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Watershed Events

Winter 1996

A Bulletin on Sustaining Aquatic Ecosystems

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Note from the Editors

This is the fourth issue of a series devoted to the watershed approach and reinvention. In the last issue, we asked some Federal and State agencies and private organizations to share with us how they define and measure success. The feature article of this issue offers some examples of the various roles that agencies and organizations assume in designing and implementing local watershed projects.

Over the past year, we have heard from many people about their projects and programs. This feedback will be the focus of future issues. We want to share the "highlights" and "lowlights" of your watershed projects because all of us can benefit from the lessons you have learned.

Watershed Events

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Watershed Events is intended to update interested parties on the development and use of watershed protection approaches. These approaches consider the primary threats to human and ecosystem health within the watershed, involve those people most concerned or able to take actions to solve those problems, and then take corrective actions in an integrated and holistic manner.

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The Watershed Approach and Reinvention

Federal, State, and Local Interaction

Interaction is key in designing and implementing local watershed projects. Typically, federal and state agencies offer guidance and funding while local agencies and private organizations identify problems and implement improvements. But, there are many variations in the roles agencies and organizations play in the watershed approach.

The articles in this issue reveal the different approaches that agencies and organizations are using to interact with localities in coordinating, designing, and implementing watershed projects. Because they are at different stages in their efforts to engage local involvement, these approaches vary. What is important is that agencies and organizations are building momentum toward increased local interaction.

As you read this issue, you will find that we have made some changes to better share these stories with you. Watershed efforts at the federal level are presented in the feature article. State and local projects appear in two new sections—"What's Happening in the States?" and "From the Grassroots." This format is designed to encourage those of you involved in watershed efforts to share your experiences.

The feature article begins with EPA Region 8 as an example of how the Agency interacts with localities to determine priorities and assist with watershed planning.

Expanding EPA's Watershed Role

EPA Region 8 has become involved in local projects in two primary ways: (1) by participating in watershed workshops and (2) by expanding the Agency's watershed role.

In the first scenario, fledgling watershed groups invite EPA regional staff to plan, participate in, and facilitate workshops. Whatever the Agency's role, its participation reveals that local watershed groups recognize the Agency's interest in and ability to contribute to their efforts.

One example is the Red River watershed. Region 8 staff provide assistance for Total Maximum Daily Load modeling and nonpoint source projects in the watershed. Recently, The International Coalition and North Dakota invited the Region to facilitate the Red River of the North workshop. Now, EPA is coordinating a conference for over 200 people to organize a watershed approach and has assigned a full-time staff person on-site to assist in the Red River effort.

In a related scenario, EPA expands its role in local watersheds through its own initiative. For instance, the project manager for the Clear Creek, Colorado Superfund site helped to assemble

stakeholders from a broad range of interests at workshops addressing environmental problems both at the site and beyond its boundaries. This effort evolved into the Clear Creek Forum. The Forum has increased understanding of EPA's obligations and has made the Agency more responsive to the needs of the watershed community.

In both scenarios, the Agency's participation in local watershed efforts increases. In both, the move from a one-site-one-program-one-authority approach to one that involves many other interests, perspectives, and concerns and crosses boundaries can be very frustrating. It is not always clear how to collaborate or what the benefits will be. However, patience, skill, and faith in a collaborative, comprehensive watershed approach leads to a long-term relationship with a set of stakeholders who are, in the end, responsible for stewardship of the watershed.

Building Coalitions Based on Local Involvement

In the old days, TVA would define a problem, develop a solution, and implement it. Now, a fundamental shift in philosophy provides a framework for the customer to set priorities. TVA recognizes that private citizens, interest groups, community leaders, business and industry, and other potential cooperators must all be involved from the outset if a project is to be successful. Their needs and priorities are the driving force for identifying and solving problems. For instance, when lake users on the Chickamauga and Nickajack Lakes objected to TVA's use of herbicides to control plant growth, the agency listened. TVA held a series of public meetings to collect information about local needs and preferences, hired Gallup to conduct a public opinion survey, and formed focus groups to obtain the views of lake users. As a result, a custom-made plan that reflects a combination of ecological needs and lake user interests was adopted for a 3-year period beginning in 1994.

Another good example is the biologically diverse Paint Rock river system in northern Alabama. Flooding, streambank erosion, and threatened and endangered species are issues that concern both the local community and government agencies. In this case, a local steering committee will set priorities for the watershed and determine how activities will be completed.

The payoff from involving the public early on in watershed efforts is real and measurable. Volunteers logged more than 22,500 volunteer hours in clean-up and protection efforts throughout the Valley during the past year. The primary undertaking of River Action Team members is to persuade potential local partners that solving water resource problems is important to meeting their own economic, social, and environmental needs, as well as the needs of their community.

As Linda Harris of the Chickamauga-Nickajack River Action Team explains, "Citizen-led and volunteer-supported initiatives are the backbone of successful water quality protection efforts in our watershed. Agencies can provide valuable technical assistance and funding for specific projects. But a support base of interested citizens, local officials, landowners, and others is the


key to the long-term success of any water quality conservation project."

A Cooperative Water Resources Program

Federal, state, and local agencies have different water quality needs and priorities. The U.S. Geological Survey's (USGS) Federal-State Cooperative Program accommodates this diversity. Under the program, local and state agencies provide at least one-half of project funds and USGS provides consistency in data collection and archiving by completing most of the work.

Program studies are directed to address potential and emerging, long-term water problems, such as water supply, waste disposal, ground-water quality, and the effects of agricultural chemicals. Study results provide information that serves as the foundation for many water resource management and planning activities.

In 1994, USGS conducted water studies in every state, Puerto Rico, and several territories with the help of roughly 1,100 state, county, municipal, Indian, and other cooperators. In one program study USGS worked in cooperation with the Delaware, Maryland, and Virginia state highway departments to develop techniques for continuously measuring scour at bridge piers. The state agencies then used the results of the study to improve predictive equations for determining risk and preventing bridge failures.

Hydrologic data from the Federal-State Cooperative Program studies are available through USGS offices in every state. Many state offices also post this information on the Internet. State home pages can be accessed through the USGS Home Page at <http://www.usgs.gov>  (select Water Resources).

Local Issues Shape Highway Project

An FHWA project on the Idaho-Montana state line is a prime example of teamwork between a local company and a Federal Highway Administration division office resulting in innovative strategies to address complex local watershed issues. Faced with the need to stabilize a dangerously-steep slope along a reconstructed section of U.S. Highway 93 (a Scenic Byway) and to protect a tributary to a major salmon-spawning creek, FHWA's western Federal Lands Highway Division combined their skill with local expertise to come up with a solution.

Division highway engineers Ed Hammontree and Rich Barrows developed the idea of covering the entire slope with a geotextile "blanket" to prevent erosion of soil into the tributary. To revegetate and further stabilize the slope, the division sought the expertise of native plant specialists from Bitterroot Restoration in nearby Corvallis. Bitterroot developed a revegetation plan that involved collecting seeds from plants at the site, treating them to break their dormancy, growing new seedlings in greenhouses, and planting the native wildflowers in

"pockets" burned into the fabric.

Planting conditions at the site were far from ideal. But, Jan Krueger, vice-president of Bitterroot, was confident of the project's success. "Native plants can handle these conditions. They're site-adapted and genetically-suited."

At the end of its first year, thanks to consistent federal-local teamwork, the slope is holding up just fine and is covered with a growth of healthy native grasses and plants that have already begun to reseed themselves.

Local Involvement is Fundamental

The U.S. Army Corps of Engineers (Corps) has long participated in partnerships with other federal, state, and local agencies, Native American tribes, and local and regional groups in planning and implementing its many water resources development projects.

Local interests play an important role in every Corps project, including watershed-related environmental restoration projects. Corps involvement in a project is initiated through the direction and support of local officials and their Congressional representatives.

Once the Corps commits to a project, early dialogue with potential non-federal partners is essential to determine their willingness to cost-share in study and construction costs and assume responsibility for operation and maintenance of the completed project.

The Corps consults with local project sponsors frequently throughout the project's study and implementation period. Efforts to secure local participation are pursued through a variety of means, such as public hearings and meetings, workshops, information programs, citizen committees, and scoping meetings.

Interaction resulting from these activities provides insight into the range of issues associated with environmental restoration problems and opportunities and helps to identify and develop agreement on the formulation, evaluation, and selection of alternative restoration plans.

Currently, the Corps is actively participating with other agencies and local interests in many watershed partnerships, such as the Coastal America Program, the Louisiana Coastal Wetlands Conservation and Restoration Task Force, the Upper Mississippi River System Environmental Management Program, and the North American Waterfowl Management Plan.

A Case-by-Case Approach to Watersheds

The Bureau of Reclamation is incorporating the watershed approach locally on a case-by-case

basis.

For instance, water service contracts with four irrigation districts in the Republican River Basin in Nebraska and Kansas will expire in 1996 and 1997. Because resource needs within the Basin have changed since the original contracts were signed more than 40 years ago, Reclamation will complete a resource management analysis before renewing the long-term water service contracts.

Resource Management Assessments will evaluate existing and future uses of the Republican River Basin and will establish resource management goals and objectives to represent the basin's diverse, contemporary water-related interests. This information will then provide a framework for developing alternative approaches for Environmental Impact Statements.

Reclamation is applying this approach to water resource management in each of the 17 Western states within its jurisdiction. For more information, contact Don Treasure at Reclamation at (303) 236-9336, ext. 265.

National Biological Service Research Supports Watershed Planning

The National Biological Service's Leetown Science Center is investigating how human impacts on watershed, riparian, and in-stream habitats affect fish communities. The research will provide the basis for a Ridge and Valley model that will allow resource managers to accurately predict and effectively mitigate human impacts on water quality. The study takes place in the Opequon Creek drainage basin of West Virginia. A fourth-order tributary of the Potomac, the basin falls within the Ridge and Valley. The study will identify biological components sensitive to land use patterns and the condition of the riparian zone; the effect of stream size, location, and other characteristics on fish communities; the extent to which remote sensing can reliably measure the riparian zone; and the relationship between the rate of landscape change and the structure of fish communities.

For more information, contact Dr. Craig Snyder, (304) 725-8461, ext. 284.

In summary, federal and state agencies and private organizations are trying to be more responsive to local needs. Meanwhile, local agencies and organizations are trying to find out how best to use the resources and expertise of these agencies. As long as watershed partners share this direction, and have the watershed approach as common ground, this process will bring the best results possible.

For more information on agency involvement in local programs, contact . . .

EPA Region 8:
Karen Hamilton
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TVA:
Debbie Hubbs
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USGS:
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FHWA:
Ginny Finch
(202) 366-4258

U.S. Army Corps of Engineers:
Leigh Skaggs
(703) 355-3091

Bureau of Reclamation:
Carrie Carnes
(202) 208-4663

"Man, despite his artistic pretensions and his many accomplishments, owes his existence to a six-inch layer of topsoil and the fact that it rains."

-- Author Unknown

What's Happening in the States?

This new feature describes state watershed protection approaches and projects. We want to share the lessons that States have learned through their watershed efforts. We need your input. Please send your submissions to John Pai, Editor.

Massachusetts Synchronizes NPDES Permitting Under the Watershed Protection Approach

The Massachusetts Department of Environmental Protection (DEP) is implementing a comprehensive, statewide Watershed Protection Approach (WPA). In 1993, DEP initiated this effort by synchronizing water quality monitoring and assessment, water withdrawal permitting, nonpoint source pollution control, and wastewater permitting under the National Pollutant Discharge Elimination System (NPDES) under a watershed approach.

EPA Region 1 supported DEP's action by realigning schedules for issuing NPDES permits. The Region issues administrative continuances or issues permits for a shorter duration to coordinate permitting in each of Massachusetts' 27 major watersheds.

Organizing NPDES permitting so that all permits within a watershed expire and are reissued at the same time is an advantage because it offers the state more options for reducing pollution. For example, the state may consider controlling nonpoint sources as opposed to placing more stringent limits on NPDES dischargers. In addition, permitting authorities have the option of placing increased controls on those discharges with the greatest impact on surface waters, as opposed to placing these controls on all facilities.

Massachusetts' WPA brings the activities under the NPDES program together into one organizational unit, providing a mechanism for integrating the relationships between water quality and water quantity and point and nonpoint source pollution while involving local, state, and federal agencies and the general public in the decision-making process. For more information, contact Ruby Cooper Ford at EPA's Office of Wastewater Management at (202) 260-6051. (For more information on NPDES permitting, see article in this issue.)

New York Water Supply Protection Plan

In November 1995, New York State, New York City, the Coalition of Watershed Towns, EPA, Westchester County, Putnam County, and an Ad Hoc Environmental Coalition developed an Agreement in Principle to advance efforts to protect the city's drinking water supply.

The Agreement is designed to help the city continue to meet avoidance criteria for the Catskill and Delaware drinking water supplies, eliminating the need to develop filtration systems at an

estimated cost of \$2–8 billion. (Although it has met the avoidance criteria, EPA still requires that the city complete conceptual and preliminary designs for filtration systems in case of future need.)

The Agreement is divided into three primary areas: (1) a land acquisition program; (2) new watershed regulations; and (3) establishment of a Watershed Partnership Council.

Under the Agreement's land acquisition program, the city will set aside \$250–300 million to purchase parcels of land or easements and create buffer areas around sensitive streams and reservoirs in the watersheds.

Proposed new watershed regulations in the Agreement include wastewater treatment plant upgrades to improve phosphorus removal and restrictions on new construction or expansion in the vicinity of watercourses, wetlands, and reservoirs. This section of the Agreement also supports a septic siting study to determine appropriate setback distances.

The Agreement also directs the co-signers to create a Watershed Partnership Council to protect and enhance water quality and the economic and social character of watershed communities. Over 15 years, the city will invest \$1.2 billion to reimburse the costs of developing the IMA and to implement its provisions. The state will provide \$37 million to foster partnerships in the watershed.

Another major provision of the Agreement is an independent review and report on city and state monitoring programs. The Watershed Partnership Council's Technical Advisory Committee will use the report to enhance water quality monitoring in the watershed.

Currently, the parties to the Agreement are ironing out specifics. The resulting agreement will be instrumental in obtaining an extension of the filtration avoidance criteria due to expire in December 1996.

For more information the Agreement in Principle, contact Dore LaPosta, EPA Region 2, at (212) 637-3788.

Maryland's Critical Area Program

In 1984, the Maryland General Assembly enacted the Chesapeake Bay Critical Area Protection Act to address the deterioration of the Chesapeake Bay. The law also created the Critical Area Commission, which drafted extensive regulations, passed by the General Assembly in 1986, to manage future development to protect the Bay's resources.

The Critical Area includes all lands within 1,000 feet of tidal water or the landward edge of tidal wetlands. Minimum standards adopted by 61 local jurisdictions encourage future development

in this zone to locate adjacent to existing development and establish a vegetated buffer around the Bay. The regulations divide the 640,000-acre Critical Area into three development zones:

(1) Intensely Developed Areas (IDAs) include areas where residential, commercial, institutional, and/or industrial land uses predominate and there is relatively little natural habitat. Minimum standards in IDAs require a 10 percent reduction in stormwater pollutant loading for new development. This reduction can be met on-site or through mitigation elsewhere in the Critical Area.

(2) Limited Development Areas (LDAs) have low or moderate development intensity and include areas of natural habitat. Minimum standards in LDAs incorporate wildlife corridors into development, require total forest acreage to be maintained or increased, restrict development on slopes over 15 percent, and limit impervious surface coverage to 15 percent.

(3) Resource Conservation Areas (RCAs) are dominated by the natural environment and resource activities such as agriculture, forestry, and aquaculture. Minimum standards in RCAs limit new development to one dwelling per 20 acres and incorporate LDA development requirements. New commercial and industrial businesses are not allowed in RCAs unless they receive Growth Allocation status, which allows counties to intensify zoning densities on up to 5 percent of their RCA.

For more information about the Chesapeake Bay Critical Area program, contact Mark Laughlin, Chesapeake Bay Critical Area Commission, (410) 974-2426. Internet address: mclaughlin@dnr.state.md.us

New Jersey Watershed Projects

In New Jersey several sources of expertise at the county and local levels can be applied to managing water resources. New Jersey's Conservation Partnership combines the expertise of the New Jersey Soil Conservation Committee, the New Jersey Association of Soil Conservation Districts, the U.S. Natural Resources Conservation Service (NRCS), Rutgers Cooperative Extension, and the New Jersey Department of Environmental Protection. In 1994, the Partnership helped NRCS develop a request for county water management strategic plans. NRCS then awarded three county Soil Conservation Districts (SCDs) \$5,000 each in seed money to develop their plans.

The Bergen County SCD established a Watershed Management Coordinating Committee that identified water concerns on a countywide and watershed-specific basis and developed six objectives: (1) to identify individuals and organizations that have a responsibility for and/or interest in water quality; (2) to delineate watersheds; (3) to compile water quality data; (4) to identify sources of nonpoint source pollution; (5) to document effective best management

practices currently in use; and (6) to inform and educate local officials, businesses, and the public.

The Ocean County SCD also established a watershed committee. The committee has already prioritized watershed problems in Barnegat Bay, giving them a head start for participating in the National Estuary Program.

The Warren County SCD and the County Water Management Coordinating Committee developed a survey to gain input on the water-related concerns of agencies, groups, and municipal authorities. The survey results will be supplemented by a series of regional meetings designed to rank problems by watershed.

The New Jersey Conservation Partnership hopes to obtain additional funding to assist these and other interested SCDs in implementing their water management strategic plans. NRCS envisions that by completing plans SCDs will be better prepared to seek funding from various sources to implement their initiatives.

For more information on local watershed protection efforts in New Jersey, contact Greg Westfall at NRCS at (908) 246-1171, ext. 133.

Wisconsin Supports Nutrient Management in Watersheds

Are farmers making the best use of manure? The Wisconsin Department of Natural Resources (DNR) teamed with farmers and state, county, and private sector partners to design a pilot project to answer this question.

The state sponsored nutrient management plans for almost 160,000 acres of cropland on roughly 550 farms to promote improved use of manure and other crop nutrients. Private crop consultants earned \$6 for every acre planned at a total cost of roughly \$1 million.

In return, the project allowed DNR to analyze the cost savings farmers can gain by tailoring nutrient application to crop needs. In the Lake Mendota watershed alone, state-sponsored nutrient management plans on 36 percent of cropland acres reduced phosphorus applications by 60 percent and saved farmers \$200,000 in fertilizer costs.

Texas's Clean Rivers Program

More than 16.5 million people currently rely on Texas watersheds for their drinking water. This number is expected to grow by 30–35 million in the next 50 years, and some basins are already approaching 100 percent demand on available water supplies.

To address these impending water issues, the Texas legislature passed the Texas Clean Rivers Act in 1991 requiring that water quality assessments be completed in 23 of the state's river basins. To meet this mandate, the Texas Natural Resource Conservation Commission (TNRCC) created the Clean Rivers Program dedicated to protecting Texas's water resources through a watershed approach.

TNRCC has enlisted the assistance of partner agencies across the state, such as state river authorities, to establish steering committees and enlist citizen participation in creating basin policies. In addition, TNRCC is conducting a survey of monitoring activities in the San Antonio–Nueces and Nueces–Rio Grande coastal basins to improve coordination of monitoring efforts.

For more information on the Texas Clean Rivers Program, contact TNRCC at (512) 239-4416.

Does Your State Have a Statewide Watershed Management Plan?

Watershed Events is striving to recognize state watershed accomplishments. So far, we have statewide watershed approach documents for the following states:

Florida
Hawaii
Idaho
Indiana
Massachusetts
Montana
New Jersey
North Carolina
Oklahoma
Oregon
Pennsylvania
Texas
Washington
West Virginia

If your state has a plan or project to share with us, please contact John Pai, Editor.

From the Grassroots . . .

This new feature describes local watershed protection projects. We want to share the lessons localities have learned through their watershed efforts. We need your input. Please send your submissions to John Pai, Editor.

McKenzie Watershed Council Volunteer Monitoring Program

The McKenzie watershed covers roughly 1,300 square miles in Lane County, Oregon, and provides drinking water for more than 200,000 people. Nearly 90 percent of the watershed is forested, with public and private timberlands and a wilderness area. Agriculture, residential areas, and a small amount of industry (wood products, agriculture, hydroelectric, and tourism) make up the remaining 10 percent of the watershed.

The McKenzie Watershed Council (MWC), established in 1993, works to "foster stewardship of the McKenzie River watershed resources, deal with issues in advance of resource degradation, and ensure sustainable watershed health, function, and uses." The 20-member council, representing 19 different agencies and organizations, meets monthly. Currently, four primary issues are addressed in the council's work plan: water quality, fish and wildlife habitat, recreation, and human habitat.

Funded by a grant from the Governor's Watershed Enhancement Board, MWC is currently endorsing a pilot citizen monitoring project. The effort is resulting in partnerships with schools, local municipalities, utilities, and biologists. The council has also contracted with the University of Oregon's Resource Assistance for Rural Environments (RARE) program for a volunteer coordinator to oversee the monitoring program.

The monitoring program has two primary goals: (1) to promote education and stewardship and (2) to collect quality data on surface water conditions in the McKenzie watershed. Currently, six middle and high school classes from three school districts are actively monitoring the health of their local waters. The council hopes to extend the program to include citizen monitoring in the summer months and to add monitoring sites. For more information, contact Louise Bilheimer at the McKenzie Watershed Council at (541) 345-0119.

"The care of rivers is not a question of rivers, but of the human heart."

-- Tanaka Shozo

The Nature Conservancy (TNC) has field offices across the United States that are assisting with local watershed projects. The following are three examples of TNC's involvement in local watersheds.

Chester Creek, CT

After identifying 17 "core sites" in the Tidelands of the Connecticut River, TNC selected the 14.5 square mile Chester Creek watershed as a target project area. TNC based its decision on the watershed's natural resources, mix of land cover, existing digital data, manageable size, and local interest.

TNC next established a Project Team combining the natural resource management education expertise of the University of Connecticut Cooperative Extension System, TNC's ecological expertise, and the GIS know-how of the University of New Haven. The Town of Chester's First Selectman, Martin Heft, also embraced the project, forming an eight-person Project Advisory Committee to represent the town's land use and decision-making perspectives. The Project Team and Advisory Committee framework blends well with the "home rule" demeanor of Northeast municipalities.

Working with the Advisory Committee, the Project Team was able to identify local problems and concerns, plan and publicize educational programs, and implement the goals of the project. The team used GIS to illustrate the water quality effects of current zoning at "build-out" for municipal officials, resulting in an Open Space Plan and model stormwater management regulations.

GIS also allowed the team to identify watershed property owners with woodlot parcels of 5 acres or more and property owners with parcels that abutted stream channels. The team used this information and the tax assessor's mailing database to mail notices of workshops tailored to each group's interests. These projects have encouraged other spin-off efforts in the watershed.

Participants in the Chester Creek Project have discovered that changes at the local level take time to develop, yet education of local officials, individual landowners, and the public can provide an effective, nonregulatory approach to watershed issues.

For more information on the Chester Creek Project, contact Julianna Barrett, TNC, at (860) 344-0716.

Cosumnes River, CA

Managing the 6,700-acre Cosumnes River Preserve, TNC and its partners have learned that their philosophical differences can be strengths in the ecological management of the watershed. TNC established the preserve in 1987 to protect the area's valley oak riparian forest. Since then,

nine partners have joined the effort.

One of TNC's first partnerships was with Ducks Unlimited. Although the two organizations had philosophical differences, common threads emerged. Ducks Unlimited's interest in restoring wetland waterfowl habitat and TNC's interest in restoring the naturally flooded valley oak forest, also prime waterfowl habitat, gave them a common direction.

This realization has helped TNC forge other successful partnerships in the watershed, resulting in efforts that include conversion of more than 1,200 acres of farm fields to wetlands; an increase in waterfowl populations; development of a computer model of the watershed to answer questions about the impacts of proposed land use changes; planting of 150 acres of new valley oak forest to bridge gaps in the forest network; and the design of innovative projects, including an effort to merge the interests of the preserve with an ecologically sensitive organic farm.

The insight gained from the Cosumnes River Preserve is that ensuring the long-term ecological health of a watershed requires more than purchasing tracts of land. It requires local landowners and government agencies to develop a common vision and responsibility for the watershed.

For more information on the Cosumnes River Preserve, contact Rick Cooper, TNC, (916) 985-4474.

Clinch River, TN

The Clinch River watershed in the isolated valleys of East Tennessee is home to some of the richest freshwater mussel shoals in the world. However, siltation and nonpoint source pollution from the region's agricultural runoff are threatening the Clinch's mussel populations.

The isolation of the area has made it one of Tennessee's least productive economically. As a result, TNC, the Clinch–Powell Resource Conservation and Development office, and their partners must work hard to match agency programs with incentives to gain landowner participation in watershed improvement projects.

The partnership is achieving this balance on a case-by-case basis. For example, TNC is helping to relocate a hog lot on a Clinch River tributary. Making the move requires the renovation of a spring that will provide a water source for the hogs and improve the water supply of several members of the community.

In another project downstream, 20 cattle will be fenced off from the same tributary, streambanks will be stabilized, and a 50-year-old pond will be refurbished and fenced to provide a clean water source for the cattle. In this case, stocking the pond with fish proved to be a key incentive in encouraging the landowner to participate in the project.

For more information on Clinch River watershed projects, contact Leslie Colley, TNC, (423) 733-2100.

Conference Schedule

March 20-23

NALMS 5th Annual Southeastern Lakes Management Conference. On the Edge: Protecting Lakes Through Watershed Management, Huntsville, AL. Contact Gary Springston, TVA, (423) 751-7336.

April 21-22

Introduction to the National Wetland Classification System, Wharton Hall, University of Southwestern Louisiana. Contact Pat O'Neil, National Biological Service, Southern Science Center, (318) 266-8500.

April 21-26

American Institute of Hydrology, 1996 Annual Meeting, Boston, MA. Contact Dr. Guillermo J. Vicens, Camp Dresser & McKee, Inc., (617) 252-8301.

June 2-14

Fifth Annual Corporate Environmental Leadership Seminar, Yale University, New Haven, CT. Contact Janet Testa, Yale School of Forestry and Environmental Studies, (203) 432-6197.

June 8-9

Introduction to Field Identification of Wetland Forest Trees, Wharton Hall, University of Southwestern Louisiana. Contact Pat O'Neil, National Biological Service, (318) 266-8500.

June 8-12

Watershed '96: Moving Ahead Together, Baltimore, MD. Contact Nancy Blatt or Dave Trouba, Water Environment Federation, (703) 684-2400.

News Bits

The U.S. Army Corps of Engineers' Portland District was formally acknowledged for its contribution to the restoration of Trestle Bay at a project dedication ceremony November 18, 1995, in Hammond, Oregon. The ceremony celebrated the successful lowering of a 500-foot section of the 8,400-foot-long Columbia River South Jetty so that juvenile salmon, Dungeness crabs, and other ocean and estuarine species can access Trestle Bay. The area was blocked by the jetty in the late 1880s. Authorized by the Corps's 1135 Program (see article in this issue), the project will also allow vegetative debris from tidal marshes, an important element in the estuary's food chain, to be carried to the river side of the jetty. The project restored a total of 603 acres of habitat for a minimal investment of less than \$350,000.

The Alliance for the Chesapeake Bay and the Department of Defense (DOD) are working together to improve stewardship of 425,000 acres of DOD-maintained land in the watershed. In a model project last summer, representatives from the Alliance for the Chesapeake Bay, the U.S. Fish and Wildlife Service, the Anacostia Naval Station, and nearly 50 area Young Marines aged 8 to 16 converged on the Anacostia Naval Station. The volunteers planted over 1,000 perennial plants and 300 large trees on a 2.5-acre site at the confluence of the Anacostia and Potomac Rivers under the BayScapes program.

EPA's Wetlands Research Program is sponsoring research in many EPA Regions to gain insight on how to prioritize wetlands projects and monitor their performance. In one project, EPA Region 1 and Dr. Joe Larson of the University of Massachusetts are cooperating in a study that will refine methods used to characterize and evaluate wetlands. The result will be a generic method for assessing wetlands that state managers can adapt to their needs.

In San Joaquin, California a Wetlands Reserve Program (WRP) project not only provided habitat for game birds and other wildlife. It also prevented the town from flooding during heavy rains in the winter of 1994. The Natural Resources Conservation Service funded 75 percent of the \$150,000 cost to convert 1,100 acres of Don Gragnoni's marginal cropland to wetlands. Gragnoni is so satisfied with his first WRP enrollment that he is enrolling an additional 669 acres in the program.

In December of 1995 the Galveston District of the U.S. Army Corps of Engineers completed construction of the \$2.6 million McFaddin Ranch Wetlands Salt Bayou project. The project, authorized by the Corps's 1135 Program (see article in this issue), is intended to restore 60,000 acres of fresh to brackish wetlands near the Texas Gulf Coast. A gated water control structure will help to reduce salinity levels caused by federal navigation projects, thereby increasing the diversity of wetland vegetation and restoring the historical estuarine condition as much as possible. Increased salinity had previously played a role in converting vegetated areas to open water, reducing wildlife habitat values.

Marja-Liisa Poikolainen, a *Watershed Events* reader from Finland, sent us information about the recent reorganization of Finland's Environmental Administration. Consistent with federal reorganization efforts, Finland created 13 Regional Environmental Centres in March 1 995. The overall mission of the Centres is to guide development and help local municipal environmental authorities manage water resources.

"No important change in human conduct is ever accomplished without an internal change in our intellectual emphases, our loyalties, our affections, and our convictions."

--Aldo Leopold

NEW IN PRINT

Reproductive Biology and Early Life History of Fishes in the Ohio River Drainage

The Tennessee Valley Authority, in cooperation with the U.S. Army Corps of Engineers and American Electric Power Service Corporation, is publishing a seven-volume series of descriptive and ecological information on the biology of approximately 285 species of fishes present in the Ohio River drainage. Copies of Volumes 1 and 2 (and future volumes) may be obtained from Biological Sciences Press, 1048 Summit Hill Drive, P.O. Box 562, Carmel, IN 46032.

U.S. Army Corps of Engineers Draft Planning Manual—

This Corps manual addresses basic concepts and processes applicable to watershed and related planning efforts: problem identification, inventory and forecast, plan formulation, evaluation of the effects of alternative plans, comparison of plans, and plan selection. The draft manual is available for review through May 1996. Requests for a copy of the manual should be faxed to Arlene Nurthen at (703) 355-3171; ask for IWR Report 95-R-15 (December 1995). Contact Ken Orth, Institute for Water Resources, at (703) 355-0054 for more information.

National Water Quality Inventory Report to Congress—

EPA recently released an Executive Summary and a descriptive fact sheet about this biennial 305 (b) Report to Congress. Copies of both publications are available through the EPA Water Resources Center at (202) 260-7786, or on the Internet at <http://www.epa.gov/305b>. Copies of the full report will be available after printing in March 1996.

Ecosystem Management Research in the Pacific Northwest: Federal Projects Directory—

This January 1996 directory prepared by the EPA National Health and Environmental Effects Research Laboratory categorizes federal projects in Corvallis and Newport, Oregon. Contact Dr. Paul Ringold at (541) 754-4565 for more information.

National Watershed Network Database—

Now available on computer disk, this database lists more than 650 local watershed groups nationwide by name, location, size, focus (i.e., pollution prevention or watershed education), and more. The database can be used on IBM-compatible computers and is available for \$20 from CTIC by calling (317) 494-9555.

EPA Region 5 Watershed Report Newsletter—

This quarterly newsletter is prepared by the Watersheds and Nonpoint Source Branch. Contact Paul Thomas at (312) 886-7742.

Historic Hardrock Mining: The West's Toxic Legacy—

The Rocky Mountain Headwaters Initiative in EPA Region 8, in cooperation with the Colorado Department of Natural Resources, Division of Minerals and Geology, prepared two publications about efforts to restore water quality impaired by hardrock mining in Colorado. Contact Jim Dunn at EPA Region 8 at (303) 312-6788.

Understanding, Living With, and Controlling Shoreline Erosion: A Guide Book for Shoreline Property Owners—

The Tip of the Mitt Watershed Council, a private, nonprofit organization in Michigan, developed this comprehensive reference guide for property owners. Single copies of the guidebook and a companion brochure are available for \$2.62 postage while supplies last. Contact Tip of the Mitt Watershed Council, P.O. Box 300, Conway, MI 49722-0300, (616) 347-1181.

Forested Wetlands: Functions, Benefits and the Use of Best Management Practices (NA-PR-01-95)—

Co-produced by the Forest Service, EPA, NRCS, and the Fish and Wildlife Service, this report characterizes forested wetlands and changes in their geographical extent in the northern and northeastern United States, and provides examples of BMPs. Contact the Northeastern Area, State & Private Forestry, Forest Service at (610) 975-4137.

Cyberspace

*The following is a listing of **Internet resources** that might be of interest to readers. To be added to the mailing list of "Internet Newsbrief," an electronic update service from the EPA Headquarters Library, contact Robin Murphy at All-IN-1 [murphy.robina](mailto:murphy.robina@epa.gov) or at (202) 260-5080. Watershed Events appreciates the cyberspace contributions provided by Robin and other readers.*

Oregon Land Use Information Center

URL= http://darkwing.uoregon.edu/~pppm/landuse/land_use.html 

Web site established and maintained by the University of Oregon's Department of Planning, Public Policy, and Management. Provides the full text of the 1994 statewide planning goals, an outline of Oregon's Land Use Program, questions and answers about enforcement, urban sprawl indicators, and current research on Willamette Valley.

Pennsylvania Department of Environmental Protection

URL= <http://www.dep.state.pa.us> 

Information about how the public can review and comment on DEP's proposed regulations and policies; access to the weekly Environmental Protection & Natural Resources Update newsletter; a map of regional offices; a listing of relevant Internet resources; an "ASKDEP & DEPINFO" section, and more.

EPA Region 5 Home Page

URL= <http://www.epa.gov/Region5/home.html>

Information on air, land, water, and human health; press releases; and general information pertaining to the Region 5 states—Minnesota, Illinois, Wisconsin, Michigan, Indiana, and Ohio.

EPA Region 2 Home Page

URL= <http://www.epa.gov/Region2/>

Sections on special projects, regional initiatives, and programs of the Region 2 states—New York, New Jersey, Puerto Rico, and the United States Virgin Islands.

National Center for Environmental Publications and Information Publications Catalog

URL= <http://www.epa.gov/epahome/Catalog.html>

Catalog of over 5,500 EPA titles, including print and electronic formats.


ARC/INFO Coverages of Agricultural Chemical Use, Land Use, and Cropping Practices in the United States

URL= <http://h2o.usgs.gov/public/pubs/bat/bat000.html> 

Electronic version of the report.

Great Lakes Online

URL= <http://glnpogis2z.r05.epa.gov/glnpo/glnpo.html> 

EPA's Great Lakes National Program Office Home Pages document the efforts of the Office and its local, state, and federal partners. The Great Lakes EcoPages (URL= <http://glnpogis2.r05.epa.gov/glnpo/ecopage/ecopage.html> ) provide information about the incredibly rich biodiversity of the Great Lakes.

INTRODUCING...

This is a regular feature in Watershed Events designed to introduce specific programs pertaining to the watershed approach in different federal agencies. Please let us know what programs you would like to see featured in future issues.

U.S. Army Corps of Engineers 1135 Program Environmental Restoration at Completed Corps Projects

Section 1135 of the Water Resources Development Act of 1986, as amended, authorizes the Corps of Engineers to make structural or operational changes to completed Corps water resources projects that would "improve the quality of the environment in the public interest." Appropriations for the 1135 Program total up to \$25 million annually. Individual restoration projects may not exceed \$5 million without special authorization and non-federal sponsors of the projects must share 25 percent of the total project modification costs.

Since the first appropriation in 1991, more than 100 studies have been initiated, resulting in 12 completed projects and approximately 75 proposed projects in various stages from planning to construction. Despite an increase in funding in FY 96, the 1135 Program currently has a backlog of unfunded studies.

Almost 60 of the completed projects contribute to the goals of the North American Waterfowl Management Plan or are part of the Coastal America initiative. Projects completed under the program include:

- Modified subimpoundments at Fern Ridge Lake, Oregon, to manipulate water levels and vegetation for waterfowl.
- Restored potholes and constructed nesting tubs for geese at Homme Lake, North Dakota. This reservoir is in the prairie pothole region of the Great Plains where the loss of suitable nesting sites is well documented.
- Restored flows to an oxbow in Boyer Chute, Nebraska, which had been cut off by the Missouri River Bank Stabilization and Navigation project. This project is being monitored to document the use of the area by aquatic species that benefit from access to slack water.
- Planted vegetation useful to various species and improved access by anadromous fish to two tributaries of the Sammamish River in Washington.

[For more information on the Corps's 1135 Program, contact Program Manager, Ellen Cummings, at (202) 761-8532, fax (202) 761-1972, or e-mail (ellen.cummings@inet.hq.usace.army.mil).]

National Forest Health Monitoring Program

Because of increasing public attention to the health and future of forests, several federal and state agencies initiated Forest Health Monitoring (FHM) in New England in 1990. FHM is now a national program for assessing the health of the Nation's forest ecosystems.

The USDA Forest Service funds and manages the FHM program. Other partners include State Forestry agencies, the Bureau of Land Management, the Tennessee Valley Authority, the USDA Natural Resources Conservation Service, universities, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the National Park Service, and the National Association of State Foresters.

The goal of the FHM program is to monitor, assess, and report on the health status and trends of the Nation's forests. To achieve this goal, the program applies four types of monitoring activities:

(1) *Detection monitoring* records data on stand structure, growth, mortality, crown condition, damage, regeneration, biodiversity, wildlife habitat, soil characteristics, and air pollution indicator plants using a test plot network that extends across 20 states. Detection Monitoring also includes aerial and other surveys that detect large-scale insect, disease, and other forest stress damages.

(2) *Evaluation monitoring* compiles information on the extent, severity, and causes of undesirable changes or forest health improvements. Evaluation monitoring also identifies cause-and-effect relationships and follow-up research needs.

(3) *Intensive site ecosystem monitoring* provides detailed ecosystem information at several research sites across the Nation.

(4) *Research on monitoring techniques* studies monitoring methods to improve the FHM program.

Forest Health Monitoring is implemented regionally—North, South, Intermountain, and West Coast. The program is designed to expand to the state level and FHM scientists are working with colleagues in other countries to develop internationally recognized procedures, standards, and guidelines.

[For more information on the Forest Health Monitoring Program, contact Rob Mangold, USDA Forest Service, at (202) 205-1308.]

EPA's NPDES Program Takes on a Watershed Approach

Created over 20 years ago, the National Pollutant Discharge Elimination System (NPDES) program specifies constraints on pollutant discharges into surface waters. The NPDES program originated from the 1972 Federal Water Pollution Control Act Amendments which specified that the discharge any pollutant, by any person is unlawful except in compliance with the Act.

Since 1972, the Clean Water Act and its amendments have expanded the program's focus to include more stringent controls for achieving water quality standards, such as pretreatment of industrial and commercial pollutant discharges to sewer systems. The 1987 Water Quality Act greatly expanded the program's scope by including NPDES permitting requirements for stormwater discharges from point sources and sewage sludge disposal.

Today, the NPDES program has three primary development objectives: (1) to integrate the NPDES program into a watershed context, (2) to revise core regulations in connection with EPA's reinvention initiative, and (3) to integrate all urban wet-weather NPDES controls.

[For more information on the NPDES program, contact Ruby Cooper Ford at EPA's Office of Wastewater Management at (202) 260-6051.]

It's Coming...

Watershed '96 Moving Ahead Together

The second national conference on watershed management is fast approaching. Participants representing a wide variety of viewpoints—including engineers, scientists, landowners, and public works officials—will meet during Watershed '96, June 8-12 in Baltimore, Maryland, to take stock of past successes and focus on ways to improve watershed management.

More than 1,000 people attended Watershed '93 and 2,000 to 3,000 are expected for Watershed '96, so make your reservation early! Registration began in February. For more information about the conference, you can view the program announcement on the Internet (<http://www.epa.gov/OWOW/watershed/w96.html>) or call (703) 684-2400 ext. 6018 to request a full conference program. You can also obtain a registration form by using the Water Environment Federation's Fax on Demand. Fax your request for Document # 15 and your fax number to 1-800-444-2933.

Facts

Did You Know?

- Overall, 67 percent of the soil savings on cropland from 1982 to 1992 came from reductions in erosion on highly erodible land.
- Controlling erosion not only sustains the long-term productivity of the land, but also affects the amount of soil, pesticides, fertilizer, and other substances that move into the Nation's waters. Source: National Resources Inventory, A summary of natural resource trends in the U.S. between 1982 and 1992, USDA Natural Resource Conservation Service, April 1995. Contact Ted Kupelian at NRCS, (202) 720-3210, fax (202) 690-1221, for more information.

Drinking Water Dateline

400 B.C.

Hippocrates emphasizes the importance of water quality to health and recommends the boiling and straining of rain water.

1832

The first municipal water filtration works opens in Scotland.

1890s

The Lawrence Experiment Station of the Massachusetts Board of Health discovers that slow sand filtration of water reduces the death rate from typhoid by 79 percent.

1974

The Safe Drinking Water Act is passed.

Source: Adapted from the Animas River Curriculum Project. For more information, write Chris Bridges, Colorado Water Conservation Board, 1313 Sherman, Denver, CO 80203.

Water Windows

Imagine what it would be like to have access to watershed management information from 84 water utilities, descriptions of 102 Best Management Practices, and overviews of the watershed management programs of every state and the federal government simply by pointing and clicking on your computer.

The American Water Works Association (AWWA) Research Foundation has developed a CD-

ROM Electronic Watershed Management Reference Manual complete with all these abilities. Designed by Camp Dresser & McKee, Inc., the manual allows users to perform comprehensive key word searches and then copy selected text and graphics into their word processing software.

The AWWA Research Foundation is offering copies of the electronic manual (order number 90695EPA) to Watershed Events readers at the member price of \$295. To get your copy, contact AWWA at (800) 926-7337 and mention that you found this resource in Watershed Events.