

EPA Watershed Events



A Bulletin on Sustaining Water Resources and Ecosystems

President Clinton Announces Clean Water Action Plan

Recognizing that we have not fully achieved the goals of the Clean Water Act, President Clinton and Vice President Gore have announced a far-reaching plan to protect and restore the Nation's rivers,

lakes, wetlands, estuaries, and coastal waters. The Administration's *Clean Water Action Plan: Restoring and Protecting America's Waters* was unveiled in a ceremony in February on the shore of the Chesapeake Bay and contains more than 100 recommendations. Acknowledging the widespread problems caused by non-point source pollution, and the importance of clean water to the ecological integrity of the Bay, the President emphasized that "[W]e must curtail the runoff from farms, from city streets, and from other diffuse sources that get into our waterways and pollute them. Every child deserves to grow up with water that is pure to drink, lakes that are safe for swimming, and rivers that are teeming with fish." To achieve these goals, the President has proposed an additional \$568 million in the FY '99 budget and a total of \$2.3 billion in additional funds over the next five years (subject to congressional approval).

Polluted runoff is now the leading cause of water quality degradation in most of our surface waters. For example, 70 percent of our impaired rivers and streams are polluted by agricultural runoff or discharges and 40 percent of surveyed waters still

do not meet their designated uses. Last October, on the 25th Anniversary of the Clean Water Act, Vice President Gore expressed the need to address these problems with a renewed effort to finally achieve the overall goal of the Clean Water Act—"to restore the physical, chemical, and biological integrity of the Nation's waters." In this regard, the Vice President

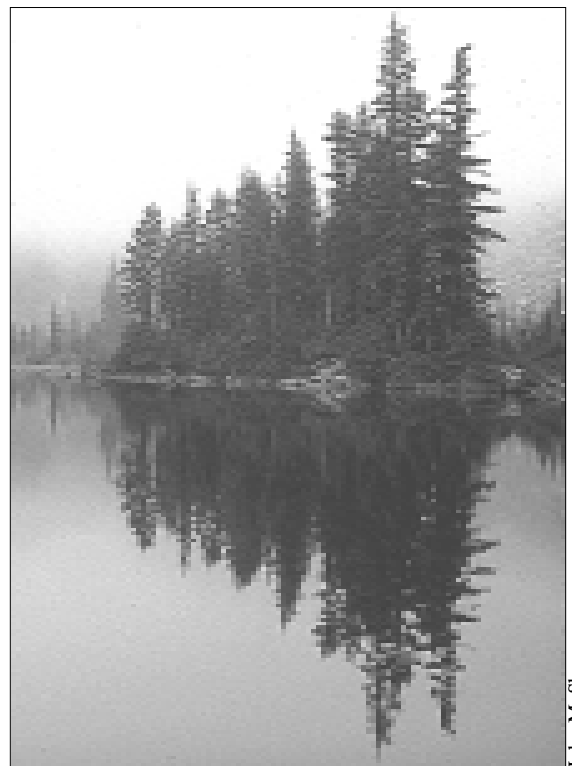
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In This Issue...

The theme of this issue is "wetlands and river corridor restoration." As wetlands and river corridors are often the most ecologically productive and environmentally sensitive areas within a watershed, protecting and restoring these critical areas will contribute to achieving the goal of "clean and safe water" for both people and ecosystems. Of special note is the Administration's Clean Water Action Plan released in February. This Action Plan is a significant milestone in water resources management and a bold statement for restoring the rivers, wetlands, lakes, and estuaries that we use and enjoy every day. Interestingly, although the theme for this issue was selected prior to the Vice President's call for a Clean Water Action Plan, the articles we received were not only consistent with the restoration theme, but the principles outlined in the Plan as well.

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John McShane

Water is our most precious resource.

Watershed Events

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U.S. Environmental Protection Agency

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Watershed Events provides updated and timely information to professionals and others interested in the development and implementation of the watershed approach and in achieving watershed goals. The watershed approach focuses on mitigating the primary threats to ecosystem and human health and involving stakeholders to take action in an integrated, holistic manner. Please direct any questions or comments to:

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directed EPA and USDA, in conjunction with other federal agencies, to develop a Clean Water Action Plan, emphasizing the need to take a holistic, watershed approach.

The Clean Water Action Plan is both a vision statement and a blueprint for restoring and protecting our water resources. The Action Plan focuses on (1) promoting water quality protection and restoration

on a watershed basis and (2) strengthening core clean water programs to protect human health, increase natural resources

stewardship, reduce polluted runoff, and provide citizens and officials with crucial information. The Action Plan espouses more than 100 actions that will directly benefit people and ecosystems including:

- Restoring 25,000 miles of stream corridors on public lands by 2005.
- Achieving a net increase of 100,000 acres/yr of wetlands by 2005.
- Establishing 2 million miles of riparian buffers on agricultural lands by 2002.
- Establishing nutrient criteria (specifically for nitrogen and phosphorus) tailored to different water bodies and ecoregions.
- Expanding coastal research, monitoring, and polluted runoff controls.

A watershed approach will encourage federal, state, and local officials to work together and, hopefully, to better understand the interdependence of their programs. Increased cooperation and integration among the different departments and agencies at all levels of government will also result in more effective and efficient implementation of programs and may be instrumental in overcoming some long-standing institutional barriers to achieving goals. The watershed approach also promotes accountability and involves the public, landowners, and business interests in the process.

The federal government will also

take an active role in protecting and restoring water quality in the millions of acres of land that it holds in trust for the American people. For example, the Departments of Agriculture and the Interior will work together to develop a Unified National Federal Policy to promote watershed protection in areas managed or overseen by the U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Manage-

ment, Bureau of Reclamation, Office of Surface Mining, and other offices.

To protect your rivers, protect your mountains.

Emperor Yu of China
1600 BC

The Clean Water Action Plan is a major milestone in water resources

protection in the United States. When fully implemented, the Action Plan will have a significant impact on ensuring clean and safe water for people and ecosystems for generations to come.

The Action Plan can be accessed at www.epa.gov/cleanwater or www.nhq.nrcs.usda.gov/cleanwater/ and copies can be obtained by calling 1-800-490-9198.



Great Blue Heron

Restoring Wetlands and River Corridors: Enhancing Ecosystems and Communities

The National Research Council in its 1992 report *Restoration of Aquatic Ecosystems* defined restoration as a "return of an ecosystem to a close approximation of its conditions prior to disturbance." The objective of restoration is to emulate a natural, self-regulating system that is integrated ecologically with the landscape in which it occurs. Wetlands and river corridors are critical areas within watersheds and their restoration not only enhances the integrity of aquatic and terrestrial ecosystems, but contributes to protecting and restoring water resources as well. Significantly, improving water quality has also brought millions of people back to their rivers and people-oriented waterfront businesses in many communities are thriving.

Restored wetlands, like undisturbed ones, remove pollutants from the waters that flow through them, such as nutrients and sediment, which are significant causes of water quality impairment.

To be effective, restored wetlands must be integrated, hydrologically and ecologically, with functionally related lands and waters. Because effective restoration requires that many organizations work together, EPA has teamed up with others who are interested in restoring river

corridors, floodplains, and riparian buffers. This newly organized **River Corridors and Wetlands Restoration Partnership** includes federal agencies, city and county associations, non-profit organizations, and corporate members. The purpose of the group is to share information and develop broader coalitions of organizations to accomplish community-based restoration projects.

"Working with Wetlands and River Corridor Restoration Partners, a group of 30 governmental and non-governmental organizations involved in habitat restoration, EPA will have cooperated on wetland projects in 500 watersheds by 2005."

—*Clean Water Action Plan: Restoring and Protecting America's Waters*

Watershed managers can play an important role in bringing together the people, information, and the expertise to ensure that river corridor and wetland restoration is considered and objectively evaluated as a viable option in solving water quality and quantity issues in watersheds. Restoring the integrity of these critical areas of our landscape will provide a wide range of environmental and economic benefits for communities, as well as individual citizens,

across the nation into the 21st century, and beyond.

EPA has established a website exclusively for river corridors and wetlands restoration partners, programs, and projects. Information can be accessed at <http://www.epa.gov/owow/wetlands/restore/>. For more information concerning this site or the River Corridors and Wetlands Restoration Partnership call John Pai at (202) 260-8076 or e-mail pai.john@epamail.epa.gov

Watershed Plan in Ontario, Canada, Sets the Framework for Habitat Restoration

The Red Hill Creek watershed, located in the City of Hamilton along the western shores of Lake Ontario, has been the focus of an intensive watershed planning process for nearly 2 years. The Watershed Plan lays out a schedule of actions as a framework to promote the restoration of valued ecosystem components in the watershed.

Urbanization of the Red Hill Creek watershed has significantly impacted the quality and quantity of both base and storm flows. This has resulted in high levels of erosion and sedimentation, leading to unstable stream channels and degraded aquatic and terrestrial habitats.

Some of the key recommendations of the plan include:

- A combined sewer overflow abatement program (storage facilities).
- Rehabilitation/restoration of 5+ km of streams.
- A distributed system of constructed wetlands (retrofit at major outfalls).
- A citywide roof leader disconnection program.
- Additional research into sources of specific contaminants.

For more information, contact Pam Hubbard, Region of Hamilton-Wentworth, Watershed Coordinator, (905) 546-2388; e-mail: phubbard@hamilton-went.on.ca or Ron Scheckenberger, Manager of Hydrology, Hydraulics, Water Quality and Stream Morphology disciplines, Philips Planning and Engineering Limited, (905) 335-2353; e-mail:

ron.scheckenberger@philipsconsultants.on.ca



John McShane

Wetlands are critical components of watersheds and provide spawning, nesting, and feeding areas for many species of fish and wildlife.

Corps Initiatives in Wetlands and Stream Corridor Restoration



Corps ecosystem restoration activities typically address wetlands, riparian, and aquatic ecosystems focusing on problems associated with hydromodification or substrate alteration. Ecosystem restoration studies can be individually authorized by Congress, such as the multiyear and multiagency Central and Southern Florida (Everglades) Project [see related article on page 8], or pursued through one of three programmatic authorities.

- Section 1135 of the 1986 Water Resources Development Act (WRDA) which authorized the Corps to make modifications to its existing projects to help improve the quality of the environment.
- Section 204 of the 1992 WRDA provides authority to use dredged material from navigation channels to protect, restore, and create aquatic and ecologically related habitats, including wetlands.
- Section 206 of the 1996 WRDA provides additional authority to engage in aquatic ecosystem restoration projects that improve the quality of the the environment and is cost-effective.

In addition, the Corps has training courses on *Riparian Zone Ecology, Restoration, & Management*, and three Wetlands courses focusing on *Development & Restoration, Evaluation Procedures, and Mitigation Banking*. The Corps has also contributed to the interagency *Stream Corridor Restoration*

Handbook and accompanying courses, currently under development. Corps training courses are open to individuals outside the agency on a space available basis. For more information, contact the Huntsville Training Division Registrar's Office at (205) 895-7421.

Corps to Study Restoration of Riverine Ecosystems

The President's FY '99 budget for the US Army Corps of Engineers includes \$25 million for a *Riverine Ecosystem Restoration and Flood Hazard Mitigation* initiative. The objectives of the program are to expand the use of nonstructural measures to reduce flood losses and to restore the natural resources and functions of rivers and their floodplains.

Floods have caused a greater loss of life and property and have devastated more families and communities in the United States than all other natural hazards combined. Despite expansive use of "flood control" structures, flood losses have been increasing over the last few decades and now average \$7.5 billion per year. Historically, structural measures such as dams, levees, and channelization projects have also caused significant adverse impacts to riverine ecosystems in watersheds across the country. The \$25 million (which still must be approved by the Congress) will fund studies of potential project sites, coordination with other agencies, and the development of solutions.

TVA's Innovative Approach to Shoreline Erosion and Stabilization



Shoreline soil erosion is a growing concern among lake users and resource managers in the Tennessee Valley. The Tennessee Valley Authority (TVA) and its public and private partners are responding by demonstrating innovative stabilization approaches for reservoir shoreline soil erosion. "TVA's goal is to stabilize all critically eroding shoreline sites in TVA's lake systems through partnerships," said Ruben Hernandez, TVA's Vice President of Land Management.

TVA conducted a comprehensive, field assessment of shoreline erosion during 1994-1997 to identify factors contributing to shoreline erosion. The assessment documented vegetation type, vegetative impacts, land use, and erosion characteristics. "We're using such techniques as the environmentally friendly process of soil bioengineering or combining plants with engineering concepts to correct erosion problems," said Jack Muncy, Project Leader of TVA.

Native plants, combined with structural designs such as rock riprap and coconut fiber rolls, are used. Some of the major components of this work are:

- Site-specific treatment that minimizes soil disturbance and installs BMPs.
- Reshaping of banks to ensure stability.
- Installation of riprap or other hard armoring techniques in combination with soil bioengineering applications.
- Construction of exclusion fences to keep livestock from impacting riparian zones.

"In selecting plant materials for shoreline stabilization, we use native woody and herbaceous plants," Muncy added.



Before—eroding shoreline along TVA's Chatuge Reservoir.



After—the same shoreline after being revegetated by TVA.

TVA's *Banks and Buffers—A Guide to Selecting Native Plants for Streambanks and Shorelines* is used as a reference guide.

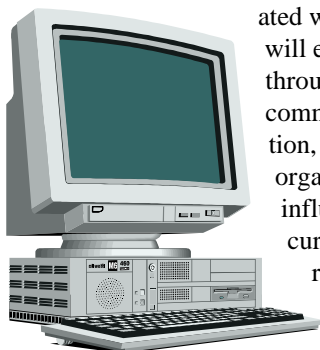
For more information about TVA's shoreline stabilization work, contact Jack Muncy, TVA Land Management, Norris, TN 37828, (423) 632-1750.

An Operating System for Stream Corridor and Wetland Restoration

Scientists from EPA and the states of Oregon and Washington gathered last summer at a workshop in Corvallis, Oregon, with the objective of exploring ways to increase the effectiveness of stream corridor and wetland restoration projects. What emerged was consensus that the ecological effectiveness of restoration can be enhanced by having practitioners merge their ongoing activities under what can be termed a common operating system. Operating system simply means the linkage of restoration activities through the communication and mapped depiction of restoration activities occurring in particular geographical areas, with stated rationale for the work.

Efforts are now under way to test the systems approach in the Willamette River Valley of Oregon. The Willamette Valley Performance Tracking System (PTS) is scheduled to produce a "design template" for the construction of Internet web pages. The template will embrace the basic concepts of ecosystem management, depict how the concepts are applied to restoration, and then show how they can be incorporated into existing and new web page development. It is hoped that use of the design template and associated

web pages will exert, through communication, an organizing influence on current restoration practices.



The Willamette Valley PTS is also being viewed as a tool for the technology transfer and refinement of existing communication networks. The PTS team will take advantage of other successful efforts that rely on the Internet to organize and depict community-based environmental protection activities.

New innovations being considered for the PTS include (1) integrating the concepts of ecosystem management directly into the architecture of a web page, (2) depicting restoration practices as implemented at varying spatial scales, (3) displaying work load commitments and funding allocations, (4) providing examples of applied methods, and (5) documenting the scientific rationale for applied methods.

For more information, contact Richard Sumner with EPA in Corvallis, Oregon, at (541) 754-4444 or Cara Berman with EPA Region 10 (Seattle) at (206) 553-6246.

National Park Service Blazes New Trails in Conservation Assistance



The Rivers, Trails and Conservation Assistance Program (RTCA) helps communities protect and restore rivers, trails, and greenways on non-federal lands. By lending the broad skills and high credibility of the National Park Service to local projects, the RTCA can help other groups achieve their goals. RTCA is based on the principle of partnerships. By working together, residents, landowners, government agencies, and private organizations can meet the challenges of conservation. The National Park Service works with all of these groups to help them establish goals, resolve difficult issues, and reach consensus on how community resources

should be used and managed. The National Park Service becomes involved at the request of the community, serving as a catalyst for local action.

For more information, contact Rob Campellone of the National Park Service, National Center for Recreation and Conservation, Room 3606, 1849 C Street, NW, Washington, DC 20240.

National Park Service and EPA Meet on Mountaintop

Staff from the National Park Service's Rivers, Trails, and Conservation Assistance Program and EPA's Office of Wetlands,

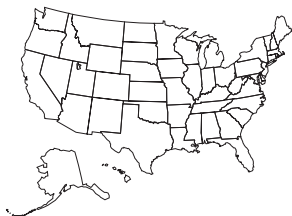


Oceans, and Watersheds met in December 1997 in Golden, Colorado, to discuss how to improve coordination and collaboration on watershed protection programs and activities. Regional and headquarters staff from both agencies participated in the meeting, which focused on how river conservation and water programs can be mutually supportive and compatible. A facilitated discussion was held at the end of the meeting to elicit specific recommendations and action items relative to ensuring continued communication, cooperation, and coordination at both the regional and headquarters levels. For more information, contact Rob Campellone of the National Park Service at (202) 565-1198 or John McShane of EPA at (202) 260-0409.

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.

Aldo Leopold

WHAT'S HAPPENING IN THE STATES?



EPA to Host State Revolving Fund Workshops

The 10 EPA Regional Offices will host workshops this spring to improve usage of the vast resources of the State Revolving Fund (SRF) to better address each state's water quality problems. The SRF has more than \$24 billion in assets available for loans and can fund a wide variety of water quality projects, including agricultural BMPs, urban stormwater runoff management, wetlands and riparian zone restoration and protection, estuary projects, ground water protection, and many others.

These interactive workshops will be structured to bring state water quality representatives from nonpoint source, wetlands, estuary, watersheds, ground water, and SRF programs together to share ideas, learn about each other's programs, and discuss various issues. For more information, see CW-SRF "How to Fund NPS and Estuary Enhancement Projects," EPA 909-K-97-001, July 1997. Copies may be obtained from EPA by calling (800) 490-9198. For additional information, contact Nikos Singelis at (202) 260-5695.

Wetlands Restored in Silver Lake Watershed

Wetlands used as a tool for watershed management? Absolutely. But the reaction you would get from most rural landowners within the Silver Lake watershed is disbelief. And a few years ago, even the scientific community would have been skeptical.



For many years, Silver Lake, in Dover, DE, has experienced water quality problems, including nutrient loading and dissolved oxygen stresses. Two years ago, the Delaware Department of Natural Resources and Environmental Control (DNREC) Stormwater Program conducted a stormwater project designed to control and filter runoff around the lake. The success of that project created interest in water quality throughout the watershed drainage. A mechanism was needed to remedy the transmittal of nutrients into the headwaters of the watershed. Restoration, and in a few cases enhancement, of wetlands was the tool needed to achieve an improvement in water quality.

An EPA grant was acquired to develop a watershed wetland restoration plan with emphasis on water quality and habitat improvements. To further improve upon this idea, environmental scientists in the Division of Water Resources of DNREC were able to obtain state funds for a pilot project to pay easements to landowners interested in wetlands restoration. Using 1992 aerial color infrared digital orthophoto quad maps, the scientists used associated photo interpretation to locate prior converted cropland and farmed wetlands to target for this project. Over 90 percent of the farms within this watershed have prior converted wetlands and/or farmed wetlands in crop production or pasture. Over 600 acres of restorable wetlands were identified, of which 50 acres were targeted as part of this pilot project.

A wetlands restoration project adjacent to or within the ditches will provide some or all necessary filtration functions to alleviate nutrient loading throughout the watershed. A monitoring phase should be the next step, enabling evaluation of the exact functions being performed by each of

these wetlands. For more information, contact Mark Biddle, DNREC Division of Water Resources, Watershed Assessment Section, at (302) 739-4691 or e-mail mbiddle@state.de.us.

Pratt Farm Water Management Project

The Delaware Department of Natural Resources and Environmental Control (DNREC) has capitalized on two federal grants to construct the Pratt Farm Water Management/Wetland Restoration Demonstration/Education Project. Funds from EPA's Nonpoint Source Pollution Program (319 grants) and the National Marine Fisheries Service (NMFS) were used to match state funds to construct a unique and innovative project on the 250-acre farm of John Pratt, located in the headwaters of the upper Chester Watershed.

This project is a partnership involving the U.S. Fish and Wildlife Service, EPA, Natural Resources Conservation Service, NMFS, DNREC, Mr. Pratt, and several nongovernmental organizations. The project is a demonstration of minimal destructive agricultural drainage construction techniques and restoration of riparian zones and wetlands along a 1-mile agricultural ditch network. Approximately 10 acres of wetland restoration in marginal agricultural fields has been completed along with 10 acres of forested wetland enhancement.

This project represents a rare opportunity to demonstrate to the agricultural and environmental community, state and federal officials, and the general public that agricultural drainage and environmental quality do not have to be mutually exclusive. For more information, contact Tom Barthelmeh, DNREC, Division of Soil and Water Conservation, (302) 739-4411.

Dam Removed to Restore Fish and Wildlife Habitats



In December 1997, work began to remove the Quaker Neck Dam located in the Neuse River near Goldsboro, North Carolina. The voluntary watershed restoration project, carried out under a public-private partnership including state and federal agencies, fisheries groups, and Carolina Power & Light Company (CP&L), will improve fish habitat along a 75-mile stretch of the Neuse River and help replenish 925 miles of tributary spawning areas. Anadromous species expected to benefit by this project include striped bass, American shad, hickory shad, and shortnose sturgeon.

The dam, 260 feet across and 7 feet high, was constructed in 1952 to provide cooling water to a CP&L coal-fired electricity-generating plant. In 1989, a study by the U.S. Fish and Wildlife Service, funded by the Albemarle-Pamlico Estuarine Study (APES), identified the dam as an obstruction to anadromous fish migration. In 1991, the Coastal America Partnership selected the Quaker Neck Dam as a demonstration project. In 1992, upon completion of an Environmental Assessment of the project area, the U.S. Environmental Protection Agency awarded APES a \$100,000 grant to support removal of the dam.

CP&L officials were willing to have the dam removed, but needed assurances that their water intake needs would not be jeopardized. In August 1993, studies performed by the U.S. Army Corps of Engineers (USACE) showed that construction of a 75-foot-long, sheetpile weir dam in the plant's intake canal would provide adequate head for CP&L's pumps and eliminate the need for the Quaker Neck Dam. Shortly thereafter, the USACE completed a cost estimate and design specifications for the weir dam.

Over the next 3 years, the project experienced considerable delay due to complex issues inherent with multiagency involvement. Agencies involved in developing a Memorandum of Agreement (MOA) that identified their roles and responsibilities expressed deep concerns over liability and insurance issues, as did CP&L. The U.S. Marine Corps, willing to demolish the dam as part of a military training exercise, was unable to participate due to procedural constraints. It became apparent that an agreement with a private contractor would be needed to demolish the dam. Early cost estimates came in over budget, and it was obvious that additional funds were needed. In 1995, the project was awarded \$194,000 (\$97,000 from state funds appropriated by the NC Marine Fisheries Commission and \$97,000 from the National Fish and Wildlife Foundation). With a sufficient level of funds on hand, the project regained

momentum, while agencies continued

to negotiate the terms of the MOA. Finally, in October 1997, the MOA was officially signed and a contract was awarded to a private vendor for \$181,000 to construct the weir in the plant's canal and remove the Quaker Neck Dam from the river's main stem.

The success of this project is a credit to the perseverance and dedication of all the agencies/groups involved, which withstood times of doubt and overcame countless obstacles. Simply stated, "It was a project we all believed in." For more information, contact Guy Stefanski, Albemarle-Pamlico Estuarine Study, NC Division of Water Quality, P.O. Box 29535, Raleigh, NC 27626; (919) 733-5083, ext. 585; e-mail: guy@dem.ehnr.state.nc.us.



Coastal America Partnership

Taking part in ceremonies held at the dam site, Secretary of the Interior Bruce Babbitt credited North Carolina with setting a national example. "We're removing a dam today in order to restore a river," he said. "By restoring a river and a fishery, we will restore and recapture part of North Carolina's heritage, and restore and repair part of the human spirit."

WETLAND from page 6**Basinwide Restoration Will Increase Wetland Acreage**

The North Carolina Wetlands Restoration Program (NCWRP) is an innovative, nonregulatory statewide program that was established by the North Carolina State Legislature in 1996 for the purpose of restoring wetlands, streams, and nonwetland riparian areas throughout the state. The goal of NCWRP is to achieve a net increase in wetland acres, functions, and values within each of the state's 17 major river basins.

To achieve its objectives, NCWRP is developing innovative watershed-based strategies, called Basinwide Restoration Plans, for each of North Carolina's 17 river basins. To target areas in greatest need of restoration, priority subbasins were selected within each river basin based in part on water quality data from the North Carolina Division of Water Quality's Basinwide Water Quality Management Plans.

Funding for the NCWRP's efforts comes from two sources—appropriations from the General Assembly to do restoration and fees from individuals who are required to do compensatory mitigation for permitted wetland impacts but prefer to pay into the Wetlands Restoration Fund as an alternative to performing their own mitigation. Through the development of Basinwide Restoration Plans and use of GIS mapping tools, NCWRP will use monies from the Wetlands Restoration Fund to perform compensatory wetlands mitigation in an ecologically effective way to ensure that restoration projects address identified river basin needs. Ultimately, results are to take the form of increased wetlands acreage, functions, and values in each river basin that is of high priority for protection or restoration.

For more information about the North Carolina Wetlands Restoration Program and Basinwide Restoration Plans, contact Bonnie Mullen at (919) 733-7015, ext. 252, or write to North Carolina Wetlands Restoration Program, Department of Environment and Natural Resources, Division of Water Quality, P.O. Box 29535, Raleigh, NC 27626-0535.

Ohio EPA Awards Loan to The Nature Conservancy

Ohio EPA recently awarded the first low-interest water pollution control loan to foster stream bank conservation. The Nature Conservancy received the \$110,000 loan award to purchase a permanent conservation easement along Ohio Brush Creek in Adams County. This is the first time The Nature Conservancy has obtained financing for stream restoration and protection from a state revolving loan fund established under the Clean Water Act.

"Conservation easements are an effective way to protect the quality of streams and their adjacent areas," said Ohio EPA Director Donald R. Schregardus. "Restoring and preserving these riparian areas is an important part of controlling contaminated runoff that threatens water quality and stream habitat."

Ohio EPA recently approved the loan from the its State Revolving Fund. It will be repaid over a 5-year period at an interest rate of 3.2 percent. The Water Pollution Control Loan Fund is jointly administered by Ohio EPA and the Ohio Water Development Authority. Since 1989, this fund has loaned more than \$1 billion for a variety of water pollution control projects.

For more information, contact Linda Oros at (614) 644-2160. Ohio EPA news releases are available on the Agency's World Wide Web page at <http://www.epa.ohio.gov/>.

Ecosystem Restoration in the Florida Everglades

The Florida Everglades is recognized internationally as a unique, diverse, and productive ecosystem that is important to our natural heritage. However, in the last 100 years, the Everglades ecosystem has been dramatically altered by the construction of levees and drainage channels for flood control, navigation, water supply, and other purposes. These dramatic changes to the landscape have adversely affected tens of thousands of

acres of wetlands, water quality, and fish and wildlife habitats, as well as the quality of the human environment.

Section 528 of the Water Resources Development Act of 1996 provided the authority and an organizing framework for partners to begin to reverse this degradation on a large scale. The legislation enhances the Corps's ability to identify, prioritize, and implement ecosystem restoration projects in an area extending from Orlando, Florida, to Florida Bay. Restoration goals and multipurpose objectives were developed in consultation with stakeholders based on work by a Governor's Commission and the 14-member South Florida Ecosystem Restoration Task Force. Working together, partners and stakeholders have identified and prioritized 35 "Critical Projects" which, if implemented, will provide independent, immediate, and substantial environmental benefits. Letter reports are being prepared for expedited review and approval with the objective of completing as many of the Critical Projects over the next 3 years as will funding will allow. For more information, contact Chip Smith, U.S. Army Corps of Engineers, at (703) 693-3655.

Mad River Gets Even with Brass Mill

Through a unique public-private partnership between the state of Connecticut, the city of Waterbury, and General Growth Properties, more than \$30 million of public funds were expended to clean up the contaminated site of the former Scovill Brass Works in Waterbury, Connecticut. This remediation made way for redevelopment of the site and restoration of the adjacent "urban" Mad River by the developer. Environmental permitting required measures to protect, enhance, and restore the watercourse, in keeping with a statewide initiative to restore and protect urban rivers. The resulting project design included modifications to the impacted stream channel to

improve its hydraulic function and to restore aquatic habitat.

Historical alteration of the river included constructing a run-of-river dam, realigning a channel through the mill complex, and confining an extensive section of river in a rectangular concrete channel. Restoration work included lowering of the dam, removal of accumulated sediments (some of which were contaminated), replacement of the concrete channel with more natural materials, introduction of a number of features to restore and enhance aquatic habitat, and provisions for fish passage.

This project demonstrated the importance of public-private partnerships in financing and permitting river restoration efforts. It also illustrated how civil engineers, working with fisheries biologists and wetland scientists, can draw upon traditional techniques for the design of hydraulic structures to achieve an "ecologically engineered" objective. For more information, contact David C. Nyman, P.E., Senior Project Manager, ENSR, 155 Otis Street, Northborough, MA 01532; (508) 393-6779; e-mail: dnyman@ensr.com.

Restoration Information Available from Cornell

As New York State's Land Grant University, Cornell Cooperative Extension is involved in developing educational programming on wetlands and streamside management. In August 1997, Cornell hosted a satellite videoconference on "Constructed Wetlands for the Management of Stormwater Runoff," aimed at informing viewers how to incorporate construction design features that simultaneously achieve optimum water quality protection and the multiple benefits of functioning wetlands. The conference consisted of a review of case studies followed by presentations on (1) understanding natural wetland functions to ensure success, (2) managing vegetation and hydrology, and (3) wildlife use of constructed wetlands. A phone-in Q & A session concluded the broadcast. A 90-minute videotape of the conference and an information packet can be ordered through the web at: <http://www.dnr.cornell.edu/ext/>

web~1.htm> or from Gary Goff, 104 Fernow Hall, Cornell University, NY 14853, (607) 255-2824, fax: 255-2815, e-mail: grg3@cornell.edu.

In another effort, Cornell University is developing a constructed wetland demonstration site on campus to illustrate stormwater management techniques and their effectiveness. Half of the wetland was planted with native plants in 1997 to enhance wildlife habitat, while the other half was left barren. Water quality and wildlife use of the site are also being monitored. The site will be featured in a 15-minute promotional video available in November 1998. The video is funded by EPA 319 funds. For information on ordering, the video, contact Gary Goff at the above address.

Cornell has also recently developed a "Stand by Your Stream" program focused on streamside management. It includes a fact sheet kit, consisting of the following publications: *Streamside Protection—Why Bother* reviews the importance of riparian zones to water quality, *Streamside Management—Do's and Don'ts* covers several specific management recommendations including planting, and *Streamside Restoration—A Team Effort* overviews key ingredients for a successful restoration project. Workshop presentations and associated slide set programs will be available in summer 1998. Contact Deanna Owens at 108 Fernow Hall, Cornell University, NY 14853; (607) 255-2814, fax: (607) 255-2815; e-mail: dlo3@cornell.edu.

Ohio State University Extension's Watershed Management Education Network

Ohio State University Extension has a long-standing record of support for locally based watershed management projects. Now Extension agents and specialists with expertise in water quality and watershed management are teaming up as the Watershed Management Education Network—better known as the

Watershed Team—to enhance and support the efforts of grassroots watershed groups throughout Ohio. The Watershed Team represents a major commitment on the part of OSU Extension to put University and Extension resources to work toward the goal of conserving Ohio's water resources through community action.

In June of 1997, the Watershed Team led a multiagency group in organizing the 1997 Connecting Ohio Watersheds Conference. Conference

attendees were treated to a host of presentations and posters highlighting the latest techniques and trends in watershed management,

When the well's dry, we know the worth of water.

Benjamin Franklin

outreach education, and program evaluation. One of the challenges faced by conference organizers was how to increase citizen participation. A strategy that was somewhat successful was to offer scholarships to nonagency participants, but the most successful approach was to allow citizens involved in local watershed groups to organize and lead bus tours of several local watersheds. By guiding their own tours, group members were able to make agency representatives more aware of the challenges faced by local watershed projects.

In the winter of 1998, the Watershed Team will launch an outreach program to facilitate the growth and development of newly formed local watershed groups. A few groups will be targeted initially, and Watershed Team members will work in partnership with the groups' leaders to identify strategies for meeting their technological, informational, and educational needs. Personnel and resources from OSU Extension and the Ohio State University will then be assembled to provide group leaders with the appropriate skills, knowledge, and technology. Long-term support for the participating watershed groups will be provided through the system of statewide County Extension Offices and the Ohio Watersheds Online web site. For more information, you can access the Ohio Watersheds Online web site at: <http://www.ag.ohio-state.edu/~waternet/>.



GRASSROOTS ACTIVITIES



The Nature Conservancy's Freshwater Initiative

The Nature Conservancy (TNC) seeks to conserve biological diversity by conserving rare and endangered species and natural communities, as well as the lands and waters they need to survive. Historically, the Conservancy has focused its efforts primarily on terrestrial (including wetland) species and communities. TNC has come to recognize the accelerating decline and imperilment of freshwater biological diversity in the United States and around the world, the globally significant richness of freshwater species in the United States, and the many difficulties confronting efforts to conserve freshwater habitats. For the first time in the Conservancy's history, freshwater has become the focus of the kind of integrated, vigorous, and sustained conservation practiced on the land. The Freshwater Initiative (FWI) is a blueprint for this action.

The Initiative: The FWI is a 5-year TNC program designed to significantly advance the Conservancy's ability to contribute to freshwater conservation.

Three strategies drive the FWI:

Strategy One: Develop and disseminate freshwater biological inventory information and aquatic community classification tools needed for large-scale freshwater conservation planning.

Strategy Two: Make significant breakthroughs in abating threats to freshwater species and communities caused by hydrological alteration and water quality degradation (particularly nonpoint source pollution) at sites selected as research and training centers for advancing freshwater conservation.

Strategy Three: Exponentially increase the quality and frequency of interactions among staff, partners, and outside scientists and experts by providing new tools and approaches for training, information and data sharing, and collaboration.

The Sites: As part of Strategy Two, TNC has selected 37 sites in the United States and Latin America where the Conservancy will work to achieve breakthroughs in reducing two of the most pervasive threats to

freshwater biodiversity—hydrological alteration and water quality degradation. The sites selected for inclusion within Strategy Two will have access to site-specific consultation in the areas of hydrology, landscape ecology, fundraising (public and private), and others from staff within the Conservancy, governmental and private conservation partners, and academia.

For more information, contact Nicole Silk, Biohydrology Training and Information Coordinator, The Nature Conservancy, (303) 541-0341; e-mail: nsilk@tnc.org.

Can Oysters Thrive in the Hackensack River?

An experiment is under way to determine whether oysters can thrive in the Hackensack River and the New York-New Jersey estuary. Undertaking the experiment is the New York/New Jersey Baykeepers, a waterway conservation group that is part of the American Littoral Society. Also working on the project are students from the North Hudson Academy in North Bergen, New Jersey. Oysters provide a vital function in estuarine ecosystems by filtering plankton, other organic matter, and sediment, which improves water clarity, benefiting a host of species.

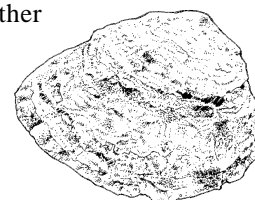
As part of the experiment, oysters are suspended in a mesh net and measured every 2 weeks. Students also note the health of the oysters to determine whether any are dying due to predation or the quality of the water. Their conclusions will determine if the water quality is good enough for the oysters to survive, and thrive, in the Hackensack River.

High school science teacher Dominick Coviello says, "It is an ideal project. Most of the students live near the Hackensack River and have a misconception of the quality of the river. We are already three months into the project and to the students surprise, no oysters have died. They have grown." For more information, contact Bill Sheehan, Hackensack Riverkeeper, P.O. Box 1397, Secaucus, NJ 07096.



John McShane

Reestablishing aquatic and riparian habitats, in conjunction with clean water, will ensure that we achieve the goal of restoring "...the biological integrity of the Nation's waters."



Save Our Streams!

In 1996, the Izaak Walton League of America's Save Our Streams (SOS) Program started the Wetlands Conservation and Sustainability Initiative. The purpose of the Initiative is to help people become wetland stewards by learning about and understanding wetland functions and values, and to foster wetlands conservation among governments, business interests, and the general public. The first tool developed was the *Handbook for Wetlands Conservation and Sustainability*. The handbook outlines an approach similar to the League's award-winning Save Our Streams biological monitoring program. The goals of the Wetlands Conservation and Sustainability Initiative are to:

- Help citizens, planners, government agencies, businesses, and others take a proactive role to conserve and restore our nation's wetlands.
- Begin building national network of wetlands stewards.
- Identify and recruit local wetland professionals to work with organizations, businesses, and local communities in the protection of wetlands.
- Produce effective national tools to help volunteers with wetland stewardship projects.

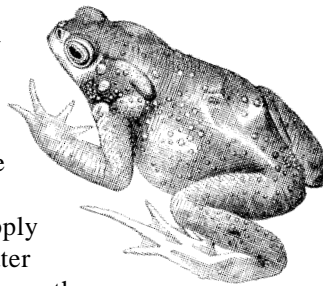
In June 1998, SOS will publish the second edition of the *Handbook for Wetlands Conservation and Sustainability*. In addition, the new 2-day introductory wetland workshop will be offered to the public. At that time, SOS will start production of a wetland training video to accompany the handbook. If you have any questions about the project, please contact the Program Director, Julie V. Middleton, at (800) UG-IWLA or jvincent@iwla.org.

Preservation, Restoration, and Development in the Rockaway River Watershed

The 40-mile Rockaway River, located in north-central New Jersey, is a tributary of the Passaic River

which has some of the most serious water quality problems in the country. The Rockaway subbasin is the site of seven Superfund sites, a defense installation that has been active for more than 100 years, and a historic iron mining and foundry industry. One of the country's first rural community sewage treatment systems was created in the 1920s to protect water quality—an early example of good environmental practice being financially sound.

The Present Is Encouraging. The river, its wetlands, and forests provide habitats for a wide range of wildlife species, and the basin is also home to 200,000 people. The river and its aquifers supply drinking water directly to more than 500,000 people and affect the water quality of at least another half million people.



Clearly, such a wonderful natural resource needs protection. The Friends of the Rockaway River is publishing a major report, *Visions & Strategies*, which provides a visual and conceptual survey of the river, describes threats to the river and quality of life, and presents opportunities to revitalize or protect the river and its natural assets. It offers a balanced and realistic vision for conservation and development activities along the Rockaway. A companion study, *From Visions to Reality*, is also nearing completion; it includes planning methodology, the identification of an initial set of specific projects, and the installation of a GIS to support planning.

The Future Looks Bright. Members of the "Reality" partnership have already initiated steps to undertake specific projects. The first is a wetland mitigation/creation project at the 70-acre site of an abandoned sand and gravel quarry. Other projects on the current list include protection and restoration of open space and cultural resources,

wetlands mitigation projects to reduce urban flooding potential, and the redevelopment of several brownfields along the river. In 5 years this local grassroots effort has moved from neighborhood river cleanups, to a set of clearly defined visions, to a long-range planning methodology, to a series of actions. For more information, contact Harry Shuford at (908) 832-5963.

McKnight Foundation Expands Mississippi River Program

The board of directors of the McKnight Foundation has voted to expand its program of environmental grantmaking to protect the Mississippi River. Over the next 5 years McKnight will dedicate \$23 million to river conservation, up from \$10 million during the previous 5 years. McKnight is the largest environmental funder in the Mississippi Valley.

By the year 2000 McKnight plans to contribute \$5 million a year to conservation efforts on the Mississippi River and its tributaries. That compares to about \$3 million this year. The program will continue to emphasize the Upper Midwest, although grants are made for work in all 10 Mississippi River states. Additional information is also available in a free booklet, *Mississippi River Program: Guidelines for Grant Applicants*. For a copy, call (612) 333-4220.

The Nation behaves well if it treats natural resources as assets which it must turn over to the next generation increased, and not impaired, in value.

Theodore Roosevelt

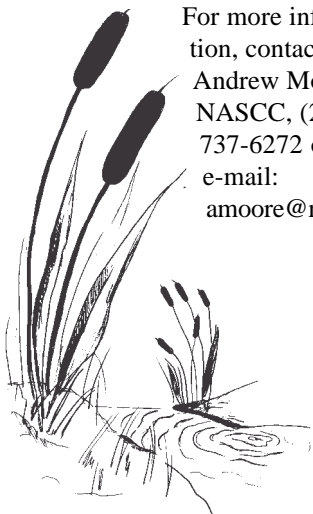
Youth Corps as Resources for Wetland and Stream Corridor Restoration

Thornton Creek bubbles up beside a parking lot in North Seattle and descends through culverts and neighborhoods to Lake Washington. Wetlands in Fossil Creek Community Park filter stormwater runoff in rapidly growing Fort Collins, Colorado. The Second River runs largely unnoticed through Newark, New Jersey. Prairie Wolf Slough on the upper reaches of the Chicago River, formerly farmed, once again functions as a wetland. What do these streams and wetlands have in common? Each has benefited from hands-on restoration efforts (often employing bioengineering techniques) led by state and local youth conservation and service corps.

Youth corps are unique efforts, rooted in strong community connections, that provide young adults ages 16 to 25 with conservation work experience, basic and life skills education, and career preparation. Participants in youth corps—corpsmembers—thrive on the applied learning possible through arduous field work carried out as part of a crew.

EPA has entered into a cooperative agreement with the National Association of Service and Conservation Corps to demonstrate the effectiveness of corps in conducting community-based environmental projects such as stream and wetland restoration, in which EPA funds are matched at least 1:1 with state and local resources.

For more information, contact Andrew Moore at NASCC, (202) 737-6272 or e-mail: amoore@nascc.org.



The Buffalo River—An Urban River, Natural Corridor

Buffalo's legacy is strongly based on its strategic location within the Great Lakes Basin watershed and on the historic Erie Canal. Commerce throughout the Great Lakes had been largely dependent on the "Queen City" as a vital shipping port, for transporting grain, iron ore, and coal from the expanding Midwest. The intense industrialization of the city resulted in the Buffalo Rivers being one of the most polluted watercourses in the nation. What now remains along the Buffalo River are extensive brownfields, situated in highly populated areas and waiting to be rediscovered and redeveloped.

The environmental recovery of this urban river is a recent phenomenon, aided by regulatory decree, environmental education, and declining emphasis on industrial development. Nature is also demonstrating remarkable resilience, as indicated by the return of fish and wildlife to the area. In 1997, Erie County, with support from federal, state, and local governments, completed the construction of three "pocket parks" to restore wildlife habitat along the Buffalo River corridor.

Each parcel, burdened with residential and construction debris and situated near combined sewer outfalls, was reconfigured with pedestrian trails (see following story). A wetland was constructed at one site and native vegetative seed from the largest emergent marsh along the Niagara River was transplanted in the new wetland, allowing for the growth of desirable plant life.

The habitat sites are key to a vision of developing a unified greenway/heritage trail linking noted features within the Buffalo River watershed. Residents have expressed interest in site "ownership," showing community pride and stewardship of the newly restored "green space." To advance water quality studies, nearby schools use the sites as outdoor classrooms. The environmental

and societal benefits of the project are immeasurable and the rewards for all involved numerous. For additional information, contact Mary L. Sonntag, Project Manager, or Michael Raab at (716) 858-6370.

Students Create New Community Parks Through County Partnership

Through an innovative Erie County, NY, partnership, nine students worked to create three new parks along the Buffalo River during the summer of 1997. The students participated in a model project called *Buffalo River/Cazenovia Creek Wetlands and Watershed Stewardship Program*.

The program was a cooperative effort by the Erie County Department of Environment and Planning, the Buffalo and Erie County Private Industry Council, and the West Seneca Youth Bureau-Americorps Program. With Americorps members and Erie County staff as supervisors, students

worked at the park sites along the Buffalo River and Cazenovia Creek to build trails and restore fish and wildlife habitats.

After learning how to create and

maintain habitats, and how the newly created parks could enhance the quality of life for nearby residents, the students conducted educational presentations in communities near the parks and wrote letters to local elected officials about the importance of the parks.

A report documenting Erie County's experience will be available from the National Association of Counties in early 1998. To obtain a copy, contact Abigail Friedman at (202) 942-4225 or e-mail afriedma@naco.org. For more information on the Erie County Stewardship Project, contact Tina Preston, Erie County Department of Environment and Planning at (716) 858-8555 or e-mail tina@cdbg.co.erie.ny.us.

A town is saved, not more by the righteous men in it than by the woods and swamps that surround it.

Henry David Thoreau

Purple Loosestrife on the Loose!

The exotic plant purple loosestrife (*Lythrum salicaria*) began to invade wetlands in the Northeast several decades ago and is now infiltrating wetlands in the Mid-Atlantic states. This attractive-looking waterside plant, a native of Eurasia, strikes terror and frustration in natural resource managers and aquatic ecologists.

Purple loosestrife is an herbaceous perennial that is usually 3 to 5 feet in height and has an ornamental appearance from the showy spikes of magenta flowers. One flower stalk can produce as many as 300,000 seeds. It is found in a variety of wetland habitats, including marshes, riverbanks, ponds, and reservoirs. The problem is that purple loosestrife takes over native plant habitats and crowds out grasses, sedges, and other emergent wetland vegetation. Once this process is complete, the plant reduces and eliminates the mixture of native plants that many types of wildlife use for food and cover. Loosestrife seems to prefer disturbed wetlands, including those which are restored or mitigated, as well as stormwater management ponds and facilities.

A variety of eradication methods have produced varying degrees of success. They include mechanical removal, application of a glyphosate herbicide, and use of beetles that eat loosestrife. The most effective method of removal is to pull purple loosestrife by

hand before a population becomes established.

For more information regarding the status of purple loosestrife and other invasive species in your state, contact your state natural heritage/resources office or the state native plant society. The National Association of Exotic Pest Plant Councils can also provide some basic assistance. Contact Faith Campbell; e-mail: EPPCFT@aol.com or 8208 Dabney Avenue, Springfield, VA 22152.

Adopt Your Watershed!

A new tool for watershed management called Adopt Your Watershed! is now available to you and your community partners. It was developed by EPA in partnership with Know Your Watershed, River Network, and many other groups across the country. Its features include:

- A catalogue of more than 4,000 watershed volunteer groups that can be sorted by state, by ZIP code, and even by watershed name.
- Resources to aid watershed volunteer groups in restoration, monitoring, and education.
- Examples of groups making a difference.

Visit EPA's web site at <http://www.epa.gov/surf/adopt>. If you do not have Internet access, call 1-888-450-9158 and ask for EPA-800-F-97-001 to learn more.

Stream Corridor Restoration: Principles, Processes, and Practices

A landmark cooperative effort is under way among an unprecedented number of federal agencies that have pooled their expertise in developing a reference manual to improve the health of streams.

The agencies are developing the manual *Stream Corridor Restoration: Principles, Processes, and Practices* to serve as a common technical reference for stream corridor restoration. This reference publication can help improve many of the nation's 3.5 million miles of rivers that are currently considered degraded, primarily due to erosion, loss of habitat, and excess nutrients. It will help to boost the number of healthy stream corridors, which provide benefits such as water supplies, recreational opportunities, fish and wildlife habitats, and productive agricultural lands. Its emphasis on looking at all stream users, in varying landscapes and at multiple levels of scales, makes this a unique and valuable document on restoration.

The document will emphasize the benefits of least intrusive solutions that are ecologically derived and self-sustaining. *Stream Corridor Restoration* outlines many alternatives to help people working on a restoration project to make more informed decisions. It is intended primarily for interdisciplinary teams responsible for planning, design, and implementation of stream corridor restoration projects. It might also be useful to others who are working in stream corridor restoration, including contractors, landowners, volunteers, individuals, and agency staff.

Information on the handbook is accessible via the Stream Corridor Restoration Handbook Home Page: www.usda.gov/stream_restoration, e-mail: scorridor@usda.gov.



Applications are now being accepted for a national watershed award specifically for communities and corporations. Awards will be based on the success of innovative solutions to problems that balance the economic and environmental goals of a watershed. For more information contact Lura Svestka, Terrene Institute at (703) 548-5473 or terrinst@aol.com.

Sponsored by CF Industries

As this issue of Watershed Events was going to press, President Clinton had not yet designated the American Heritage Rivers (see the Fall '97 issue). It is expected that the announcement will be made by early May.



NEW IN PRINT



Community Based Environmental Protection: A Resource Book for Protecting Ecosystems and Communities. EPA 230-B-96-003. Copies may be obtained by calling (800) 490-9198.

Beyond Sprawl: Land Management Techniques to Protect the Chesapeake Bay, A Handbook for Local Governments. EPA 903-B-97-005. Copies may be obtained by calling (800) 490-9198.

Watershed Training Opportunities. EPA 841-B-98-001. Copies may be obtained by calling (800) 490-9198.

Monetary Measurement of Environmental Goods and Services: Framework and Summary of Techniques for Corps Planners (IWR Report 96-R-24). To request a copy, fax Arlene Nurthen (703) 428-8435 or download from the IWR web site: <http://www.wrc-ndc.usace.army.mil/iwr/index.htm>. For more information, contact Bill Hansen, (703) 428-9089.

Identifying Small Group Techniques for Planning Environmental Projects: A General Protocol (IWR Report 96-R-29). To request a copy, download from the IWR web site: <http://www.wrc->

[ndc.usace.army.mil/iwr/index.htm](http://www.wrc-ndc.usace.army.mil/iwr/index.htm). For more information, contact Joy Muncy, (703) 428-6009.

Evaluation of Environmental Investments Procedures Overview Manual (IWR Report 96-R-30). To request a copy, fax Arlene Nurthen (703) 428-8435 or download from the IWR web site: <http://www.wrc-ndc.usace.army.mil/iwr/index.htm>. For more information, contact Joy Muncy, (703) 428-6009.

Valuing Urban Wetlands: A Property Pricing Approach (IWR Report 97-R-1). To request a copy, fax Arlene Nurthen, (703) 428-8435, or download from the IWR web site: <http://www.wrc-ndc.usace.army.mil/iwr/index.htm>. For more information, contact Brent Mahan, (503) 808-4210.

Resource Significance Protocol for Environmental Project Planning (IWR Report 97-R-4). To request a copy, fax Arlene Nurthen (703) 428-8435 or download from the IWR web site: <http://www.wrc-ndc.usace.army.mil/iwr/index.htm>. For more information, contact Darrell Nolton, (703) 428-9084.

Risk and Uncertainty Analysis Procedures for the Evaluation of Environmental Outputs (IWR Report 97-R-7). To request a copy, fax Arlene Nurthen (703) 428-8435 or download from the IWR web site: <http://www.wrc-ndc.usace.army.mil/iwr/index.htm>. For more information, contact Leigh Skaggs, (703) 428-9091.

Enforceable State Mechanisms for the Control of Nonpoint Source Water Pollution. This new study by The Environmental Law Institute is now available on the NPS homepage to download only. An HTML version will be loaded onto the homepage for viewing of the complete document in the near future. To access the document, go to <http://www.epa.gov/OWOW/NPS/elistudy/>.

Stormwater BMP Design Supplement for Cold Climates. Copies are available from the Center for Watershed Protection, 8391 Main Street, Ellicott City, MD 21043.

Water-Quality Assessment of the Lower Susquehanna River Basin, Pennsylvania and Maryland: Design and Implementation of Water-Quality Studies, 1992-95. Report 97-583. Copies are available from Kevin Breen at (717) 730-6970.

Water-Quality Assessment of the Lower Susquehanna River Basin, Pennsylvania and Maryland: Sources, Characteristics, Analysis, and Limitations of Nutrient and Suspended-Sediment Data, 1975-90. Report 97-4209. Copies are available from Kevin Breen at (717) 730-6970.

Nitrate in Ground Water and Stream Base Flow in the Lower Susquehanna River Basin, Pennsylvania and Maryland. Report 97-4146. Copies are available from Kevin Breen at (717) 730-6970.

Restoring Streams in Cities: A Guide for Planners, Policymakers, and Citizens



Conventional engineering solutions to problems of flooding and erosion are often extremely destructive to natural environments. *Restoring Streams in Cities* is a comprehensive book that presents viable alternatives to traditional practices that can be used both to repair existing ecological damage and to prevent damage from happening. A nationally recognized stream restoration expert, Ann Riley, describes an interdisciplinary approach to stream management that does not attempt to "control" streams, but rather considers the stream as a natural feature of the urban landscape. This very informative and practical publication is available from Island Press, Box 7, Dept. 2AU, Covelo, CA 95428 or by calling (800) 828-1302.

EVENTS

APRIL

- 7-9 **Practical Approaches to Riparian and Wetland Restoration: From the Mountains to the Plains**, Missoula, MT. Contact Susan Tolliver, Riparian and Wetlands Research Program, University of Montana, Missoula, MT 59812, (406) 243-2050; fax: (406) 243-4845; e-mail: sheba@selway.umt.edu; web site: www.rwrp.umt.edu.
- 14-15 **Landscape-Level Wetland Assessment**, Arlington, VA. Contact Jon Kusler, Association of State Wetland Managers at (518) 872-1804; e-mail: aswmi@aol.com.
- 15-17 **Team Wetlands: 101 Ways to Win for Wetlands**, Arlington, VA. Contact Terrene Institute, 4 Herbert Street, Alexandria, VA 22305. Phone: (800) 726-4853 or (703)548-5473; fax: (703) 548-6299; e-mail: terrinst@aol.com.
- 15-18 **North American Lake Management Society's 7th Annual Southeastern Lakes Conference**, Orlando, FL. Contact: Gene Medley at (406)243-4845; e-mail: medley@aol.com.
- 22-25 **Enhancing the States Lake Management Programs: Smart Growth Strategies to Protect Lakes and Reservoirs**, Chicago, IL. A post-conference interactive workshop will be held on Saturday, April 25, entitled *Getting in Step: A Pathway to Effective Outreach in Your Watershed*. Contact Bob Kirschner, Northeastern Illinois Planning Commission, Natural Resources Department, 222 South Riverside Plaza, Suite 1800, Chicago, IL 60606. Phone: (312) 454-0401, ext. 303;

fax: (312) 454-0411; e-mail: bobkirs@nipc.org.

- 29-3 **Rivers: The Future Frontier**, Anchorage, AK. Contact the River Management Society at (406) 549-0514; e-mail: rms@igc.apc.org.

MAY

- 3-6 **Watershed '98 - Watershed Management: Moving from Theory to Implementation**, Denver, CO. Contact the Water Environment Federation at (703) 684-2400; e-mail: confinfo@wef.org.
- 9-16 **National River Cleanup Week**, Knoxville, TN. For more information, call (423) 558-3595, fax: (423) 558-3598; e-mail: branch.terry@epamail.epa.gov.
- 12-13 **Working with Wetlands and Wildlife**, New Orleans, LA. Contact the Wildlife Habitat Council at (301) 588-8994.

- 17-22 **22nd Annual Conference of the Association of State Floodplain Managers**, Milwaukee, WI. Contact Diane Watson at (608) 274-0123; e-mail: asfpm@execpc.com

JUNE

- 8-11 **3rd Annual Watershed Heros Leadership Conference**, Amana, IA. Contact Jim Porterfiled of the American Farm Bureau Federation, 225 Touhy Avenue, Park Ridge, IL 60068. Phone: (847) 685-8782; fax: (847) 685-8969; e-mail: jimp@fb.com.

JULY

- 7-9 **Monitoring: Critical Foundations to Protect Our Waters, Sciences - Policies - Management**, Reno, Nevada. Contact Joanne Kurklin, Water Quality Specialist, U.S. Geological Survey, 202 Northwest 66th, Building 7, Oklahoma City, OK 73116. Phone: (405) 843-7570.

- 10-11 **Northeast Watershed Roundtable**, Northfield, MA. Contact Pat Muñoz, River Network at (202) 364-2550.

AUGUST

- 31 - 4 **International Conference on Diffuse Pollution**, Edinburgh, Scotland. Contact Rosemary Plessis, IAWQ Conference Coordinator, Scottish Environmental Protection Agency, Erskine Court, The Castle Business Park, Stirling FK9 4TR, Scotland, UK. Phone: +44 (0) 1786 457700; e-mail: rplessis@sepa.org.uk.

SEPTEMBER

- 27-30 **Peaks to Prairies: A Conference on Watershed Stewardship**, Rapid City, SD. Contact the Thorne Ecological Institute, 5398 Manhattan Circle, Boulder, CO 80303. Phone: (303) 499-3647; e-mail: dir@thorneecoinst.org.
- 21-24 **Sixth National Nonpoint Source Monitoring Workshop**, Cedar Rapids, IA. Contact Lynett Seigley or Carol Thompson, Iowa Department of Natural Resources, Geological Survey Bureau, 109 Trowbridge Hall, Iowa City, IA 52242-1319. Phone: (319) 335-1575; fax: (319) 335-2754; e-mail: lseigley@igsb.uiowa.edu or cthompson@igsb.uiowa.edu.
- 20-24 **WETLANDS '98 - Integrating Wetlands and Floodplain Ecosystems Into Watershed Management**, St. Louis, MO. Coordinated by the Association of State Wetland Managers and the Institute for Wetland Science and Public Policy. For more information, contact Jon Kusler, ASWM, P.O. Box 269, Berne, NY 12023-9746; or call (518) 872-1804.

River Corridor Restoration and Multi-Objective Management (MOM)

Using Flood Damage Reduction Projects as a Basis for Restoration Work

The Association of State Floodplain Managers (ASFPM) has long promoted broadening the methods of flood damage reduction to emphasize nonstructural projects, including stream and wetland corridor restoration. This approach has brought about multi-objective partnerships that view "flood control" and stormwater projects as an organizational and financial base around which to build water quality improvements, habitat restoration designs, linear parks and trails, ecotourism, and economic development, along with other projects of local importance.

Multi-objective management projects can stretch project dollars

by bringing together a variety of partners with a number of different talents, concerns, and funding sources and access to various grant programs. As more local time and money are contributed, a greater and wider variety of benefits are obtained. Federal flood damage reduction projects generally require a local sponsor who pays a portion of the cost and maintains the project. Incorporating stream and wetland restoration as part of a project can often provide local governments, the sponsors, with an even greater increase in property tax revenue and reduced maintenance costs.

Two publications on multi-objective management will help groups involved in wetland and river

restoration to find partners to support a holistic, ecosystem approach. These are the National Park Service casebook entitled *Floods, Floodplains and Folks*, which is available by calling (202) 565-1200, and the ASFPM publication, funded by a grant from the USEPA, entitled *Using Multi-Objective Management to Reduce Flood Losses in Your Watershed*, available by calling (608) 274-0123. For other information, contact Karen C. Kabbes, Kabbes Engineering, Inc., and Chair of the ASFPM's Multi-Objective Management Committee, at (847) 842-9663 or e-mail KCKabbes@aol.com.

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