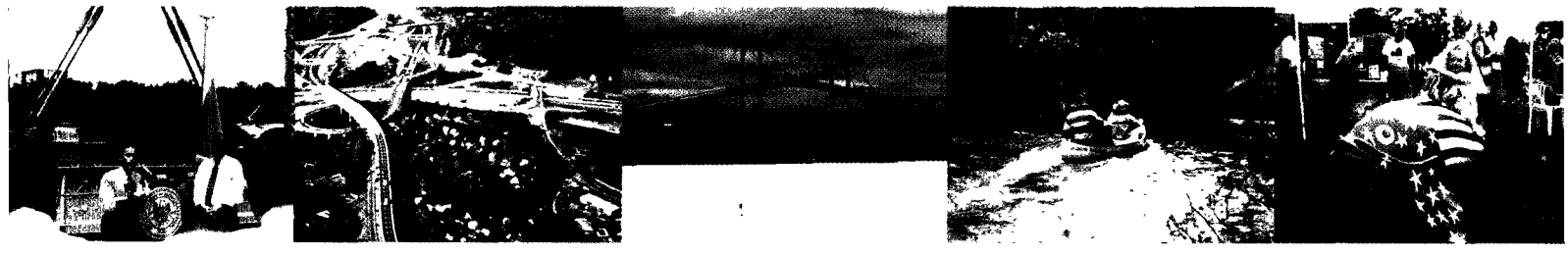


ıaska not shown.
ıp Source: USGS data sets for land characteristics, state
undaries, Hydrologic Unit Boundaries, and Digital Elevation
ɔdel (www.national.atlas.gov) Major Rivers (ESRI)

Innovative Ideas:

Demonstrations of local ingenuity:

- Rock "Burritos": rocks wrapped in fabric placed to slow desert runoff. (Rio Puerco)
- Rain Gardens: specially constructed gardens to reduce runoff and promote infiltration (Greater Blue Earth)
- Farming demonstrations & workshops to reduce sediment in the drinking water supply (Rathbun)
- *River Friendly* awards: business certification for voluntary water quality improvements (Raritan)
- Geographic Information System analysis to prioritize restoration lands (Rathbun)
- New ordinances in 36 municipalities (Raritan)
- Targeted educational programs aimed at homebuilders and other key watershed users (Cumberland)
- Flow trading: economic-environmental feasibility study of stormwater recharge incentives (Charles River)
- Environmental banking credits (Bayou Bartholomew)
- Partnership with prison workers for restoration and equipment operation training (Upper South Platte)
- Cost sharing for potato farmers to plant spring grain on fields to control erosion (Mednuxnekeag)
- *SmartStorm™* rainwater collection systems that reduce roof runoff and increase infiltration (Charles River)
- *Smartyard* landscaping: reduced loadings of fertilizers and pesticides through native landscaping projects. (Christina)



Upper Susquehanna | Charles River | Narragansett Bay | Raritan River | Cumberland Basin

Bayou Bartholomew

WHY IS THIS WATERSHED SPECIAL?

Bayou Bartholomew is one of the last remaining major streams in the Lower Mississippi River Valley that has not been dredged or channeled. The bayou covers 359 miles and follows a meandering 269 miles through six counties in Arkansas before joining the Ouachita River in Morehouse Parish, Louisiana. The river supports one of the most diverse arrays of aquatic life known to occur in the southeastern United States. This stream is home to 117 species of freshwater fish and 31 species of freshwater mussels. Although fragmented, the scenic landscape of bottomland forest supports abundant terrestrial species and plant communities.

ENVIRONMENTAL CHALLENGES

The Bayou Bartholomew Watershed Plan identified fifteen problems affecting the watershed and includes both short and long-term actions to address each problem. The Targeted Watersheds Grant focuses on the following key areas:

- Sedimentation is the leading cause of decreased water quality throughout the bayou. Increasingly brown and murky water makes the water less inhabitable for the many aquatic and terrestrial species in the area.
- Log jams affecting stream flow can alter the topography and result in the loss of wetland areas and specialized habitats.
- Agriculture, deforestation, and land clearing activities are major contributors to these impairments and in the decline in the watershed's overall health.

RESTORATION ACTIVITIES

The Bayou Bartholomew Alliance will use EPA Targeted Watersheds Grant funds to study and test several innovative approaches to monitor and restore the water quality.

- Introduce a market-based environmental assets program that benefits industry, private landowners, and land restoration efforts.
- Convert marginal cropland back to hardwood forests by offering carbon sequestration credits.
- Establish a continuous water quality monitoring program.
- Collect stream morphology data for a representative stretch of the river.
- Redesign or rehabilitate rock or earthen weirs to increase stream flow, reduce erosion, and improve fish passages.
- Develop a mussel protection program.

"We are seeing species in the ba today which have been recorded decades, such as river redhorse, whic intolerant of heavy loads. All s monitored for community analy have shown increa in diversity biomass since initiation of the proj Undoubtedly, restora efforts are makin differen

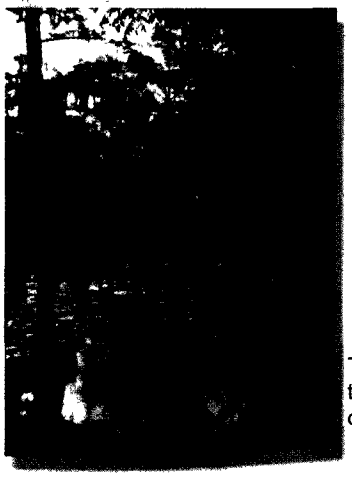
– Dr. Bill Lay Bayou Bartholom Allia

Removing log jams will improve flow, reduce erosion, and enhance recreational opportunities

A STRONG PARTNERSHIP FOR CHANGE

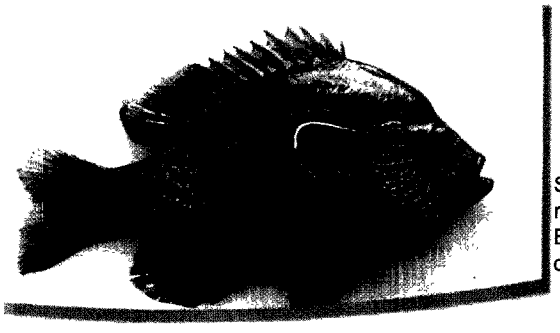
The Bayou Bartholomew Alliance, formed in 1995, has joined forces with Winrock International, The Nature Conservancy, the County Conservation Districts, the Natural Resources Conservation Service and the Arkansas Department of Environmental Quality to create a formidable partnership for change.

Bayou Bartholomew



The watershed plan will offer market-based incentives to restore bottomland hardwood forest in exchange for carbon sequestration credits.

Volunteers have removed 146 tons of trash from the bayou



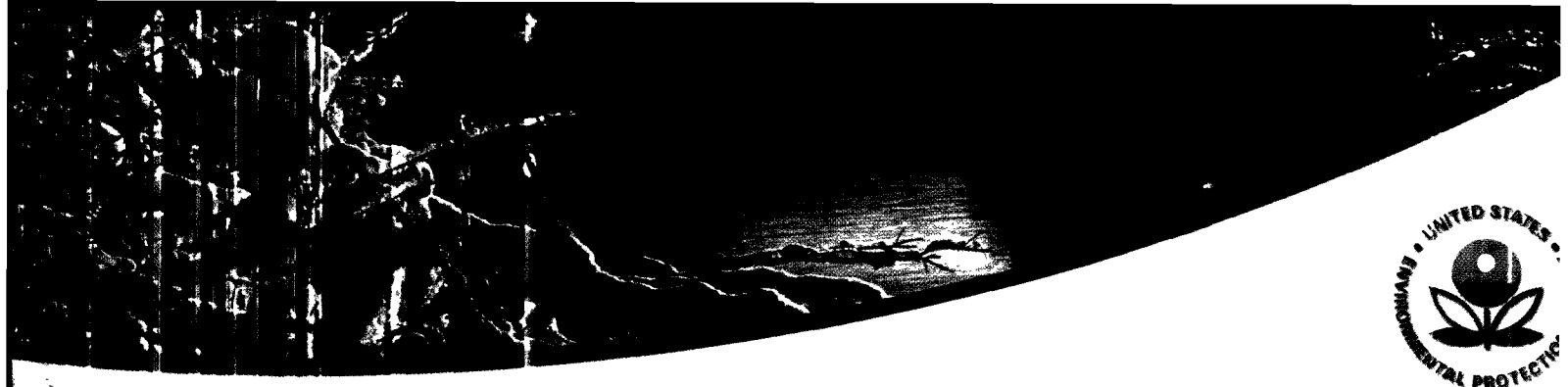
Sight-feeding fish, such as this longear sunfish, have recovered at all sites monitored in the Bayou Bartholomew. Some species of fish not recorded for decades are reappearing

EPA'S TARGETED WATERSHEDS GRANT PROGRAM

EPA's Targeted Watersheds Grant Program is a new, competitive grant program designed to encourage collaborative, community-driven approaches to meet clean water goals.

For more information about the selected watersheds, please visit: http://www.epa.gov/owow/watershed/initiative/

Targeted Watersheds



Charles River

WHY IS THIS WATERSHED SPECIAL?

The Charles River twists and turns through 23 communities, draining 308 miles before it finally empties into Boston Harbor. One of the busiest recreational rivers in the world, the lower Charles is lined with boat houses, and on nice days powerboats, sailboats, rowing shells and windsurfers crowd the river. The Riverfront attracts 20,000 users daily and up to a half-million for special events, including the spectacular July 4th fireworks display at Boston's famous Esplanade.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant focuses on a number of environmental problems:

- Public health concerns stem from excessive levels of bacteria from sewer overflows and improper discharges from sanitary sewers. Boating, fishing, and other recreational activities are highly dependent on the daily water quality in the river.
- The availability of water is a major concern in the upper basin, with many communities facing watering bans from March through October.
- Native species and fisheries are adversely impacted by a series of 20 dams and elevated temperatures along the river.
- Rapid development and urbanization also alters the river's natural flow. Stormwater runoff from these growing urban areas accelerates the transport of nutrients and other pollutants that are ultimately discharged into Boston Harbor.

RESTORATION ACTIVITIES

Using EPA Targeted Watersheds Grant funds, the Charles River Watershed Association (CRWA) will show innovative approaches to reduce polluted discharges, increase recharge of rainwater, and restore fisheries. Specifically, they will:

- Study a new instream flow trading concept at less cost to build environmental gains. This new approach offers economic incentives to reduce impervious surfaces and promote groundwater recharge and water flow.
- Use a DNA database to identify and target sources of bacterial contamination in collective river samples.
- Install new *SmartStorm®* rainwater retention systems for businesses and homeowners.
- Strengthen stormwater runoff prevention and control strategies by working with local officials and communities.
- Institute measures to identify, restore, and attract native fish populations.
- Promote the CRWA's flagging system to alert boaters and swimmers when it is unsafe to use the river when health standards have been exceeded.

"I took
kayaking after I retir
and got sick and ti
of smelling sewa
every single day th
was out on the ri
Now I know who ow
all those pipes,
when I smell
sewage, I know wh
to c

– Roger Fry
citizen acti
and kaya

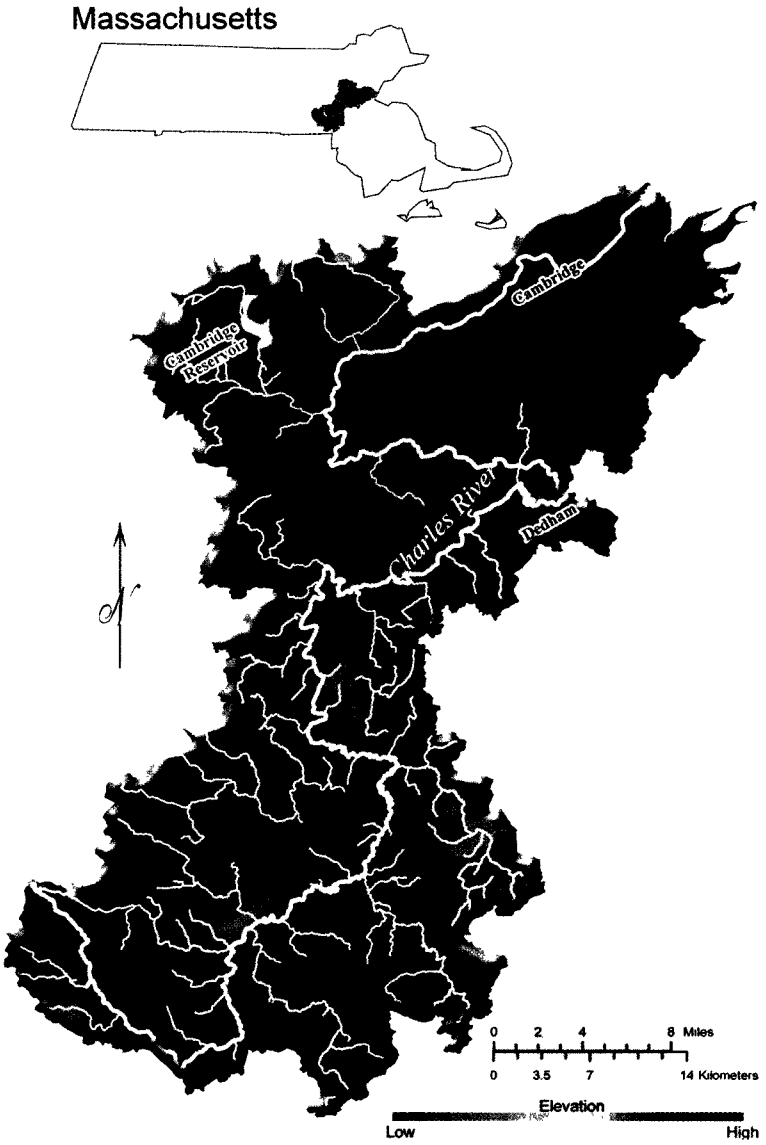
Flag flying over the Charles to indicate safe boating water quality.

Charles River

A STRONG PARTNERSHIP FOR CHANGE

Formed in 1965, the Charles River Watershed Association (CRWA) is one of the country's first watershed organizations. Its partners include:

- State and municipal water commissions and planning councils
- Local businesses such as Polaroid, Pfizer and Stop & Shop
- Universities and hospitals, such as Harvard, Boston University, Brandeis, and Massachusetts General Hospital
- Citizen's organizations, such as The Boston Harbor Association, Conservation Law, and Friends of the Muddy River



Cleanup efforts will enhance recreational opportunities.

The CRWA is testing a revolutionary flow trading concept. This approach offers economic incentives to reduce impervious surfaces and promote groundwater recharge and water flow.

Targeted Watersheds

Christina River

WHY IS THIS WATERSHED SPECIAL?

Half a million people in three states depend on drinking water from the Christina River Basin. The diverse landscape is drained by four rivers that ultimately drain into the Delaware River at Wilmington. The Basin, which includes rapidly developing rural and suburban areas, also serves as home for many major manufacturing, chemical, cable, steel, paperboard and pharmaceutical industries. Several neotropical bird species and a broad array of wildlife including the bog turtle, cerulean warbler, longtailed salamander, and bald eagle inhabit the watershed.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant focuses on:

- Addressing pollution problems such as excessive nutrients, toxic chemicals, bacteria, fish and habitat loss. Nearly 50 percent (470 miles) of the stream miles of the basin are listed as impaired due to combined impacts from sewage treatment plants, industry, and agricultural and urban/suburban runoff.

RESTORATION ACTIVITIES

Using EPA Targeted Watersheds Grant funds, the Christina Basin Clean Water Partnership will study and test several agricultural and stormwater best management practices in targeted areas. They will:

- Demonstrate more than fifty best agricultural practices to manage farm runoff such as nutrient management plans and systems to exclude livestock from streams.
- Restore more than 10,000 linear feet of stream banks.
- Involve more than 500 local property owners in SMARTYARDS™ environmentally friendly lawn management and rain barrel programs.
- Update comprehensive plans and zoning ordinances in dozens of municipalities.
- Preserve open spaces.
- Demonstrate new urban/suburban storm water retrofits to protect water quality.

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made in the Christ
Basin is the resul
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– Carol Co
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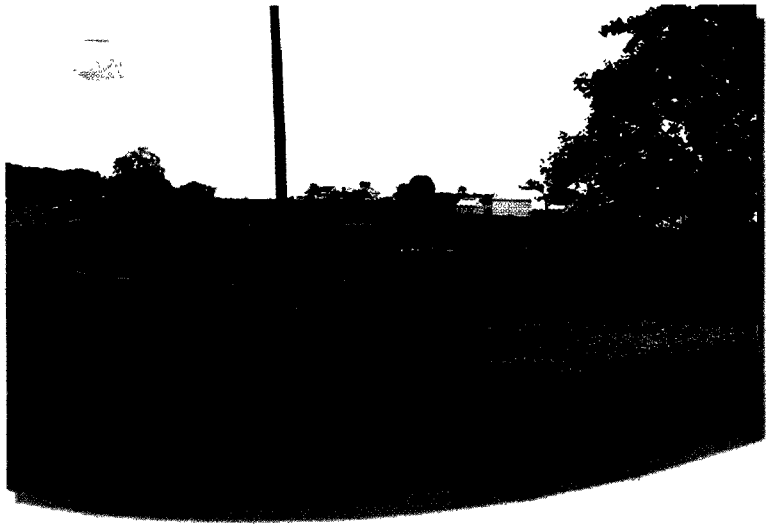


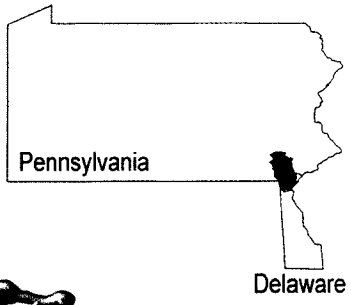
Manure storage facilities prevent runoff and the contamination of surface and groundwater.

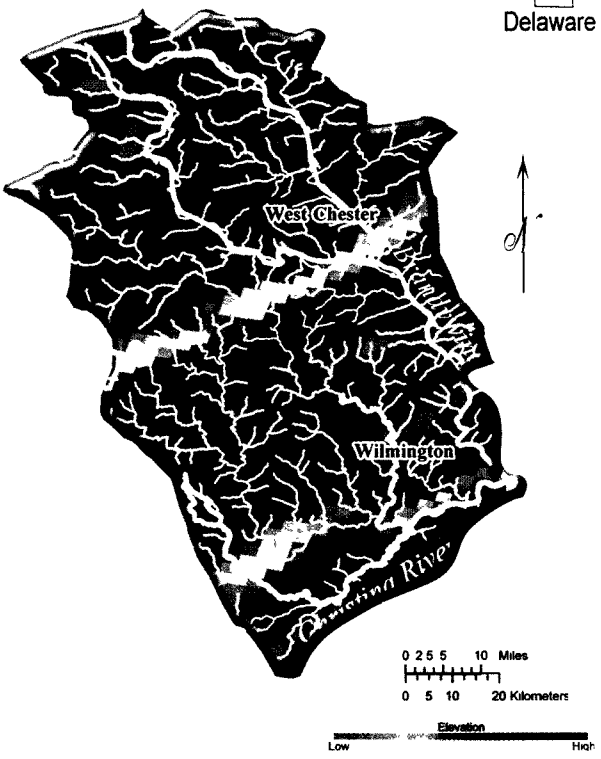
Christina River

A STRONG PARTNERSHIP FOR CHANGE

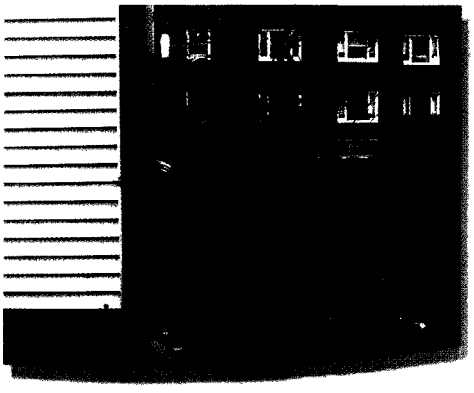
Building on gains by regulatory programs over the last several decades, the Christina Basin Clean Water Partnership is improving water quality through collaborative actions. Partners include:

- Local partners such as local planning commissions, health departments, conservation districts and watershed organizations
- State partners, including the Pennsylvania Department of Environmental Protection and Delaware Department of Natural Resources and Environmental Control
- The University of Delaware
- Several federal agencies
- Other stakeholders such as residents, small businesses, and non-governmental organizations



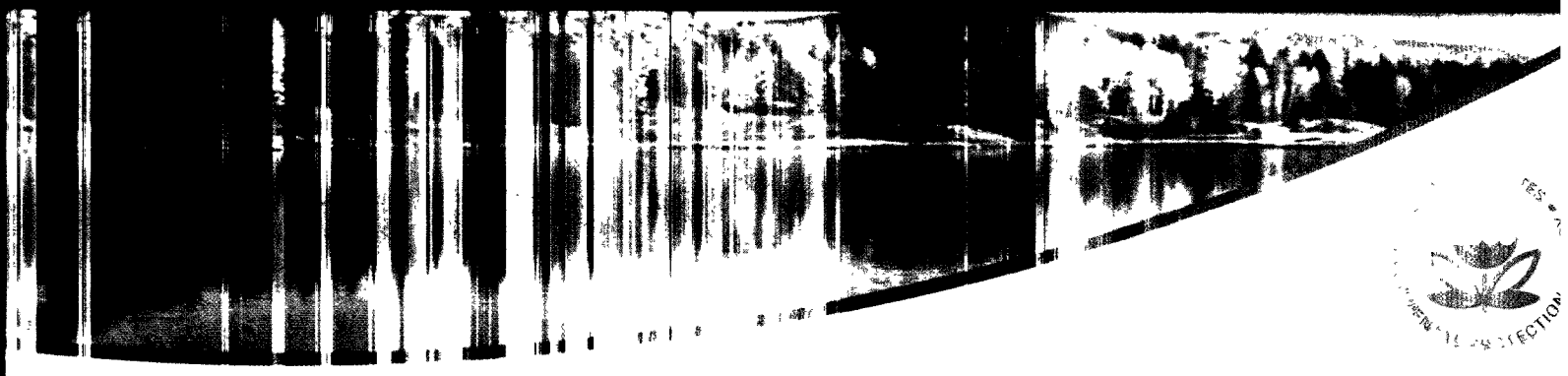


Stakeholders get a farm tour of agricultural best management practices installed on a headwater stream outside Honey Brook.



A popular residential rain barrel program is helping homeowners conserve water and reduce runoff.

Targeted Watersheds



Clark Fork-Pend Oreille

WHY IS THIS WATERSHED SPECIAL?

The Clark Fork-Pend Oreille Watershed of the Upper Columbia Basin drains an expansive 26,000 square miles in the majestic Northern Rockies, spanning western Montana, northern Idaho, and eastern Washington. Rainfall and snowmelt from the Rockies feed this powerful river system, which travels 320 miles from its headwaters in Butte, Montana into Idaho's largest freshwater lake, Lake Pend Oreille, and then into Washington's Pend Oreille River, which joins the Columbia River in Canada. Home to many blue ribbon trout fisheries, the watershed supports a diverse array of aquatic life and contains the last remaining stronghold for the threatened Bull Trout. In addition to its biological diversity, the watershed provides an important economic base for the people of the region.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on restoring the high quality waters that have become imperiled by over a century of mining, logging and, in recent years, urbanization.

- Heavy metals and toxic wastes from the nation's largest concentration of Superfund sites in the basin's headwaters threaten fisheries, human health, and water quality.
- Excessive nutrients cause harmful algae blooms that choke tributaries in the upper and middle reaches of the Clark Fork River, and cause heavy growths of slime (diatom algae) in Idaho's Pend Oreille Lake.
- Rapid population growth and urbanization degrade riparian corridors and water quality.

RESTORATION ACTIVITIES

The Tri-State Water Quality Council will use EPA Targeted Watersheds Grant funds to carry out an an ambitious plan. They will:

- Broaden participation in the Council's Voluntary Nutrient Reduction Program among the basin's dischargers.
- Develop grazing management plans to minimize erosion and protect streams.
- Implement stream restoration projects to stabilize stream banks, restore riparian habitat, and improve stream channel morphology.
- Establish a dairy cow manure management program to reduce phosphorus loadings.
- Complete a shoreline restoration project on Flathead Lake within the Flathead Reservation of the Confederated Salish & Kootenai Tribes.
- Conduct a study that will compare historical data with existing levels of algae and nutrients in Pend Oreille Lake.
- Expand the Council's three-state monitoring program to analyze trends in nutrient, algal, and metal pollutants at additional sites located near major tributaries and urbanizing areas.

"Much of the Tri-Sta
Water Quality Counc
work over the pa
decade has focused
point source
This watershed gra
enabled us to expa
our existing partnersh
even further – to tac
nonpoint sources
pollution in the basi
main tributarie

– Diane Willia
Executive Direc
Tri-State Wa
Quality Cou

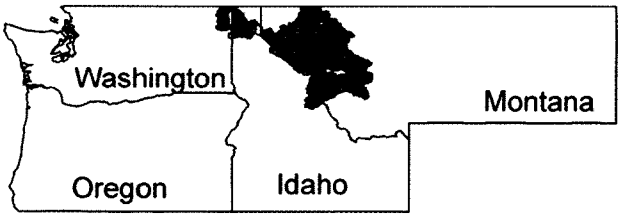
Members of the Tri-State Water Quality Council. Diane Williams, Executive Director, seated second from left.

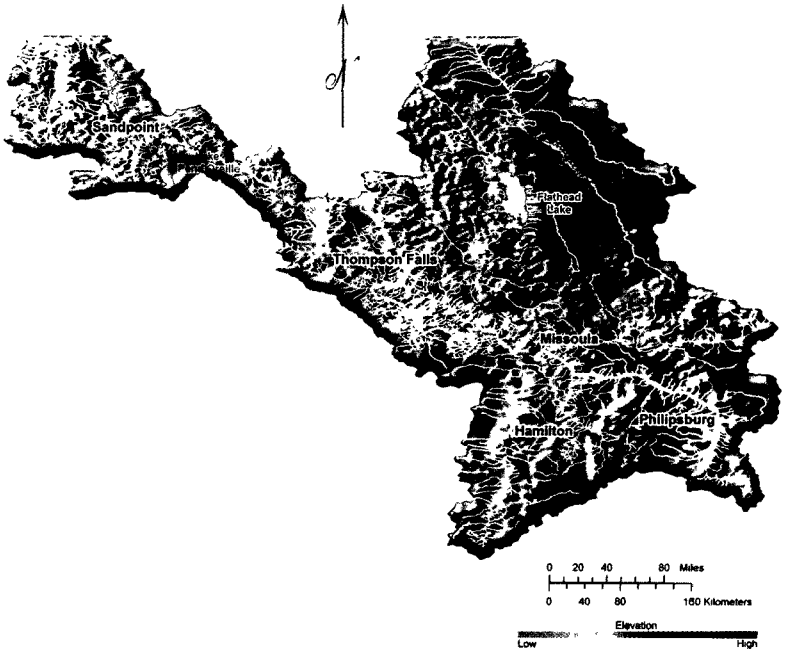
A STRONG PARTNERSHIP FOR CHANGE

Together, the 5 organizations listed below represent 9 federal agencies, 8 state agencies, 28 local governments and agencies, 3 tribes, 17 non-profit organizations, and thousands of citizens and landowners.

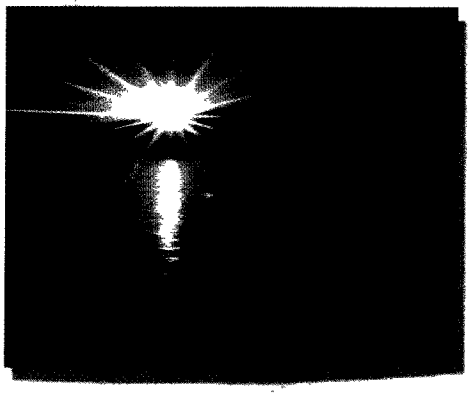
- Tri-State Water Quality Council
- Watershed Restoration Coalition of the Upper Clark Fork
- Blackfoot Challenge
- Bitterroot Watershed Partnership
- Flathead Basin Commission

Clark Fork-Pend Oreille





Taking water samples on the Clark Fork River



Sunburst over Lake Pend Oreille.

Targeted Watersheds

Cumberland River

WHY IS THIS WATERSHED SPECIAL?

The Cumberland River arises on the western flanks of the Appalachian Mountains, meanders 697 miles westward through Kentucky and Tennessee to the Ohio River, and drains a basin with a total area of 17,870 square miles. The basin has been recognized as a global hotspot for aquatic biodiversity, with over 200 species of native fish alone. The basin is home to over 100 species of threatened or endangered fish species. Natural, environmental, and socioeconomic conditions vary greatly along the river's course. Consequently, improving and maintaining water quality and quantity will require community driven and site-specific approaches.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on threats to water quality, drinking water, and biodiversity.

- Excessive sediment degrades water quality and threatens the high diversity of fish and aquatic life by destroying habitat and nursery and spawning grounds.
- Fertilizers and pesticides from agricultural runoff and widespread urban development threaten human health.
- Water shortages are a growing concern in some areas. Rapid stormwater runoff may be preventing the natural water recharge of soils and underground aquifers as well as escalating flooding.

RESTORATION ACTIVITIES

The Cumberland River Compact partners are using EPA Targeted Watersheds Grant funds to carry out demonstration and restoration projects in each of three subwatersheds of the basin: one urban, one suburban and one rural, stretching across middle Tennessee and southern Kentucky. In each of these locations, the partners will:

- Measure and reduce sediments and streambank loss through demonstration of best management practices.
- Demonstrate innovative building techniques and low impact development principles through a new "Building Outside the Box" initiative. More than twenty cutting edge residences will be built using sustainable building practices.
- Create a user-friendly watershed information source to provide industries, organizations, citizens and agencies with easy access to data, tools, and expert resources.
- Develop an interactive website called the Southeast Watershed Assistance Network to transfer success stories and lessons learned.

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working as partn
with develope
The Cumberla
Basin's populatio
growing, and it falls
all of us to collabora
plan for growth a
use the most wa
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– Margo Farnswo
Executive Directo
the Cumberland Ri
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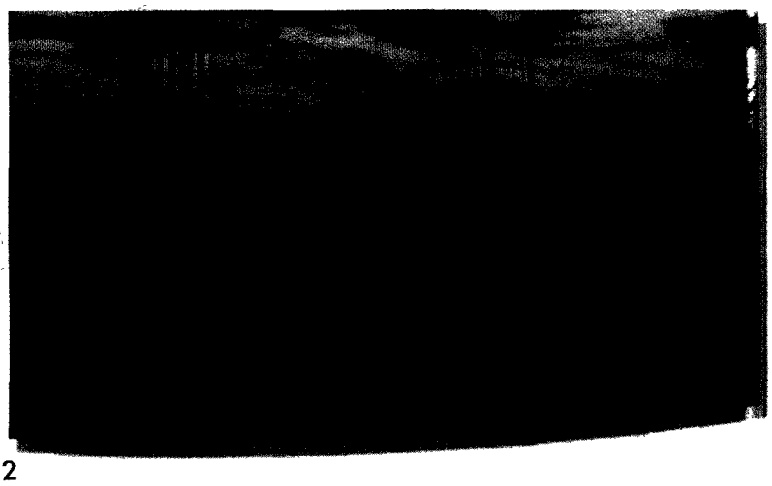
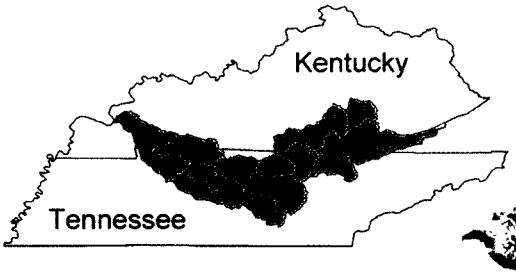
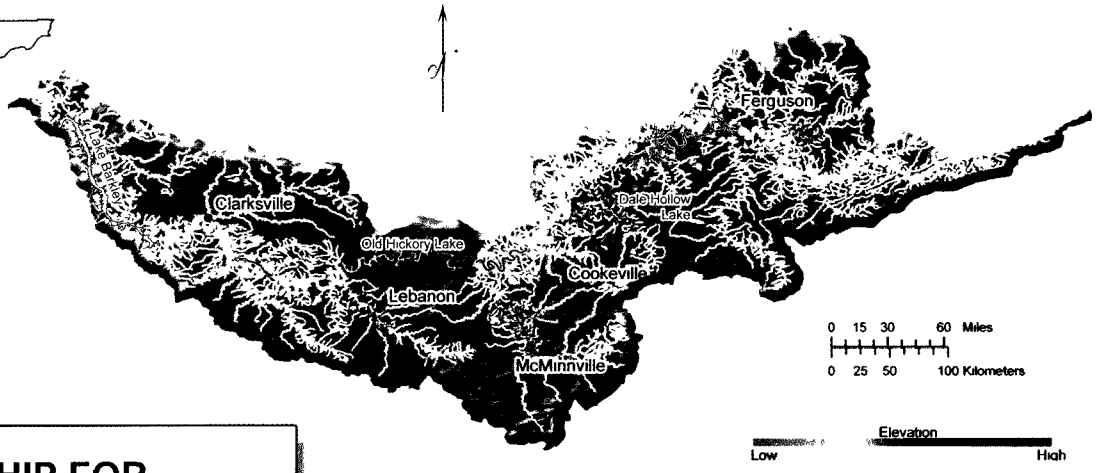


Cumberland River sunset. (Photo credit: Penny Brooks)

Cumberland River





A STRONG PARTNERSHIP FOR CHANGE

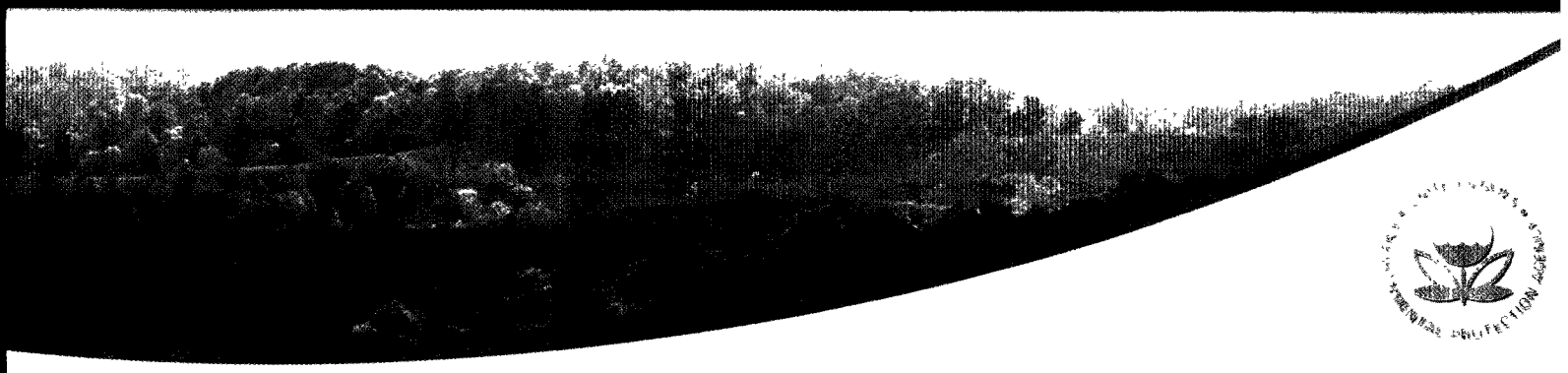
The Cumberland River Compact, which is comprised of the Building Outside the Box Committee and the Center for Living Watersheds Coalition, is improving water quality and teaching ways to protect and restore the southeast region. Other partners include:

- Local and regional watershed associations: Harpeth River Watershed Association, Red River Watershed Association, Mid-Cumberland Watershed Coalition, and Southeast Watershed Forum
- Numerous businesses and industries, including Home Builders Association of Middle Tennessee and Affordable Housing Resources, Inc.
- Non-governmental organizations, including National Association of Conservation Districts, Southface Energy Institute, and Nashville Cultural Arts Program
- Tennessee Valley Authority
- Regional chapters of the American Institute for Architects, American Society of Landscape Architects, and US Green Building Council
- Local utilities
- Three universities
- Several state and federal agencies
- Local officials and citizens

Mill Creek watershed, Nashville, TN – urban watershed project site for "Building Outside the Box" initiative.

Red River mainstem, Logan County, Kentucky – rural watershed project site for the "Building Outside the Box" initiative.

Targeted Watersheds



Dunkard Creek

WHY IS THIS WATERSHED SPECIAL?

Dunkard Creek, a major tributary of the Monongahela River, drains a rural 235 square mile watershed within nine townships in Greene County, Pennsylvania, and three districts in Monongahela County, West Virginia. The river is classified as a warm water fishery and historically supports a variety of fish, including small mouth bass, sunfish, and muskellunge in all but the lower 6.2 miles, which have been devastated by abandoned mine drainage.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will help address impacts from acid mine drainage, a serious problem that is shared by other communities with a legacy of resource extraction.

- High levels of metals, acids, and suspended solids can turn water orange and make downstream waters uninhabitable for aquatic life.
- A number of fish kills have been recorded due to toxicity in the water.
- Poor water quality directly impacts the area's economy by limiting recreational uses – tens of thousands of dollars in potential revenue are lost every year.

RESTORATION ACTIVITIES

EPA Targeted Watersheds Grant funds will enable the Greene County Watershed Alliance, in collaboration with Stream Restoration, Inc., to recapture an abandoned mine drainage area. They will:

- Demonstrate a passive wetland system, a cutting-edge technology, to remove metals and other pollutants. This system will have the capacity to remove fifty tons per year of suspended solids in the form of heavy metals, utilizing stream bank and channel restoration.
- A new hands-on environmental education program will showcase three acres of naturally functioning wetlands with about thirty native plant species as well as explain wildlife habitat and stream water quality improvements.

"The community
excited about cleani
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– Terri Da
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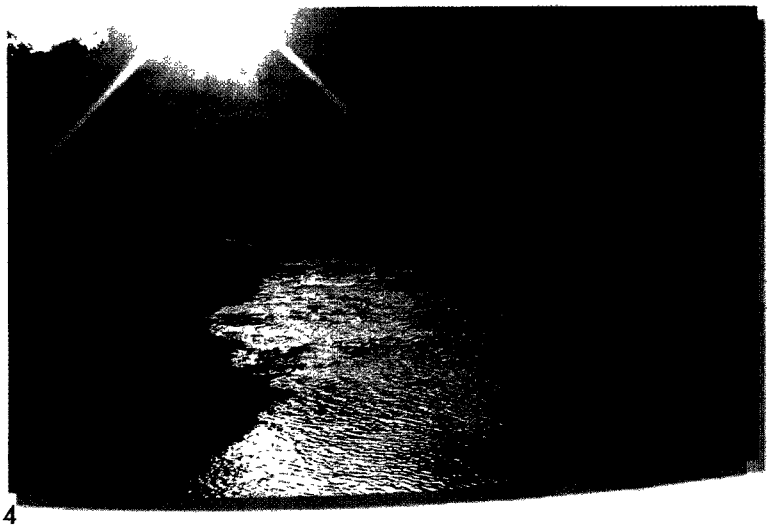


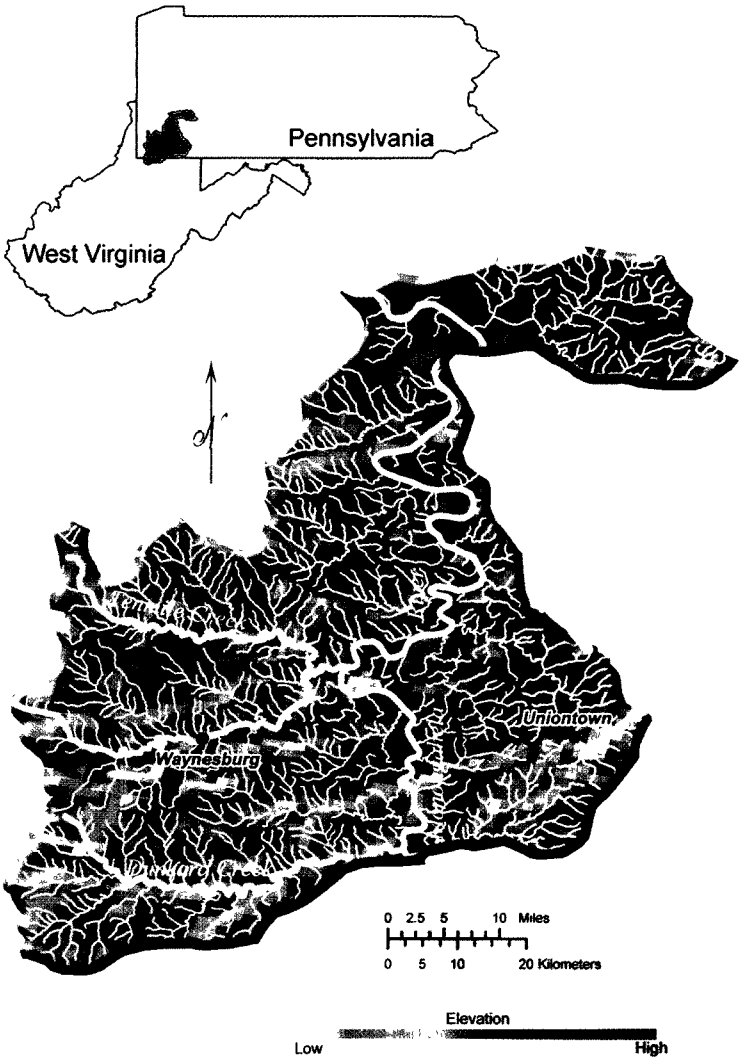
Dunkard Creek at twilight.

Dunkard Creek

A STRONG PARTNERSHIP FOR CHANGE

The project was developed by a strong public-private partnership with a shared commitment to improve the Dunkard Creek watershed. A diverse coalition of seventy-six partners that encompass both Pennsylvania and West Virginia are working collaboratively to restore watershed health, including:

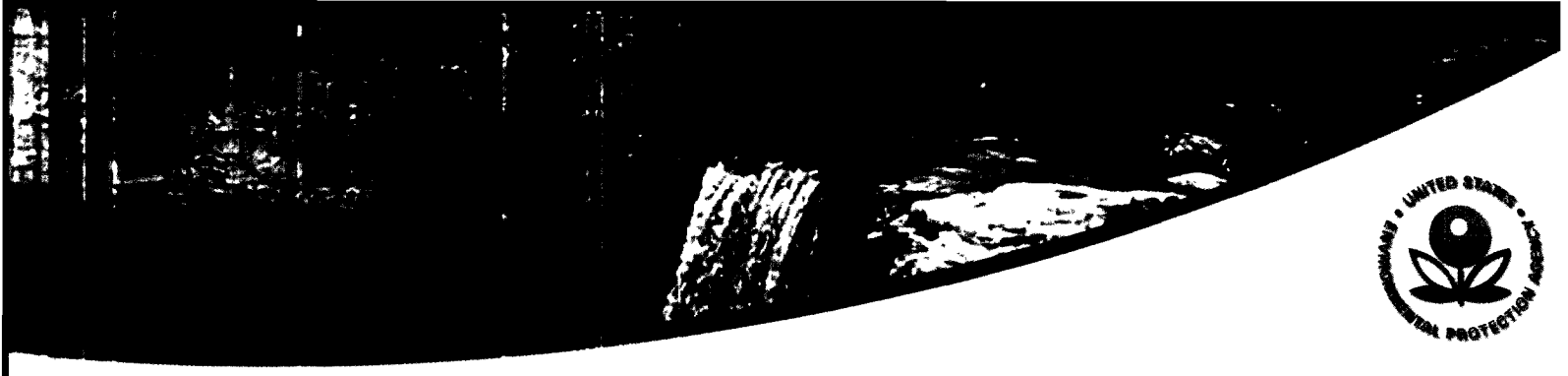
- Local landowners
- Business owners
- Community members
- Local, state, and federal government agencies
- Nonprofit organizations



Project partners celebrate a new beginning for the Dunkard Creek watershed.

High wall from an old, abandoned strip mine.

Targeted Watersheds



Great Miami River

"The Great Miami Riv
is an amazing resour
for our area, both f
recreation and f
critical drinking wat
resources. We
need to do our part
keep this resour
health

– Dick Wager, Mia
County Engine

WHY IS THIS WATERSHED SPECIAL?

Located in Southwest Ohio, the Great Miami River watershed overlies a sole source aquifer for drinking water that serves more than a million consumers. The condition of the watershed is crucial to the health of the streams within its boundaries, as well as the Ohio River and other receiving watersheds downstream – including the Gulf of Mexico. Approximately 83 percent of the land within the watershed is used for agriculture, primarily row crop production such as corn, soy beans, and wheat. Typical livestock include swine, cattle and poultry. Although more than 58 percent of the streams in the watershed meet their designated water quality standard, many streams are impaired.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on the following:

- Agriculture may result in the removal of streamside vegetation that allows sediment, nutrients, pathogens, and chemicals to enter the stream.
- Water quality impairment is a key problem resulting in public water supply degradation, aquatic species decline, and decreased recreational opportunities.
- Sediment jeopardizes the watershed's flood protection system that protects more than a million people and 2.75 billion dollars of property.
- Nutrient overloading creates low dissolved oxygen levels that hamper the growth and reproduction of aquatic organisms.
- Urban stormwater runoff from paved surfaces can carry pollutants to rivers and streams and degrade water quality.

RESTORATION ACTIVITIES

EPA's Targeted Watersheds Grant funds are helping the Miami Conservancy District restore its valuable water resources. It will:

- Reduce nutrients and sediments through performance-based cost sharing payments, innovative agriculture drainage structures, wetland retention, conservation development design, and use of pervious parking lots.
- Implement erosion control demonstration structures at construction sites.
- Demonstrate a stormwater runoff collection system.
- Collect and analyze water resource data to promote sound watershed management.
- Improve and maintain existing flood protection systems.
- Develop public education and outreach programs in local communities.

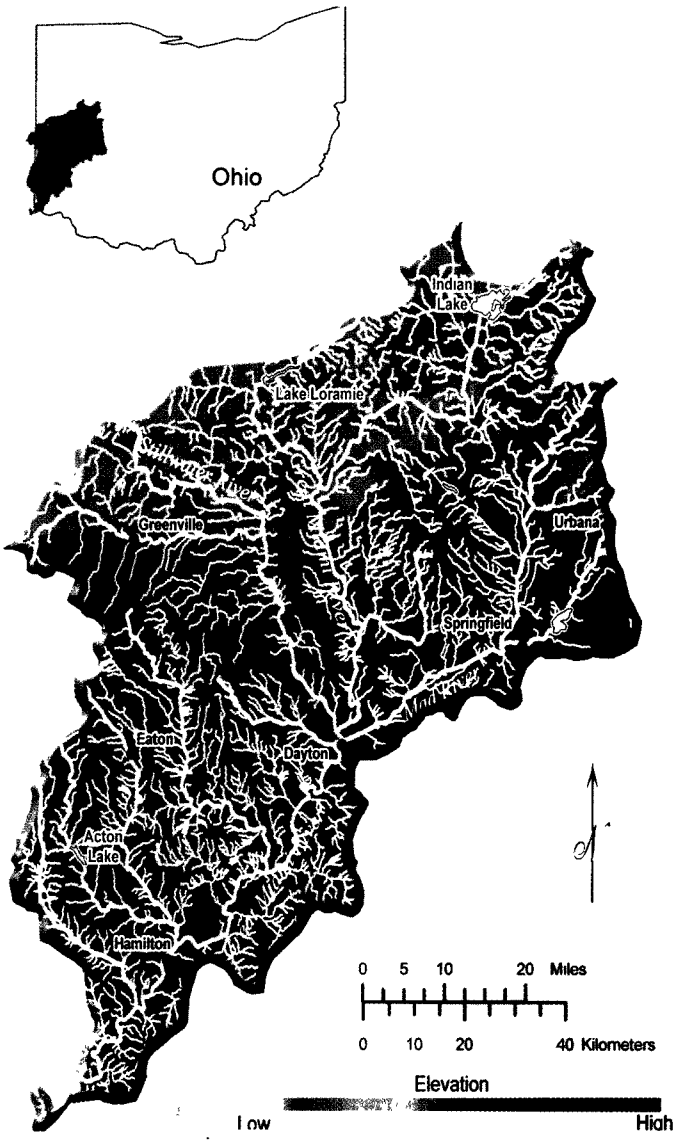
Dick Wagar, Miami County Engineer's Office, manages the project that will install storm sewer collection systems to prevent pollutants from running into the Great Miami River.

A STRONG PARTNERSHIP FOR CHANGE

A unique network of diverse partnerships, comprised of representatives from community-based watershed organizations, is collaborating with the Miami Conservancy District to maximize talents and resources. Partners in the project include:

- The Ohio State University
- Miami Valley Regional Planning Commission
- Loramie Valley Alliance
- Stillwater Watershed Project
- Miami County Engineer's Office
- City of Fairborn Parks
- Ohio Kentucky Indiana Regional Council of Governments
- City of Dayton
- Three Valley Conservation Trust

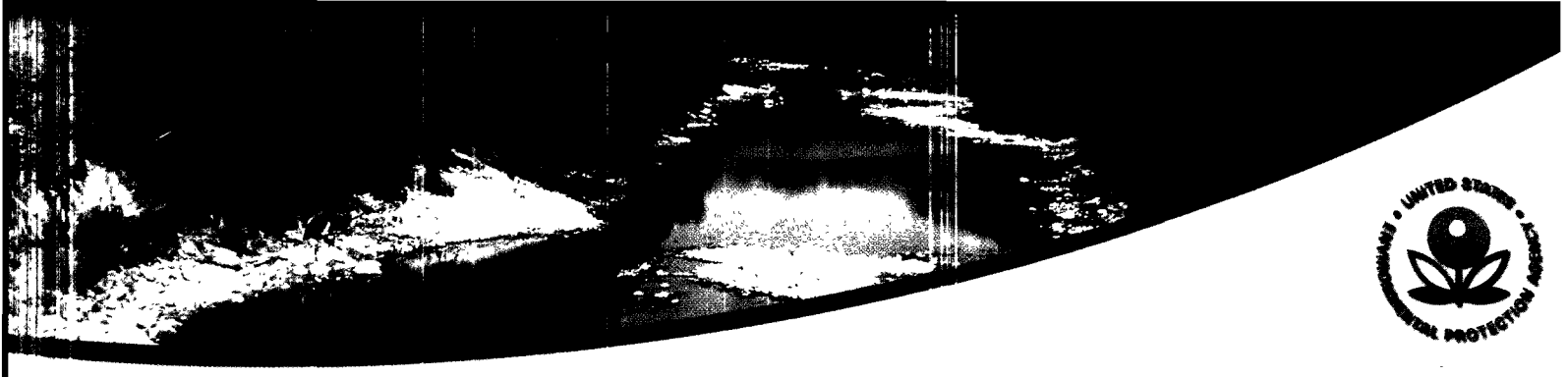
Great Miami River



Improving water quality increases recreational opportunities

The Great Miami River project will help restore and protect water quality including the restoration of streamside habitat.

Targeted Watersheds



Greater Blue Earth

"The Greater Blu
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Watersheds Grant ha
made a positive impa
on the landowners
Blue Earth Coun
especially th
conservatio
cost-share and th
buffer incentive

– Kari Christnag
Blue Earth County S
and Wat
Conservation Distr

WHY IS THIS WATERSHED SPECIAL?

The Greater Blue Earth River drains 2.26 million acres in south central Minnesota and northern Iowa before converging with the Le Sueur and Watonwan Rivers near Mankato, where the rivers join the Minnesota River. The watershed boasts some of the world's best soils with healthy crop yields, and the local economy depends heavily on agriculture. Although seasonally flooded prairie potholes offer important waterfowl and water quality benefits, the wetlands have been negatively impacted throughout the years. Eighty percent of the wetlands located in the watershed have been drained. Fortunately, local landowners are participating in wetland restorations on a volunteer basis.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on the following environmental challenges:

- Excess nutrients and sediment from the watershed are the major contributors to water quality problems in the Minnesota River as well as all the way downstream in the Gulf of Mexico.
- Impacts include cloudy brown water, algae blooms, loss of habitat and aquatic life, and lost recreational opportunities.
- Loss of valuable wetlands that filter runoff, provide habitat, and protect against flood damage.

RESTORATION ACTIVITIES

The Three Rivers Resource Conservation and Development Council are using EPA Targeted Watersheds Grant funds to demonstrate effective ways to improve water quality within the basin as well as downstream. It will:

- Demonstrate conservation cost-share projects, encouraging third crop rotation to minimize erosion.
- Implement wetlands restoration projects to improve habitat and other valuable functions.
- Offer nutrient trial demonstrations and incentive programs to reduce nutrient runoff.
- Install 300 acres of riparian buffers.
- Conduct water quality education and demonstration projects.
- Sponsor directed workshops for homeowners, businesses, and industry on construction erosion control and rain gardens.
- Support citizen stream monitoring.
- Carry out public outreach through numerous public presentations.

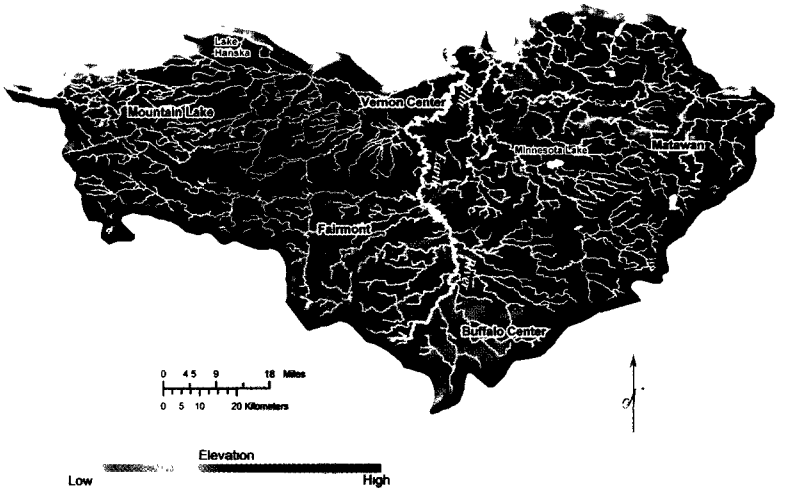
EPA Project Officer Paul Thomas (second from left) discusses the monitoring component of the project with partners Darren Newville of the Martin Soil and Water Conservation District, Chris Lenhart of the University of Minnesota, and Joe Magner of the Minnesota Pollution Control Agency.

Greater Blue Earth

A STRONG PARTNERSHIP FOR CHANGE

A broad and diverse group of stakeholders are strongly committed to realizing environmental improvements.

- Watershed associations and other local organizations, including Greater Blue Earth River Basin Alliance, Blue Earth River Basin Initiative, and Union Slough National Wildlife Refuge
- Soil and Water Conservation Districts
- Local Iowa and Minnesota Resource Conservation and Development Councils
- Farmers and homeowners
- Counties and municipalities
- States of Iowa and Minnesota, including Department of Agriculture and Pollution Control
- Federal agencies, notably the U.S. Department of Agriculture
- Minnesota State University at Mankato
- University of Minnesota Extension Service
- Iowa Lakes Community College
- Local schools
- Certified Crop Advisors



The Three Rivers Resource Conservation and Development Council makes frequent public presentations focusing on soil management for students and nutrient management for adults.

Targeted Watersheds Grant cost share funds at work. Filterstrips and field windbreaks help conserve soil and control the runoff of fertilizers and pesticides.

EPA'S TARGETED WATERSHEDS GRANT PROGRAM

EPA's Targeted Watersheds Grant Program is a new, competitive grant program designed to encourage collaborative, community-driven approaches to meet clean water goals.

For more information about the selected watersheds, please visit: http://www.epa.gov/owow/watershed/initiative/

Targeted Watersheds

Hanalei Bay

WHY IS THIS WATERSHED SPECIAL?

Honored in song and story, the watershed is an area of unique cultural significance to the Hawaiian people. The Hanalei River watershed extends from the top of Mt. Wai'ale'ale (5,148 ft) to the coral reefs off the north shore of the island of Kauai, Hawaii. The river is popular for kayaking, fishing, crabbing, and prawning. Commercial companies offer kayaking and snorkeling tours and embark from the river for trips to the famed Na Pali coast. Hanalei Valley farmers produce over sixty-seven percent of the state's taro, a staple in the traditional Hawaiian diet.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on the following environmental problems:

- The fragile coral reef ecosystem within the bay is threatened by both natural forces (landslides) and human activity. Sediment and nutrient pollution entering the bay result in cloudy water and increased algae, which deprive the coral and its inhabitants of essential sunlight and oxygen.
- There is a growing public health concern from inadequate septic systems in the densely populated area of Hanalei. High levels of bacteria, which result from the lack of a centralized wastewater collection and treatment system, contaminate the groundwater and flow directly into the bay.
- Local agricultural and ranching practices, invasive plant species, and feral pigs and goats are all potential causes of excess nutrients, streambank degradation, erosion, and sedimentation of streams.

RESTORATION ACTIVITIES

Everyone who wants to participate is considered part of the Watershed Hui. EPA Targeted Watersheds Grant funds will help the Hui to:

- Replace cesspools to reduce bacteria loadings. Innovative, on-site treatment systems using the best available technology and/or advanced wastewater standards will be constructed at high-risk sites.
- Establish a long-term community-based plan for a centralized wastewater treatment system. For example, the Hui will decide whether to construct wetlands or build a traditional treatment facility.
- Evaluate the effectiveness of agricultural best management practices to reduce nutrients and sediment, in a partnership with Hanalei taro farmers.
- Further analyze impacts to coral reefs, including benthic habitat and reef fish surveys.

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project, the water will b
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We will see tangib
environmental result
And, what's mo
exciting to me is that n
daughter will be able
swim safely in the rive

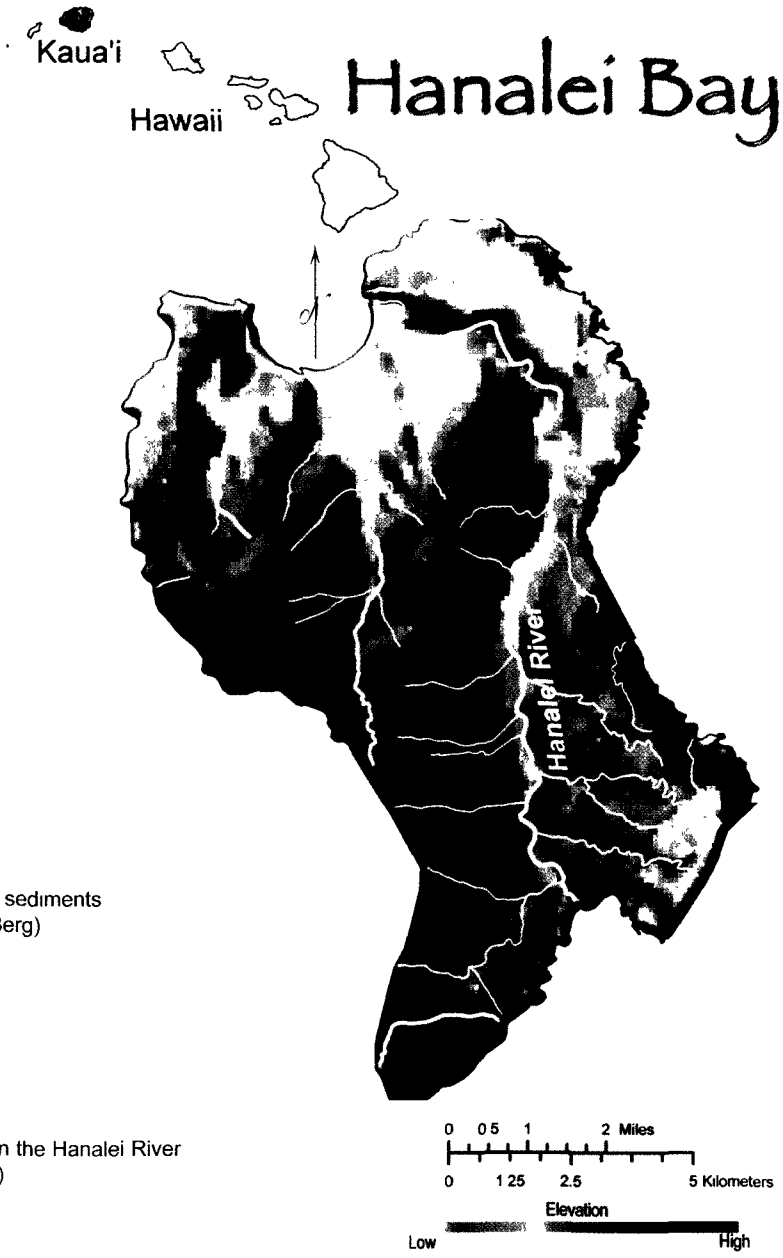
– Jan Surfa
Hanalei Watershe
H

Hanalei Bay – the nation's number two beach in 2002. This spot may best be known as the backdrop for the movie, *South Pacific.*

A STRONG PARTNERSHIP FOR CHANGE

A broad and diverse coalition of stakeholders are working to protect the watershed. Partners include:

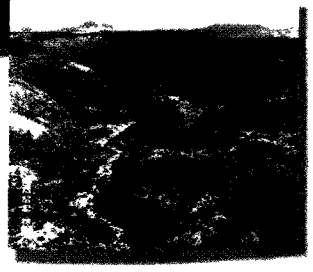
- Local Partners: Civic clubs, local and county governments, business councils, farmers, schools, etc.
- State Partners: State of Hawaii Office of Hawaiian Affairs, Tourism Authority, Department Of Land and Natural Resources, Department of Health
- Federal Partners: U.S. Forest Service, National Oceanic and Atmospheric Administration/National Marine Sanctuary, U.S. Geological Survey, Natural Resource Conservation Service
- University of Hawaii
- Waipa Foundation



Changes in taro cultivation will reduce sediments and other pollutants. (Photo by Carl Berg)

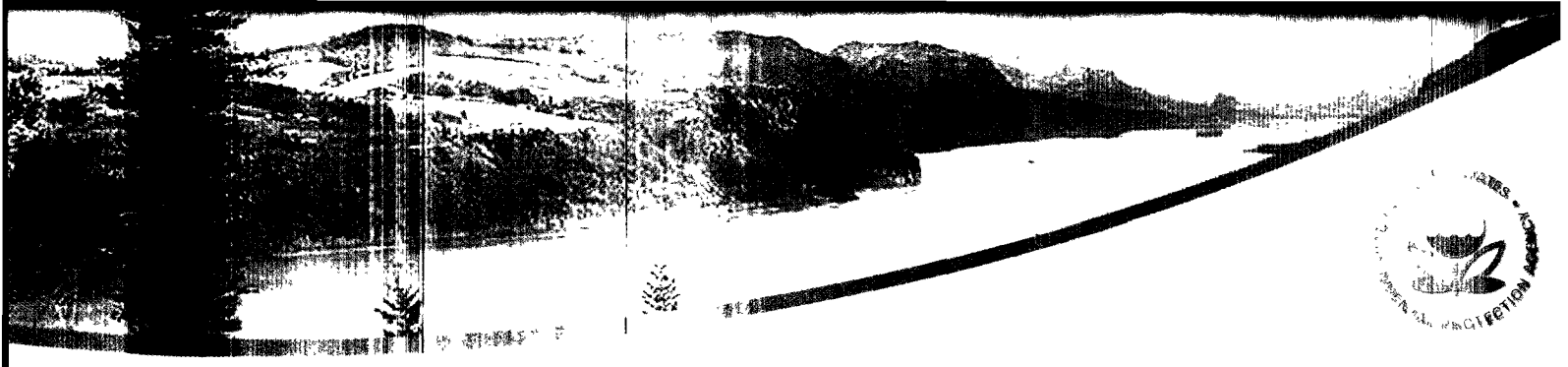
Kayakers enjoy a day on the Hanalei River (Photo by Larry Debord)

Scientist Dr. Carl Berg teaches young people about the Hanalei River.



A sophisticated computer model being tested in mountainous terrain will help prioritize measures to reduce turbidity. (Photo by Pat Chavez)

Targeted Watersheds



Lower Columbia River

WHY IS THIS WATERSHED SPECIAL?

The Lower Columbia River and estuary include the 146 river miles from Bonneville Dam to the Pacific Ocean They are the last leg of the 1,214 mile run that starts in Canada. The Columbia River has the second largest average flow of all rivers in the United States, averaging nearly 260,000 cubic feet per second. The river and its ecosystems provide critically important permanent and migratory habitat for a wide range of species, including 12 species of threatened or endangered salmon. It is home to nearly two million people, hundreds of fish and wildlife species, five deep water ports, and six major pulp and paper mills.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant focuses on a number of serious environmental problems, specifically:

- Declining runs of the once abundant salmon, now listed as threatened and endangered, that affect the ecosystem and the economic basis for the commercial and recreational fishing industry.
- Loss of more than 50 percent of the wetlands since 1900 that has affected the salmon population and has had significant impacts on other wetland dependent species such as bald eagles, otters, minks, osprey, and water fowl.
- Development and land use pressures that have resulted in loss of habitat and increased runoff of toxic and conventional pollutants.
- High levels of toxic contaminants in fish tissue and sediment, which have been recorded in several hot spots in the lower river area.

RESTORATION ACTIVITIES

The Lower Columbia River and Estuary Partnership works to protect and restore the lower Columbia River and estuary by providing on-the-ground improvements and educational programs to the region. The Lower Columbia River and Estuary Partnership will use the EPA Targeted Watersheds Grant funds to:

- Remove an additional 12 acres of invasive reed canary grass at Smith and Bybee Lakes Wildlife Area, plant native species, and restore corridor linkages between core areas of habitat.
- Undertake major restoration work at Grays Bay Area to permanently protect 880 acres, restore floodplain connectivity to 440 acres of tidal backwater, riparian, and wetland forested habitat and restore over 300 acres of potential salmonid rearing habitat.
- Re-establish a functioning wetland at Mirror Lake by removing invasive reed canary grass and blackberry, and replanting native species and replacing culverts on approximately 200 acres.
- Reconnect hydrology by removing barriers to species migration by employing grazing management practices and replanting native vegetation protecting over 300 acres of wetlands in the Scappoose Bay Watershed.

"With everyone's hel
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– Debrah Mari
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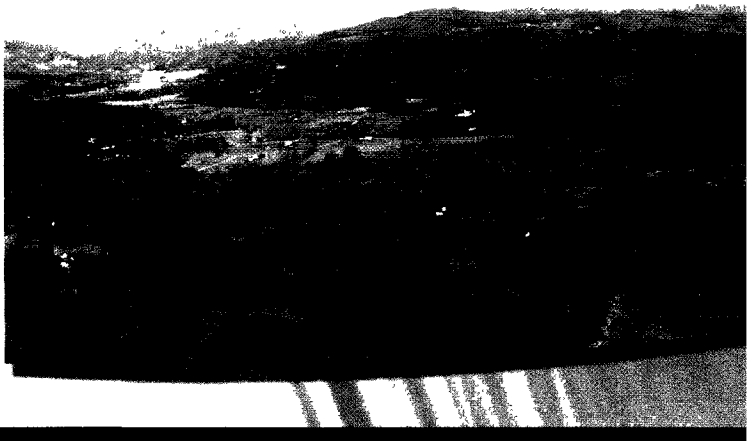


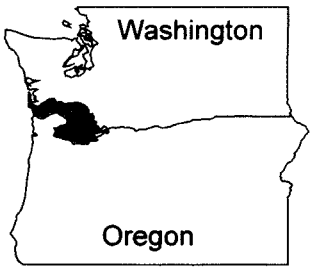
Grays and Seal Slough Project Area

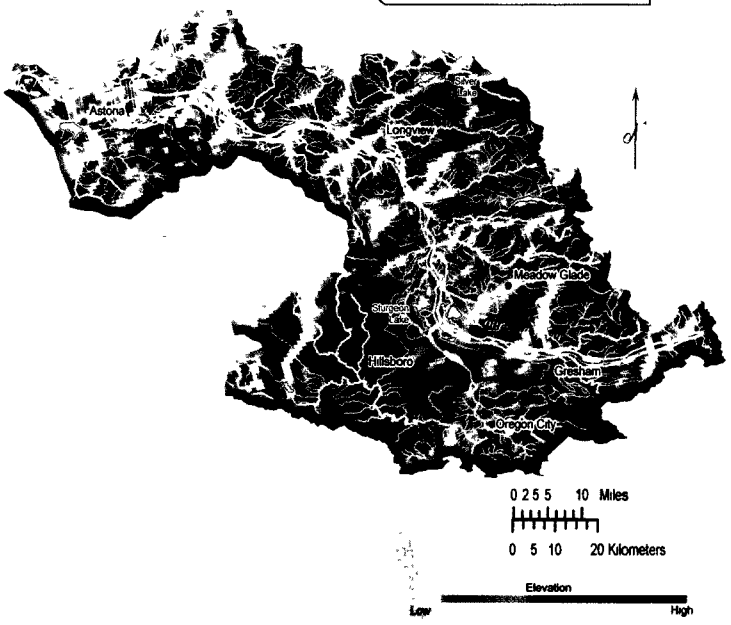
Lower Columbia River

A STRONG PARTNERSHIP FOR CHANGE

The Targeted Watershed Project builds on a broad coalition of regional support. Key partners in the project include:

- City of Portland, Bureau of Environmental Services
- Columbia River Estuary Study Task Force
- Columbia Land Trust
- METRO
- Oregon State Parks
- Pacific States Marine Fisheries Commission
- Scappoose Bay Watershed Council
- Wetlands Conservancy





Seal Slough

Interior Water Forest

Smith and Bybee Lakes

Targeted Watersheds

Manistee River

WHY IS THIS WATERSHED SPECIAL?

The Big Manistee watershed covers 1,780 square miles in northwest lower Michigan, including parts of twelve counties. The river is a popular destination for fishermen who come to pursue game species, including walleye, pike, salmon, and steelhead. However, two major hydroelectric dams divide the watershed, and these operations, along with other smaller dams, prevent species from migrating and spawning. The Little River Band of Ottawa Indians, whose reservation surrounds the watershed, depends on the river for a source of food, recreation, beauty, and sustenance. The river's once-bountiful natural resources represent an important part of their tribal and cultural heritage, which they want to preserve.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on environmental problems due to extensive logging.

- The loss of vegetation has resulted in extreme erosion and excessive sediments that diminish water quality and degrade important habitat and spawning areas.
- Many threatened and endangered species including the lake sturgeon populate the watershed. Historically, the river supported grayling, whitefish, and lake sturgeon, all of which are rare, or in the case of grayling, gone entirely.

RESTORATION ACTIVITIES

The Little River Band of Ottawa Indians will look at several innovative approaches to reverse the degradation from years of logging. Long-term goals include the reintroduction of large woody debris, education of landowners, and removal of some of the 63 dams in the watershed. EPA Targeted Watersheds Grant funds will be used to support:

- Road Stream Crossing Projects to address streambank erosion.
- Stream Bank Stabilization Projects in four key stream corridors. Post construction monitoring will include a habitat inventory, substrate classification, macroinvertebrate survey, and a fish assessment.
- An Access Improvement Project. Trails and steps will be built in high traffic areas to minimize erosion from recreational users.
- A Sturgeon Spawning Site Reclamation Project. Boulders, cobble, and large woody debris will be added to produce suitable habitat and channel conditions.
- Outreach activities such as *Celebrate Sturgeon Youth Day* and town hall meetings.

"The EPA funding w
help our work with
variety of partners t
enhance watershe
health. We ar
currently conducting
comprehensive stud
of watershe
restoration practices
This will be utilized a
a tool for others i
the future

– Lisa Spragu
Tribal Ogem

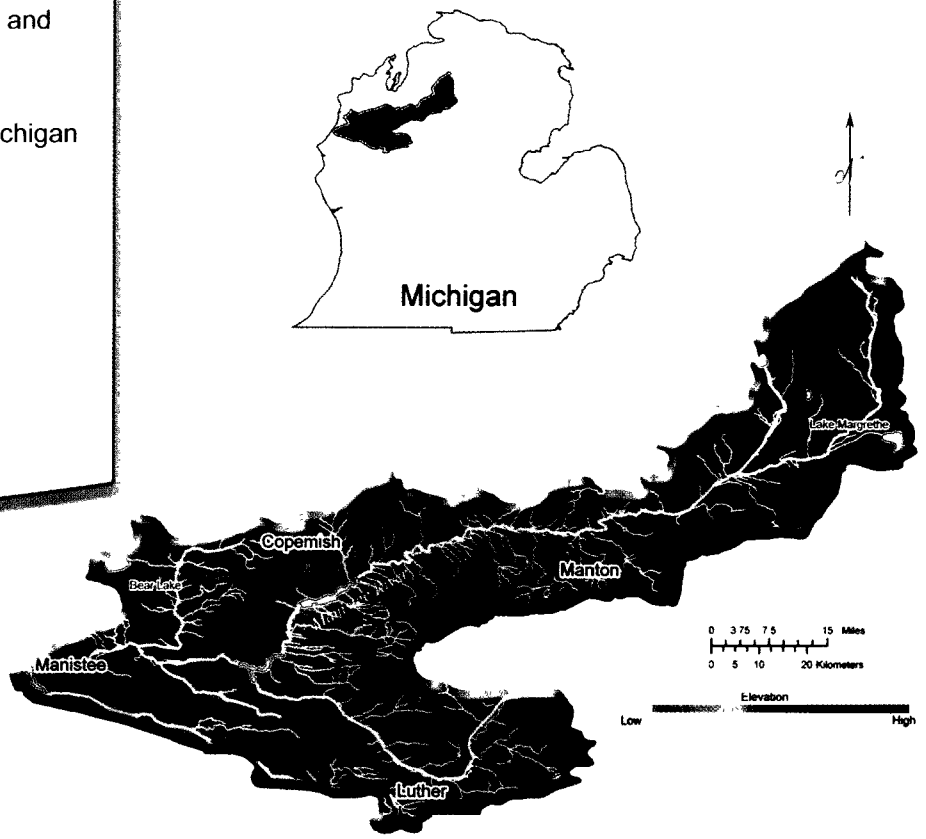
Grand Valley State University graduate students marking off a stream reach for sampling.

Manistee River

A STRONG PARTNERSHIP FOR CHANGE

A number of private and public partners, along with tribal interests, are collaborating to maximize resources and share their expertise in fisheries and watershed management. Partners include:

- Conservation Resource Alliance of Northwest Michigan
- Several counties and townships
- Conservation districts
- U.S. Forest Service
- U.S. Fish and Wildlife Service
- Local Watershed Councils
- Grand Valley State University
- Other restoration partners



Grand Valley State University graduate student taking macroinvertebrate samples.

Milks Road sampling with local community.

Fishing the upper stretches of Pine Creek.

Targeted Watersheds

Meduxnekeag River

"I can definitely se
the many benefits
the small gra
application of a wint
crop. Preventing s
loss and increase
soil health will bo
be beneficial to o
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– Albert Fitzpatri
cooperating farm

WHY IS THIS WATERSHED SPECIAL?

The Meduxnekeag River watershed, located in northern Maine, is home to the Houlton Band of Maliseet Indians. This heavily forested watershed has 67 miles of rivers and 290 miles of streams. Of the 289 square mile watershed, 800 acres is tribal land. The Maliseet Indians are river people who traditionally fish, trap, hunt, and gather within the waters, floodplains, and riparian areas of the St. John River. The Meduxnekeag, a tributary of the St. John, is a critical link to preserving their tribal practices, traditions, and history. After purchasing its land in 1988, the Houlton Band of Maliseet Indians began to address their water quality problems.

ENVIRONMENTAL CHALLENGES

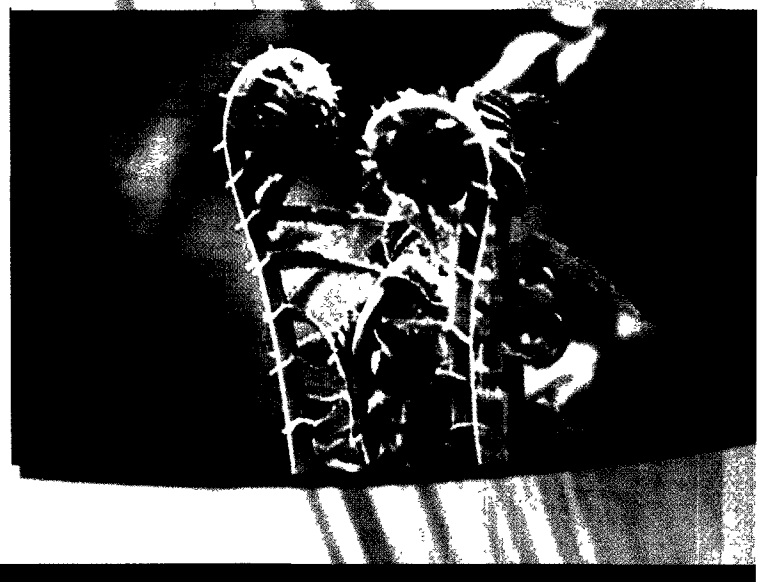
The Targeted Watersheds Grant will focus on the following environmental problems:

- Soil erosion problems stemming from agricultural crop lands (potato and grain) and livestock operations.
- Specific instream impairments, such as elevated water temperatures, low dissolved oxygen levels, increased nutrients, and sediments, that result in loss of fishery habitat, spawning, and nursery areas.
- High levels of *E. coli* bacteria resulting from improper stormwater sewage connections that cause public health concerns.

RESTORATION ACTIVITIES

The Maliseets will use EPA Targeted Watersheds Grant funds to continue efforts derived from their 1993 Watershed Protection Plan. Specifically, they will:

- Institute an innovative "Minimum Open Ground" concept utilizing a combination of winter cover crops and mulching practices. Six area farmers with approximately 2000 acres have been recruited.
- Perform a camera survey of the area's storm drain system to locate storm drain connections. All improper connections will be removed.



Meduxnekeag River

A STRONG PARTNERSHIP FOR CHANGE

In 1991 the Houlton Band of Maliseets formed its first partnership with the Southern Aroostook Soil and Conservation District. Since then, other partners and stakeholders have joined the effort, including:

- USDA's Natural Resources Conservation Service
- University of Maine
- Town of Houlton
- Maine Department of Environmental Protection
- Meduxnekeag Watershed Coalition
- Organization for Watershed Living

Farmers learn about the project at an educational forum.

Winter cover crops help prevent soil loss.

Soil erosion harms the fish and turns the Meduxnekeag River an unsightly brown.

Targeted Watersheds

Narragansett Bay

"It's ironic; we'v converted tras dumpsters and wastewater treatmen site to an ecologic restoration center

– Michael Trabe University of Rhod Island Graduat School o Oceanograph

WHY IS THIS WATERSHED SPECIAL?

Narragansett Bay is located in Rhode Island, yet the majority of the watershed extends into southeastern Massachusetts. Aside from its historic charm, Narragansett Bay is a thriving spot for commercial fishing, international shipping, and recreation and tourism. Each year, about 100 different species of fish (flounder, bass), lobster, and shellfish (quahog, oyster) visit the bay at one time or another. Home to more than 2 million people, this 1,853 square mile watershed is relatively urbanized, yet visitors and residents alike treasure the bay's waters, beaches, parks, and piers.

ENVIRONMENTAL CHALLENGES

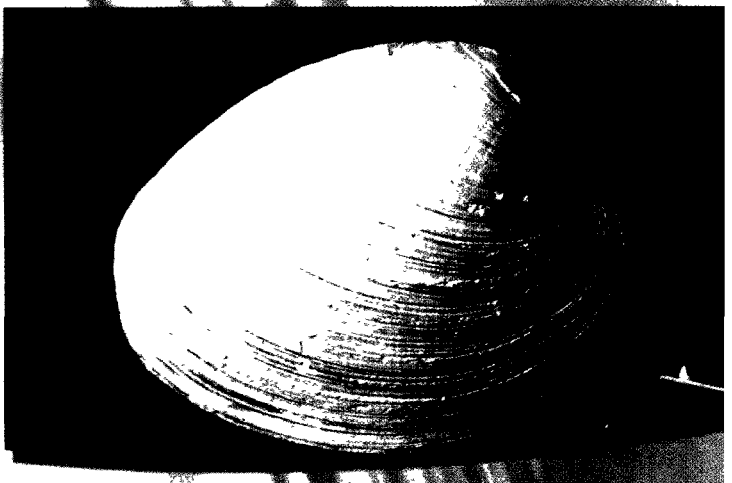
The Targeted Watersheds Grant will focus on addressing the major threats to this valuable and highly productive estuary.

- Key problems include fishery declines due to habitat loss, degradation and fragmentation, and the impacts of land and coastal development.
- Nutrient overloading – especially nitrogen from fertilizers – create hypoxic conditions (i.e., low dissolved oxygen), which impairs the growth and reproduction of fish, shellfish and other aquatic organisms.
- Toxic metals and bacterial pollution from industrial discharges continue to impair the bay's ecosystem.

RESTORATION ACTIVITIES

The Partnership for Narragansett Bay will use EPA Targeted Watersheds Grant funds to carry out the following activities:

- Re-establish, repair, and maintain fish runs and passageways for anadromous fish in a number of designated areas throughout the watershed.
- Install stormwater management practices to remediate significant sediment and nutrient loading.
- Re-establish eelgrass beds by growing eelgrass for restoration from seed. This will provide a sustainable source of seed without negatively impacting the few remaining natural seagrass beds.



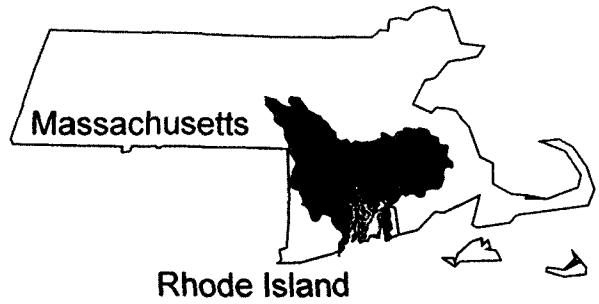
Bay quahog.

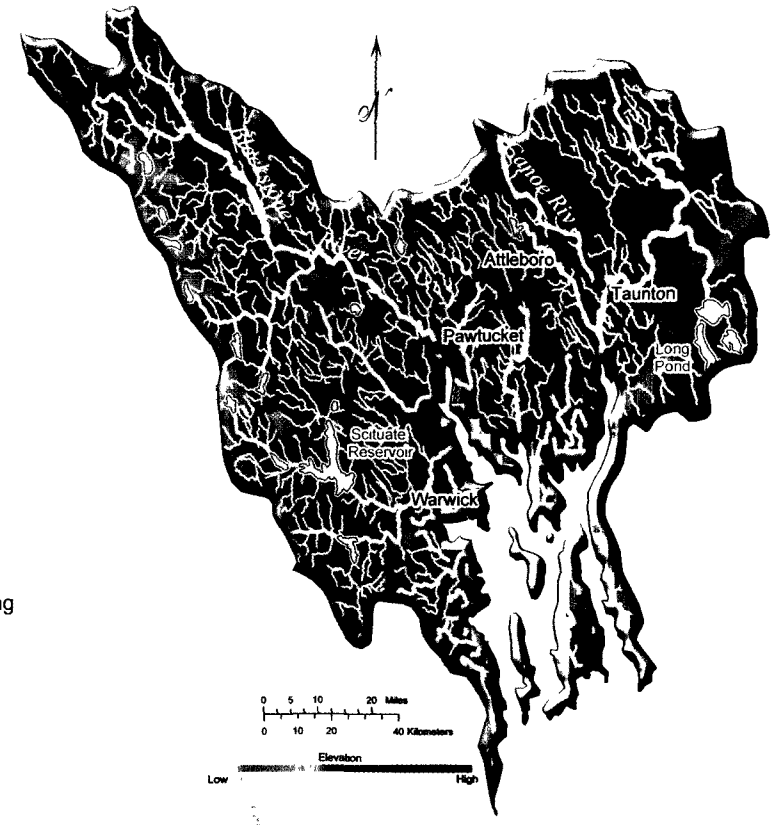
Narragansett Bay

A STRONG PARTNERSHIP FOR CHANGE

The Partnership for Narragansett Bay represents over forty diverse bay stakeholder organizations. Its partners include:

- Massachusetts Executive Office of Environmental Affairs
- Rhode Island Rivers Council
- Pawtuxet River Authority
- Save the Bay, Inc.
- Wood-Pawcatuck Watershed Association
- Leesville Pond Association
- The towns of Attleboro, North Attleboro, Auburn, and Taunton, Mass. and the town of Narragansett, RI.
- And many more





The bay is considered one of the best sailing locations in the world.

University of Rhode Island and Save the Bay volunteers work to harvest and plant eel grass, which provides critical habitat, food, and shelter for many bay species.

Mike Traber, a project implementer from the University of Rhode Island Graduate School of Oceanography, inspects eelgrass seedlings raised in the EPA-funded eelgrass mariculture facility (Photo Credit Narragansett Bay Estuary Program)

Targeted Watersheds

Raritan River

WHY IS THIS WATERSHED SPECIAL?

The Raritan Basin, in central New Jersey, is home to approximately 1.2 million people and serves as a source of drinking water for many who live there. Covering 1,100 square miles, the area supports a population density of over 1,000 people per square mile, with several highly urban and economically depressed areas. The watershed itself supports a full spectrum of land uses, from industrial to agricultural. The Raritan River watershed typifies an area that is beset by sprawl, a situation that is endemic throughout the East Coast metropolitan corridor.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on the following environmental problems:

- Some aquifers are highly vulnerable to drought, and the process of suburbanization has reduced ground water recharge significantly – for some watersheds up to 20% in only ten years.
- Development in the watershed, compounded by the loss of wetlands and riparian areas – reaching upwards of 80% in some subwatersheds – has dramatically increased pollutant loadings and stormwater flows.
- Elevated levels of phosphorus and fecal coliform, chlorides (from road salt) and turbidity, along with reduction in ground water recharge, threaten drinking water and other important watershed uses.

RESTORATION ACTIVITIES

The Stony Brook-Millstone Watershed Association will use EPA Targeted Watersheds Grant funds to carry out a comprehensive watershed strategy that focuses on restoration, protection, and pollution prevention. Efforts will focus on three types of areas – a semi-rural landscape, a rapidly developing suburban area, and a highly urbanized area.
This approach entails:

- Comprehensive stabilization/restoration of eroded and impaired stream banks and riparian corridors to protect sensitive ecosystems.
- The adoption by all 36 municipalities of new ordinances to protect and preserve natural resources.
- Stormwater retrofits to improve drinking water quality and reduce turbidity.
- Innovative "River-Friendly" pollution prevention programs targeted at golf courses, businesses, and residents.
- Road salt controls to improve water quality and reduce impacts to aquatic life.

"This really validate
the work an
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Stony Brook-Millston
Watershed Associatio
They are a resourc
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– Mayor Louise Wilsc
Montgomery Townshi
(May 200

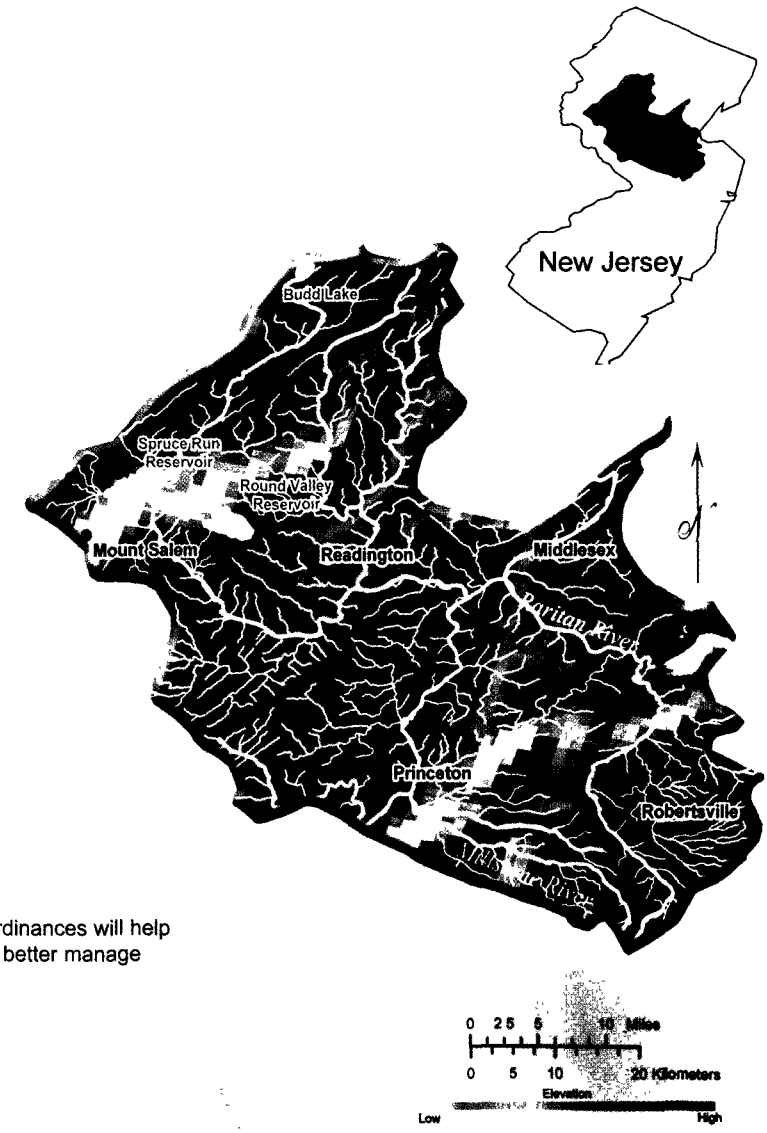
Downey woodpecker.

Raritan River

A STRONG PARTNERSHIP FOR CHANGE

The Raritan Basin Watershed Management Plan (2003), was developed with the involvement of virtually hundreds of local and regional stakeholders. Working with the Stony Brook-Millstone Watershed Association are the following major partners:

- New Jersey Water Supply Authority
- New Jersey Department of Environmental Protection



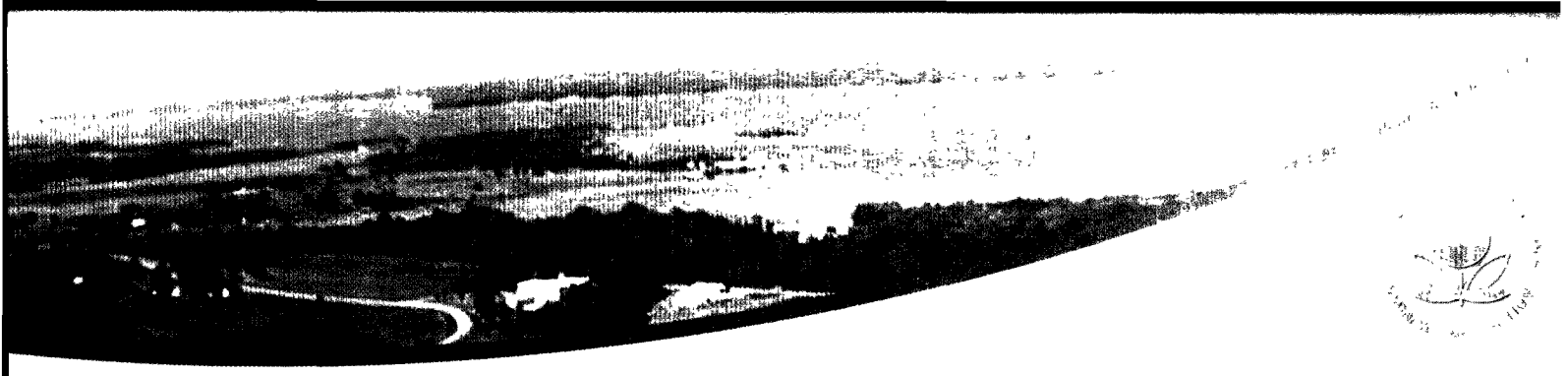
Stream restoration projects along the South Branch and Millstone Rivers will improve fish and wildlife habitat and enhance recreation.

Strengthened municipal ordinances will help protect riparian areas and better manage stormwater runoff.

Janssen Pharmaceutic Products, L.P. receives the River-Friendly Award for protecting water quality.

Stream restoration projects will help protect sensitive ecosystems. (Photo by Kathleen Hale)

Targeted Watersheds



Rathbun Lake

WHY IS THIS WATERSHED SPECIAL?

Rathbun Lake, located on the Chariton River in south central Iowa, is the primary source of water for the region. The 11,000-acre lake supplies six million gallons of drinking water daily to more than 70,000 people and also offers valuable recreational opportunities; close to one million people visit the lake annually. Other important uses of the lake include: flood control protection, fish and wildlife habitat, storage for supplementing navigational flows, and water supply for Iowa's Department of Natural Resources' Rathbun Fish Hatchery. Agricultural production is the most important economic use of land in the Rathbun Lake watershed.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on the following environmental problems:

- Pollutants from farming operations – primarily sediment and nutrients (phosphorus) – contribute to algal blooms, habitat losses, and murky water.
- Other pollutants, including pesticides and the herbicide atrazine, impact drinking water.
- Severely eroding stream banks and failing septic systems also contribute to water quality problems.

"Efforts to reduce t amounts of sedime nutrients, and oth contaminants th enter Rathbun Lak such as the Target Watershed Project, c have a direct a positive impact on t lake's use as a sour of drinking wate

– Jeremy Buckingha Rathbun Regior Water Associati

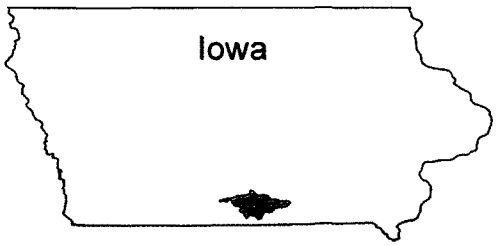
RESTORATION ACTIVITIES

The Rathbun Land and Water Alliance, a local partnership between soil and water conservation districts, county governments, and the Rathbun Regional Water Association, completed a comprehensive assessment of the Rathbun Lake watershed that identifies and prioritizes potential sources of water quality impairment in the lake. The Alliance will use EPA Targeted Watersheds Grant funds to.

- Use Geographic Information Systems (GIS) to target priority land for best management practices (BMPs).
- Demonstrate livestock and forage production as a profitable land use that is protective of water quality.
- Restore more than 8,000 acres of wetland and riparian habitat in the Chariton River corridor.
- Construct wastewater treatment facilities with communities in the Rathbun Lake watershed.
- Conduct a comprehensive water quality monitoring program in the watershed and lake to assess the effectiveness of BMPs.
- Recognize the efforts of farmers who have demonstrated the highest level of stewardship in taking actions to protect Rathbun Lake.
- Perform outreach activities to educate the public and farmers about efforts to protect water quality in Rathbun Lake.

Project staff provide one-on-one assistance to help farmers plan best management practices.

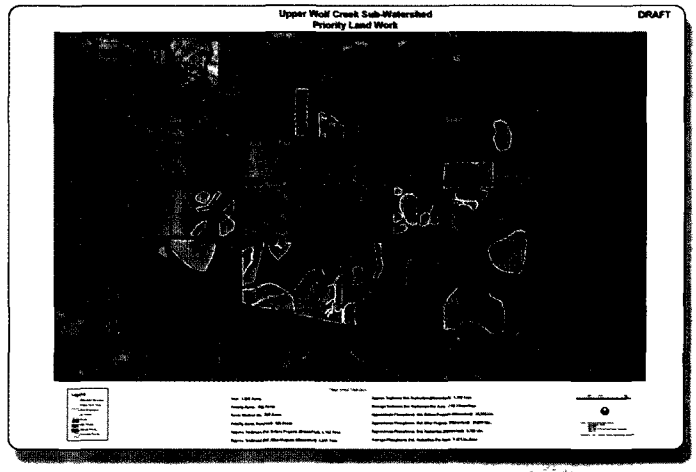
Rathbun Lake



A STRONG PARTNERSHIP FOR CHANGE

The Rathbun Lake Targeted Watershed Project involves a unique partnership of federal and state agencies, private organizations, and local landowners. The project is the first of its kind in Iowa, combining the financial and technical resources of more than a dozen agencies through coordinated efforts at the local level. Principal project partners include:

- US Army Corps of Engineers
- USDA Natural Resources Conservation Service
- Iowa Department of Agriculture and Land Stewardship
- Iowa Department of Natural Resources
- Local Soil and Water Conservation Districts
- Iowa Farm Bureau
- Iowa State University
- Rathbun Regional Water Association



The Alliance uses GIS to target priority land, track the application of Best Management Practices, and evaluate the benefits in protecting water quality.

The Alliance conducts water quality monitoring of tributaries.
(Photo credit: USDA-NRCS)

Local farmers tour a forage production demonstration.

Targeted Watersheds

Rio Puerco

WHY IS THIS WATERSHED SPECIAL?

The Rio Puerco Watershed, located in West Central New Mexico, is the largest tributary to the middle Rio Grande basin. Covering nearly 7,350 square miles, it includes nine sub-watersheds that drain into portions of seven counties west of the greater Rio Grande Basin Formerly lined with traditional villages, as well as extensive farm fields, the Rio Puerco was once the "breadbasket of New Mexico." It now receives worldwide notoriety as a severely impacted and degraded watershed due to the harmful impact of accelerated erosion. The river transports one of the world's highest average annual sediment concentrations, resulting in decreased water quality and agricultural yield.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on the following key challenges:

- Excessive soil erosion that surpasses that of any other watershed in the country, yielding 1.36 acre-feet per square mile per year.
- Historically poor land management practices, combined with dry weather that have led to significant alteration of stream formations and stream flow stability.

RESTORATION ACTIVITIES

Funding from the EPA's Targeted Watersheds Grant Program will enable the Rio Puerco Management Committee (RPMC) to implement its Watershed Restoration Action Strategy. RPMC is targeting restoration areas in the watershed that include the Upper Main Stem and Torreon Wash sub-basins. Their approach entails:

- In-channel stream restoration by increasing plant life and by adding sediment-filtering, log flow-management structures.
- Implementation of new water harvesting methods and erosion control practices, including innovative road maintenance techniques such as spreading water flow to promote vegetation growth.
- Utilization of pre-project aerial photography of the watershed to create a baseline for evaluating the progress made by the restoration projects.
- An extensive monitoring plan headed by a compliance review team to overview and document restoration efforts underway.
- Watershed educational programs to increase public awareness, including demonstration and monitoring projects with youth from Jemez and the Navajo Nation, along with students from area schools and colleges.

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and its resourc
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– Michael Colema
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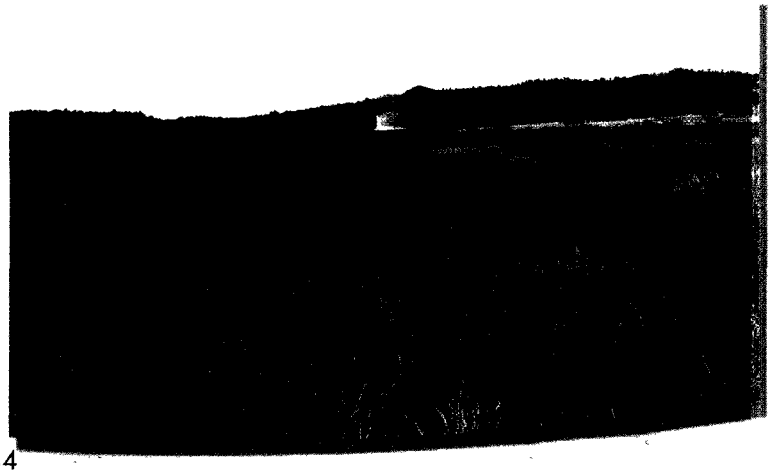


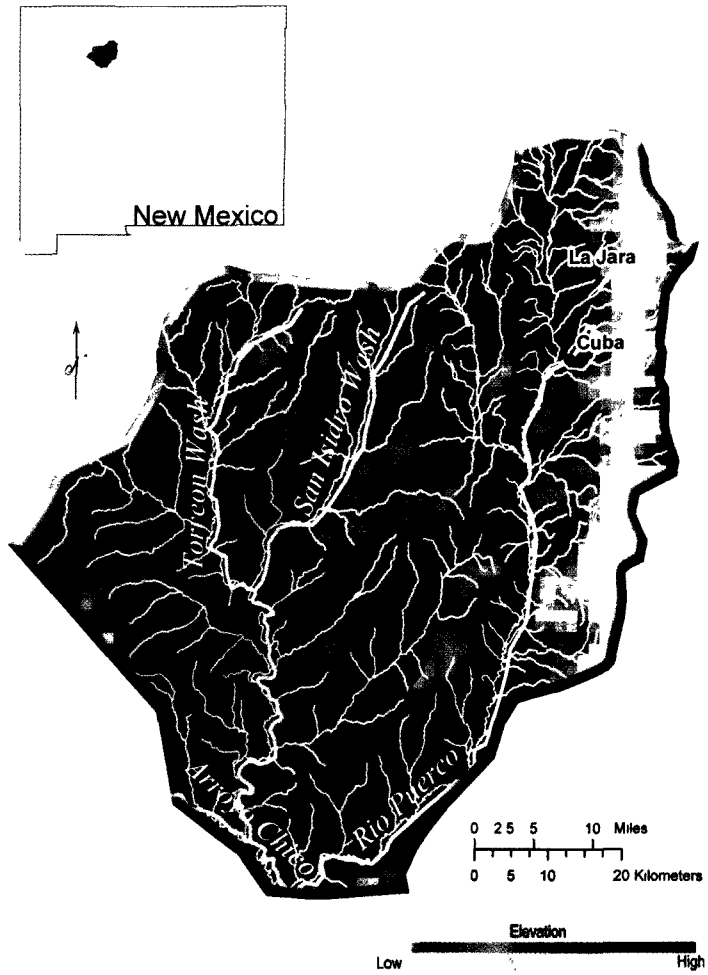
New Mexico rancher standing in well grassed valley bottom.

Rio Puerco

A STRONG PARTNERSHIP FOR CHANGE

RPMC has implemented the Rio Puerco Watershed Management Plan (2003), which they established with the involvement of a diverse group of leaders, including:

- Nine federal agencies, such as the Bureau of Land Management and the Bureau of Indian Affairs
- Six tribes, including the Pueblo Jemez and the Navajo Nation
- Eleven state agencies, including the New Mexico Environment Department and the State Land Office
- Eight private and non-profit organizations, such as the Quivira Coalition and Tree New Mexico, Inc.
- Private landowners and Indian allottees along the Rio Puerco Main Stem and Torreon Wash
- Many volunteers



Vertical bank instability on the Rio Puerco.

Jemez Pueblo ranchers constructed a series of post and wicker weirs using locally available juniper branches and sagebrush.

Targeted Watersheds

Upper South Platte

WHY IS THIS WATERSHED SPECIAL?

An essential resource nestled in the Rocky Mountains, the Upper South Platte Watershed supports fifty percent of Colorado's irrigated agriculture and also supplies municipal water to three quarters of the state's residents. Each year more than three million visitors enjoy recreational activities, and world class trout fisheries attract anglers. The watershed is threatened by extensive wildfires and rapid population growth and development.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will address a number of environmental problems, including those associated with the 2002 Hayman fire.

- The U.S. Forest Service has designated this watershed as a critical red zone due to the area's high vulnerability to large-scale, severe fire impact. An estimated 140 tons per acre of sediment due to deforestation could threaten downstream drinking water resources.
- Severe flooding destroys homes and bridges and decreases soil stability within burned areas.
- Rapid urbanization has resulted in habitat loss, increased erosion, and accelerated stormwater runoff.

RESTORATION ACTIVITIES

The Coalition for the Upper South Platte will use EPA Targeted Watersheds Grant funding to:

- Promote the conservation of riparian and wetland areas in Craig Creek.
- Develop and implement fire protection measures in partnership with the Colorado State Forestry Service and private landowners.
- Seed and mulch severely burned areas by coordinating more than 45,000 hours of volunteer work.
- Partner with the Buena Vista Correctional Facility, which teaches prisoners how to operate heavy machinery and equipment for watershed restoration work.

"The Coalition for t
Upper South Platte
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– Aimee Rathbu
Coalition for the Upp
South Pla

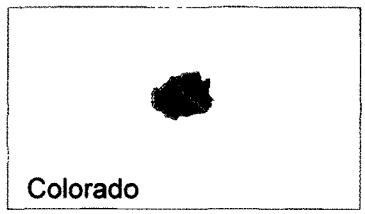
Post-fire erosion nearly fills this culvert with sediment.

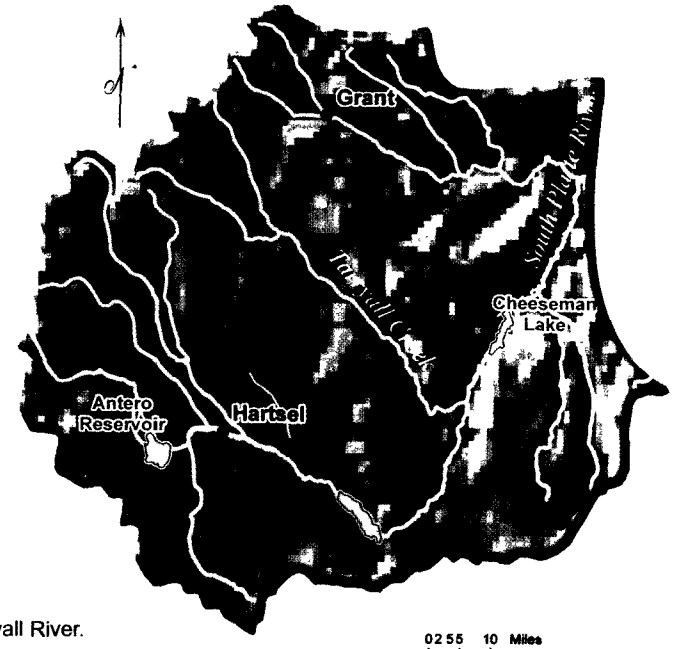
Upper South Platte

A STRONG PARTNERSHIP FOR CHANGE

Restoration and protection activities are possible due to a diversity of committed stakeholders including:

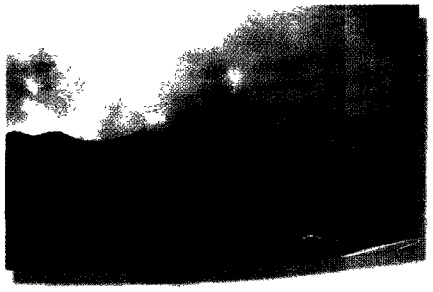
- Coalition for the Upper South Platte
- U.S. Forest Service
- Department of the Interior
- U.S. Geological Survey
- USDA's Natural Resources Conservation Service
- Colorado State Forest Service
- Colorado Department of Corrections
- Denver Water
- Numerous local governments
- Several non-governmental organizations, including: the Nature Conservancy, Trout Unlimited, and Colorado Open Lands





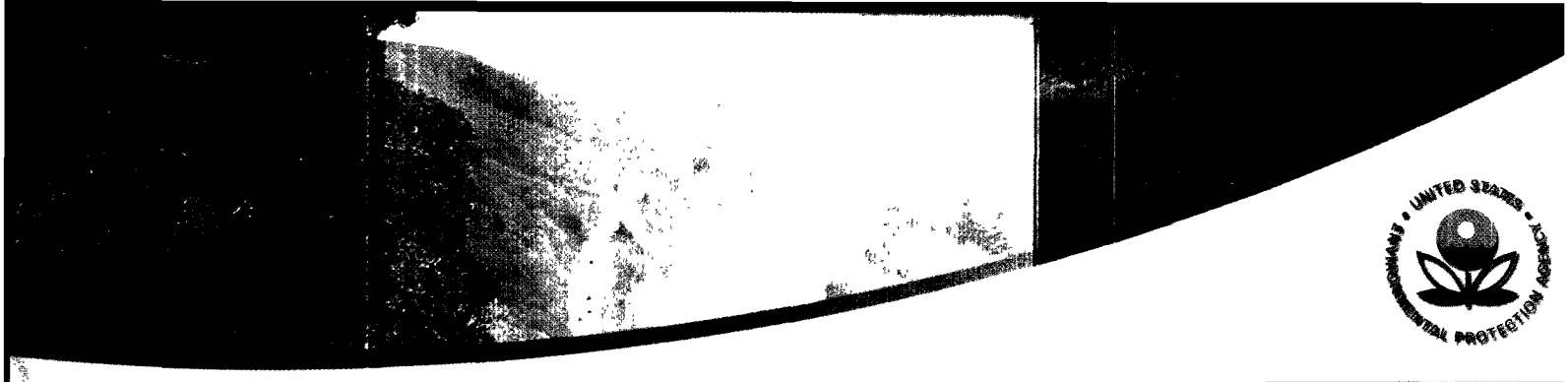
Surveying for a restoration project on the Tarryall River.

Straw is used for mulch and check dams are constructed in burned areas to stop erosion.



The sun shines through the smoke from the Hayman fire, the largest fire in Colorado history

Targeted Watersheds



Upper Susquehanna River

WHY IS THIS WATERSHED SPECIAL?

The Susquehanna River is the nation's 16th largest river and provides fifty percent of the freshwater to the Chesapeake Bay. The Upper Susquehanna Basin, beginning at the headwaters in New York, is comprised of 94 sub-watersheds encompassing an area of 7,500 square miles. The land use in its headwaters is predominately rural: a mixture of forest, agriculture, and two metropolitan areas. Steep gradients characterize the rolling hillside landscapes, but also produce flooding conditions and erosion. Land uses in the upper watershed, especially agriculture, directly impact downstream water quality. Consequently, New York State is integrating the Targeted Watersheds Grant activities with its Chesapeake Bay restoration efforts.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant focuses on the following environmental problems:

- Due to a combination of steep topography and land use conversion, floods adversely impact water quality and local ecology as well as threaten human life and property.
- Sediment and nutrient runoff are the major water quality problems, especially downstream, where they contribute to low dissolved oxygen levels in the Chesapeake Bay – harming fish, crabs and other aquatic life.

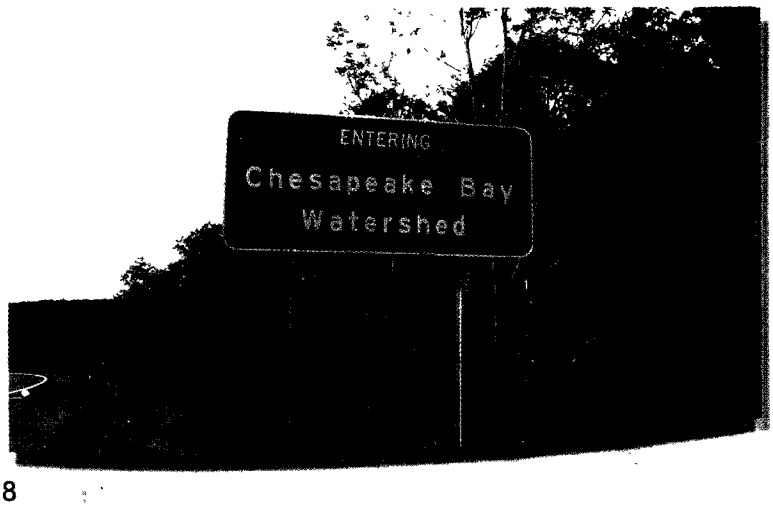
RESTORATION ACTIVITIES

The Upper Susquehanna Coalition (USC) will use EPA Targeted Watersheds Grant funds to:

- Implement a watershed–based wetland restoration program to reduce flooding and restore important wetland functions and values. To date, more than 30 potential sites have been identified.
- Conduct stream restoration using natural stream design.
- Promote farm stewardship through a riparian buffer initiative.
- Expand the use of a specialized Geographic Information System to target restoration activities.
- Form a college internship/research program to leverage talent and build local capacity.
- Establish "county coalitions" to demonstrate and share best management practices for controlling stormwater.
- Develop unpaved road and road ditch improvement plans, including training for highway personnel on new techniques to manage runoff.

"We are also getti valuable informati about how wetlan attenuate floods, a the ability of ripari buffers and wetla plants to absc nutrients thus reduci runoff to streams a ultimately the river. watershed with fi percent wetlands c have a 50 perce reduction in peak flo flows. That is solutio

– Melissa Yeari USC Wetlan Coordina



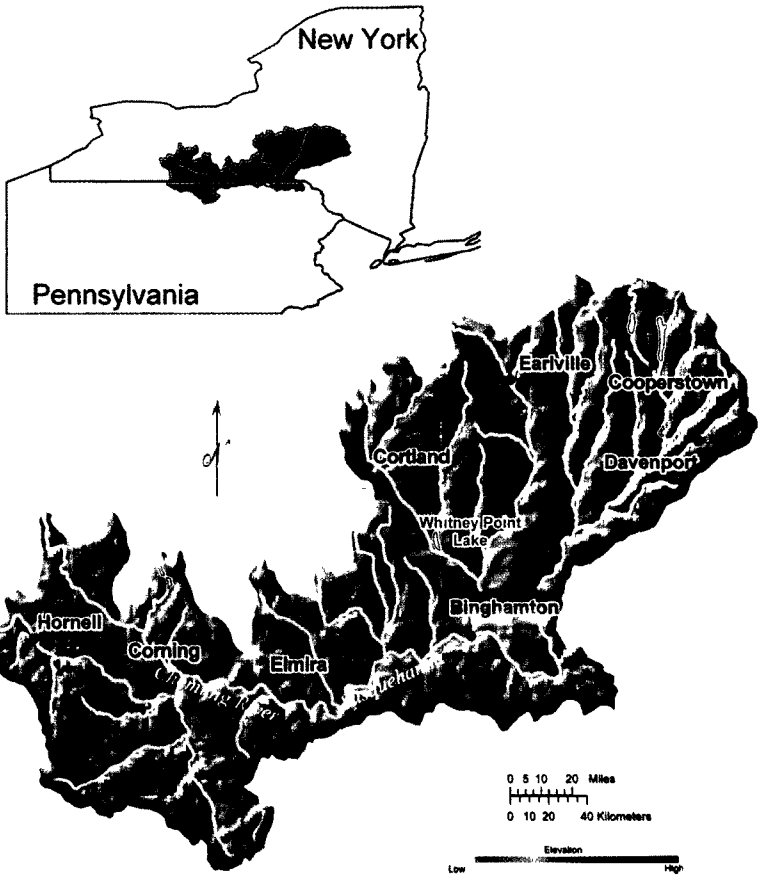
The Susquehanna River empties into the Chesapeake Bay and provides half of its freshwater.

Upper Susquehanna River

A STRONG PARTNERSHIP FOR CHANGE

The Upper Susquehanna Coalition, which includes representatives from 11 counties in New York and 3 in Pennsylvania, is working in collaboration with numerous local, state and federal partners, including:

- Soil and Water Conservation Districts
- EPA's Chesapeake Bay Program
- Pennsylvania State, Binghamton, and Cornell Universities
- Environmental organizations, including the Chesapeake Bay Foundation, Trout Unlimited, Izaak Walton League of America, Ducks Unlimited, and the Alliance for the Chesapeake Bay
- State agencies
- Federal agencies
- Town and County highway departments, planning departments, and environmental management agencies
- Local watershed associations



High school students help the USC at an ephemeral wetlands workshop.

Intensive rotational grazing, which includes riparian buffers, will help protect water quality.

Targeted Watersheds

Upper Tennessee River

WHY IS THIS WATERSHED SPECIAL?

The Upper Tennessee River, nestled in the majestic mountains of southwest Virginia, serves as an important resource to Virginia, Tennessee, and North Carolina. Three major tributaries – the Clinch, Holston, and Powell Rivers – feed the river, which drains a total of 5,686 square miles. Many species of bats, cave invertebrates, plants, and amphibians are globally unique to this area and are at risk.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on the following key environmental problems:

- Imperiled and vulnerable fish and mussel species, including many endangered or threatened species.
- Polluted runoff of nutrients, sediments, toxic chemicals, and bacteria from agriculture, mining, logging and urban expansion.

RESTORATION ACTIVITIES

The Upper Tennessee Roundtable will use Targeted Watersheds Grant funds to test several new approaches and technologies, including:

- Experimental measures to protect mussels, including a mussel-friendly bridge design demonstration.
- A stormwater toxic spill protection project to demonstrate new technologies for containing toxic waste spills.
- Bacterial source tracking research to identify potential sources of microbial pollution.
- Septic Tank Effluent Pump (STEP) sewer demonstration project to test an innovative and cost-effective method o eliminating polluted runoff.
- A new Buffer Easement Land Trust.
- A riparian corridors protection model along with technica and financial assistance to landowners.
- Creation of an 850-acre mussel preserve on the Clinch River.

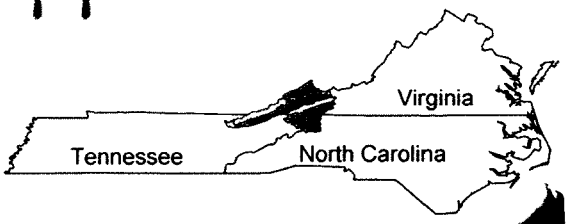
"The EPA Gran funding a number demonstrations t will not only help learn more ab how to protect c water resources, b will also allow us spread that knowled throughout t watershe

– Emily Lachniet, Ch Upper Tenness River Roundta

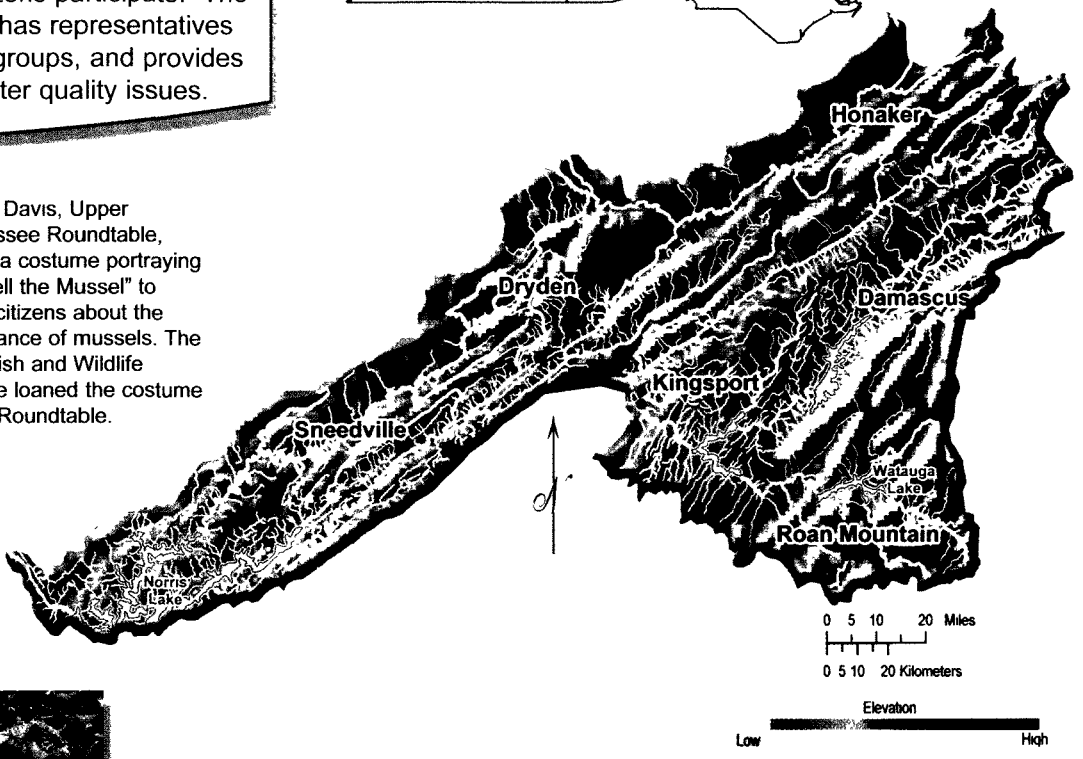
A STRONG PARTNERSHIP FOR CHANGE

Citizens founded The Upper Tennessee River Roundtable in June 1999 in response to the watershed's ecological challenges. The Roundtable is a true grassroots organization – any citizen coming to a biannual meeting is a voting member. More than 500 citizens participate. The Board of Directors of the Roundtable has representatives from twenty-six different stakeholder groups, and provides a forum for seeking consensus on water quality issues.

Upper Tennessee River



Dr. Ed Davis, Upper Tennessee Roundtable, wears a costume portraying "Russell the Mussel" to teach citizens about the importance of mussels. The U.S. Fish and Wildlife Service loaned the costume to the Roundtable.



Volunteer tests water for dissolved oxygen, pH, and iron levels at an abandoned mine in St. Charles, VA, the site of a 1997 fish kill.

Volunteers learn how to do riffle stability index monitoring.

EPA'S TARGETED WATERSHEDS GRANT PROGRAM

EPA's Targeted Watersheds Grant Program is a new , competitive grant program designed to encourage collaborative, community-driven approaches to meet clean water goals.

For more information about the selected watersheds, please visit: http://www.epa.gov/owow/watershed/initiative/

Targeted Watersheds

Upper White River

"It is in b
agriculture's a
tourism's b
interest to ha
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of clean wat

– Floyd Griz
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WHY IS THIS WATERSHED SPECIAL?

The Upper White River drains a large portion of the Ozark Mountains, an area highly valued for recreation, tourism, and biodiversity. The watershed is home to more than one million people in northwest Arkansas and southwest Missouri. The watershed stretches along 300 miles of river and is about one million acres in size (equal to the size of Rhode Island and Connecticut). The area is predominantly agricultural yet it faces some of the highest developmental pressure in the region.

ENVIRONMENTAL CHALLENGES

The Targeted Watersheds Grant will focus on the following environmental problems:

- Runoff from urban and rural sources, including nutrients and sediments from poultry operations and rapid urbanization.
- Nutrients and bacteria loadings to the lakes and groundwater from the growing reliance on conventional septic systems.

RESTORATION ACTIVITIES

The Upper White River Basin Foundation will use EPA Targeted Watersheds Grant funds to:

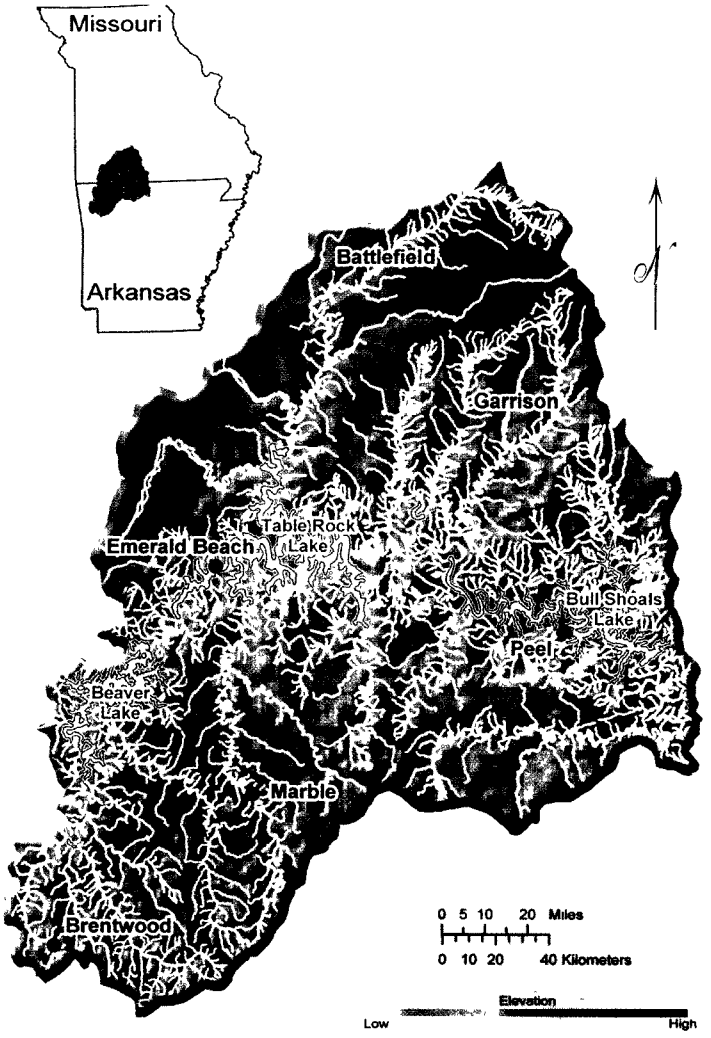
- Develop a watershed management plan by expanding partnerships and using the best scientific expertise.
- Monitor the water quality impact of eliminating septic tanks within a defined area.
- Create a unified Geographic Information System database of all available watershed data.
- Add new monitoring stations and improve data analysis to document environmental progress.

Upper White River

A STRONG PARTNERSHIP FOR CHANGE

The Upper White River Basin Foundation, the lead organization, is partnering with several organizations to implement a bistate watershed plan that coordinates priority actions across the state boundaries of Arkansas and Missouri. Partners include:

- The Kings River Watershed Partnership
- The James River Basin Partnership
- Table Rock Lake Water Quality, Inc.
- Watershed Committee of the Ozarks
- Audubon Arkansas
- Numerous local stakeholders



Excess nutrients from agriculture and stormwater cause algal blooms.

The project will develop consensus recommendations from a broad range of stakeholders in both states to reduce nutrient loadings.

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Targeted Watersheds

List of Grantees

2003 Grantees

Bayou Bartholomew, AR
Winrock International
www.winrock.org

Charles River, MA
Charles River Watershed Association
www.crwa.org

Christina River, PA and DE
Christina Basin Partnership
www.wr.udel.edu/publicservice/chbasin.html

Clark Forke-Pend Oreille, MT, ID and WA
Tri-State Water Quality Council
www.tristatecouncil.org/index.html

Cumberland River, TN and KY
Cumberland River Compact
www.cumberlandrivercompact.org

Dunkard Creek, PA and WV
Greene County Watershed Alliance
www.greenewatersheds.org

Great Miami River, OH
Miami Conservation District
www.conservancy.org

Greater Blue Earth, MN and IA
Three Rivers Resource Conservation and Development Council

Hanalei Bay, HI
Hanalei Watershed Hui
www.hanaleiriver.org

Lower Columbia River, OR and WA
Lower Columbia River and Estuary Partnership
www.lcrep.org

Manistee River, MI
Little River Band of Ottawa Indians

Meduxnekeag River, ME
Houlton Band of Maliseet Indians

Narragansett Bay, RI and MA
Partnership for Narragansett Bay
www.ci.uri.edu/Projects/PNB

Raritan River Basin, NJ
Stony Brook Millstone Watershed Association
www.thewatershed.org

Rathbun Lake, IA, AR and MO
Rathbun Land and Water Alliance
www.rlwa.org

Rio Puerco, NM
Rio Puerco Management Committee

Upper South Platte, CO
Coalition for the Upper South Platte
www.uppersouthplatte.net

Upper Susquehanna River, NY and PA
Upper Susquehanna Coalition
www.u-s-c.org

Upper Tennessee River, VA, TN and NC
Upper Tennessee River Roundtable
www.uppertnriver.org

Upper White River, AR and MO
Upper White River Basin Foundation

2004 Grantees

Bear River, UT, ID and WY
Bear River Commission
www.bearlakewatch.com

Cape Fear, NC
Cape Fear River Assembly
www.cfra-nc.org

Dungeness River, WA
Jamestown S'Klallam Tribe
www.jamestowntribe.org

Fourche Creek, AR
Audubon Arkansas
www.ar.audubon.org

Ipswich River, MA
MA Department of Conservation
www.mass.gov/dcr

Kalamazoo River, MI
The Match-E-Be-Nash-She-Wish Band of the Pottawatomi Indians
www.mbpi.org

Kenai River, AK
Kenaitze Indian Tribe

Lake Tahoe, CA and NV
CA Regional Water Quality Board
www.swrcb.ca.gov

Nashua River, MA and NH
Nashua River Watershed Organization
www.nashuariverwatershed.org

Passaic River, NJ
Rutgers University
www.ecocomplex.rutgers.edu

Schuylkill River, PA
The Partnership for the Delaware Estuary
www.delawareestuary.org

Siuslaw River, OR
Pacific Coast Watershed Partnership
www.pacificwatersheds.net

Upper Mississippi River, IA
Department of Agriculture and Land Stewardship
www.agriculture.state.ia.us

Upper Sangamon River, IL
Agricultural Watershed Institute

"We do not inherit the earth from our ancestors; we borrow it from our children." - Ancient Indian Proverb