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Watershed Events

Winter 1997

In this Issue . . .

In this issue, we explore some of the major, watershed-related programs of federal agencies, with an emphasis on how they are managed and how they can benefit watershed projects/programs at the state and local levels.

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Watershed Protection and Safe Drinking Water Act (SDWA) Makes the Connection

The good news is that every national poll shows that Americans are very concerned about the quality of their drinking water. The bad news is that Americans do not have a clear understanding about the connection between rivers and drinking water. Phillip Wallin, president of the River Network, shared this insight in the Fall 1996 issue of River Voices, which was dedicated to exploring the Safe Drinking Water Act.

On August 6, 1996, President Clinton signed new amendments to the Safe Drinking Water Act (SDWA) into law. Originally passed in 1974, the SDWA was designed to make waters "drinkable," in addition to the "fishable," "swimmable" requirements of the 1972 Clean Water Act.

Among the provisions of the new amendments are requirements and financial support for source water protection efforts, which make a direct connection between watershed protection and safe drinking water. State source water assessment programs will delineate boundaries of source waters and identify sources of regulated and high risk unregulated drinking water contaminants. The Act requires states to complete these actions within 18 months after the final guidance (due in August) is issued. States have the option of using part of the new Drinking Water State Revolving Fund (DWSRF), funded at \$1 billion per year, to support these efforts.

All told, the new amendments offer an even greater incentive for watershed groups and water utilities to form partnerships and explore their common ground. After all, the goals of one often affect the goals of the other. For instance, water utilities generally strive to keep treatment costs down, while watershed groups typically look for ways to address sources of contamination. Identifying such common pursuits stands to benefit them both, and ultimately, the future of the nation's watersheds.

FEATURE ARTICLE . . .

Pilot Center Supports Biocriteria Efforts

In the past, efforts to meet the Clean Water Act objective of "chemical, physical, and biological integrity" have focused primarily on chemical integrity.

However, as chemical pollution levels have declined, it is becoming evident that chemical criteria, alone, are not always enough to protect the biological community from the impacts of factors such as sedimentation, eutrophication, and habitat alteration. Therefore, EPA is encouraging states and tribes to develop biocriteria, in addition to chemical criteria, as a more comprehensive strategy for protecting water resources.

States and tribes have consistently indicated that insufficient funds and lack of technical assistance are the main obstacles they face in

developing biocriteria programs. EPA's Biological Criteria program provides grant funds to states and tribes for developing biocriteria and produces technical guidance manuals for each surface water body type. Yet, there remains a need for region-specific technical assistance as states and tribes use these tools to develop biocriteria programs.

To meet this need, EPA is initiating a Pilot Technical Assistance Center in Region III. The pilot center is a prototype for similar centers to be established in other EPA Regions. The centers will bring together staff specialists from federal agency field offices with technical know-how useful in developing and implementing biocriteria programs. States and tribes can then draw from the expertise provided by the centers to develop biocriteria programs and address other environmental concerns.

Two projects have already been incorporated in the pilot effort: a watershed investigation on the Chester River on Maryland's Eastern Shore and a coastal marine project investigating the effect of sewage effluent on marine organisms in Ocean City, Maryland and Bethany Beach, Delaware (See related story in *From the Grassroots...*).

Adopt-A-Watershed Program An Educational Program for Students in the Farming Community

Initiated in 1995, the Tennessee Valley Authority's (TVA) Adopt-A-Watershed Program is shaping a strong partnership among watershed committees, local, state, and federal agencies, the local school system, and individual landusers. Relying on convincing research that proves best management practices (BMPs) help prevent nonpoint source pollution, the program is exposing the next generation of landowners to palatable doses of information through classroom and field trip opportunities.

Partner agencies such as the Natural Resources Conservation Service, Resource Conservation and Development, Evergreen and Holston River Soil and Water Conservation Districts, and others are working closely with high school teachers and their classes. Together, they map the watershed, document land uses, develop and sample a stream, identify possible problems, and develop and implement solutions to correct those problems.

Teachers involved in the program attend a 40-hour workshop and receive 3 hours of college teacher recertification credit. Students involved in the program get "real-life" learning experiences, the opportunity to work with a variety of resource professionals, and a \$100 award (per school) from Monsanto Company for planting green stripes (filter strips that trap sediment, nutrients, pesticides, etc.). TVA is in the process of acquiring a corporate sponsor to award students for implementing other clean water initiatives. TVA is also looking to incorporate California's Adopt-A-Watershed school curriculum (grades K-12) into its program.

With cost-share funds in southwest Virginia dwindling, or possibly being eliminated altogether, the need for educating landusers is more crucial than ever before. TVA believes that Adopt-A-Watershed will instill a better understanding of conservation among the heirs of farmland in Smyth and Washington Counties, breaking the cycle of traditional land use that adversely affects water quality. An equally important objective is to demonstrate the substantial benefits of focusing on watersheds and working with communities. Because we cannot be everywhere, we have learned that we must partner with those who share our concern for clean water and healthy ecosystems if we are to achieve a sustainable environment for generations to come.

Planning Assistance to States (PAS) Program

The U.S. Army Corps of Engineers' (Corps) Planning Assistance to States (PAS) Program, also known as the Section 22 Program, permits the Corps to use its technical planning expertise to support state and tribal efforts to undertake broad, statewide, comprehensive water resources planning. Upon request, the Corps will cooperate with a state or tribe in the preparation of plans for the development, use, and conservation of water and related land resources located within state or tribal boundaries.

Assistance is provided within the limits of available appropriations, but \$300,000 is the maximum amount available to any state or tribe annually. The program is cost-shared on a 50-50 basis, with the Corps providing 50 percent of the funding and the state or tribe providing the other 50 percent. Typical problems and opportunities studied under this program include flood damage reduction, water supply, water conservation, water quality, hydropower, erosion, navigation, and related environmental resources. The program can

also be used to assist states and tribes in developing or revising a State Water Plan.

To date, the Corps has assisted 47 states and 18 tribes through the PAS program. Studies vary in scope from environmental investigations for an individual site to comprehensive watershed management studies. In a recent PAS effort, the Gila River Indian Reservation and the Corps' Los Angeles District agreed to conduct a comprehensive water resources plan for the Gila River watershed in Arizona. The study will identify problems and opportunities, assess existing conditions, and develop and evaluate alternative solutions in such areas as water supply, water quality, flood control, and fish and wildlife habitat.

State and tribal officials who are interested in assistance for their communities and who are willing to share the study costs should contact the Corps District or Division program manager in their area. Local Corps coordinators work with states and tribes to compile requests. Each Corps District accommodates as many studies as possible within its funding allotment.

Restoring Fish and Wildlife in the Chesapeake Bay Watershed

In 1984, the U. S. Fish and Wildlife Service's (Service) Chesapeake Bay Coastal Ecosystem Program (CBCEP) was established to protect and restore living resources vital to the ecological and economic health of the nation's largest estuary. It was the first of 11 coastal ecosystem programs established by the agency. Through CBCEP, the Service works with a variety of federal, state, and local partners and private citizens to: identify important fish and wildlife populations; seek solutions to threats facing these resources; protect, restore, and enhance wildlife habitat; and promote stewardship of fish and wildlife resources through public outreach.

Since 1984, the Service has been a major partner in the multi-agency Chesapeake Bay Program (CBP) headed by EPA. As the lead federal wildlife agency, the Service promotes restoration of fish and wildlife and their habitats. In this role, the Service facilitated a multi-agency effort to identify the habitat requirements necessary to maintain or restore 31 Chesapeake Bay "indicator" species, including submerged aquatic vegetation, shellfish, finfish, waterfowl, colonial wading birds, and raptors.

This information is being integrated into a multi-million dollar CBP effort, directed by the Service, to restore wildlife habitat in the watershed (see related story in *From the Grassroots...*). To date, hundreds of acres of wetlands, forest, and uplands have been restored. Additionally, hundreds of miles of fish spawning habitat have been reopened and nutrient reductions implemented by the CBP have contributed to the restoration of thousands of acres of submerged aquatic vegetation.

In addition to working with partners outside of the agency, the CBCEP recruits the expertise of other Service programs to restore Chesapeake Bay fish, wildlife, and habitat. Examples include: restoring eroding shoreline habitat at Blackwater, Eastern Neck, and Barren Island National Wildlife Refuges; working with Service fishery offices in Maryland, Virginia, and Pennsylvania to restore shad, sturgeon, and other anadromous fish through stocking, tagging, fish passage, and habitat restoration; and working with the Service's Partners for Wildlife programs in Maryland, Virginia, and Pennsylvania to restore wetland and riparian habitat on private lands.

The CBCEP also works with citizens to promote landscaping techniques that minimize nutrient loadings to the Chesapeake Bay, while providing wildlife habitat. The BayScapes program, developed jointly with the Alliance for the Chesapeake Bay, encourages citizens to reduce the use of chemical inputs through the use of native vegetation in the home landscape.

Finally, the CBCEP also interacts with students through the Schoolyard Habitat program, providing training and technical assistance to teachers and students for the creation of woodlands, wetlands, and meadows on school grounds. This "hands-on" experience brings the Service's effort full circle, training a new generation of citizens to assume responsibility for the stewardship of the Chesapeake Bay watershed.

NRCS Creates Science and Technology Consortium

Natural resources conservation planning is becoming increasingly complex. This change is the result of: increased knowledge about the interrelationships between the components of ecosystems, changes in public expectations, greater demands on natural resources, and the emergence of self-initiated community efforts for natural resource management on privately-owned lands.

To ensure that it could meet the growing, science-based information needs of its clients, cooperators, and partners despite government

down-sizing and restructuring, the Natural Resources Conservation Service created a Science and Technology Consortium, made up of eight institutes, five centers, five divisions, a cadre of cooperating scientists, and a variety of external partners. The Institutes, established in 1995-1996, include: 1) Grazing Lands, 2) Information Technology, 3) Natural Resources Inventory and Analysis, 4) Social Sciences, 5) Soil Quality, 6) Watershed Science, 7) Wetland Science, and 8) Wildlife Habitat. Although each institute has its own functional area, they are encouraged to collaborate with each other, as well as with other divisions of NRCS, partnering agencies, and non-governmental organizations.

The Watershed Science Institute (WSSI) is of key interest to those pursuing the watershed approach. WSSI is comprised of a core of eight agency scientists and specialists from across the nation who combine their diverse resource experience, ecological knowledge, and engineering skills to prepare effective, field-oriented, watershed management procedures and tools. WSSI works to accelerate the development of technology for understanding and treating social, economic, and environmental concerns within a watershed.

The primary audience for technology from the institutes is NRCS field office staff and each proposed project is always evaluated for its relevance to this constituency. In 1995-1996, the WSSI collaborated in approximately 12 projects, including the development of fact sheets for an Interagency Stream Corridor Restoration Handbook (scheduled for release in late 1997), preparation of a guidance document for using large woody debris jams in the restoration of large river systems (scheduled for release in late 1997), and guidance documents for managing riparian and wetland buffers to improve water quality in watersheds with intensive animal production (scheduled for release in 1998).

The WSSI has also joined in a collaborative effort with EPA Region 10 and others to document the progress of a community stewardship project that will produce indicators for rapid environmental assessment (see related story in From the Grassroots...).

Funding Restoration Efforts in the Western States

The Bureau of Reclamation (Reclamation) has 27 area offices that play a significant role in funding restoration projects in the Western United States.

Since 1994, Reclamation has jointly funded projects that promote the health of ecosystems of the American West in partnership with the National Fish and Wildlife Foundation (NFWF). Established by Congress in 1984, NFWF is a private, non-profit organization that works to foster the conservation of fish, wildlife, and plant resources through challenge grants. To date, NFWF has funded 1,400 projects in all 50 states and 17 countries, providing more than \$199 million for conservation.

In 1996, Reclamation, in partnership with NFWF, provided \$828,250 for 14 fish and wildlife restoration challenge grants in 11 Western states, including one grant to a Native American tribe. In addition, another \$500,000 has been awarded for Spring Run and Chinook Salmon restoration activities in California.

Reclamation and NFWF are working to expand funding opportunities for the coming year. Reclamation received \$1.3 million in its 1997 budget to continue the challenge grants program in the West. (For examples of projects funded by challenge grants, see related story in From the Grassroots...) States and tribes interested in accessing this funding should contact the Area Manager of their local Reclamation field office to discuss proposals. More information on Reclamation field offices is available on the Internet at [URL=http://www.usbr.gov](http://www.usbr.gov). (otherwise see the contact box at the end of the feature section).

Protecting Forest Ecosystems with STREAM

Approximately 43 percent of all recreation on public lands in the U.S. occurs in the National Forest System. Because many rivers and streams flow through or have their origins within national forests, these recreational activities are often water-based. Congressional mandates require the USDA Forest Service to protect national forest stream ecosystems and the public benefits they provide.

In 1992, at the request of national forest managers, a joint venture between the National Forest System and Forest Service Research created STREAM, the Stream Systems Technology Center. Under STREAM, scientists from the U.S. Forest Service work in cooperation with scientists from the Bureau of Land Management, the U.S. Geological Survey, and 10 universities to help forest managers identify and fulfill their aquatic information needs.

Public policy issues involving stream flows and the health of aquatic ecosystems are complex and necessitate presenting specialized technical information in ways that are useful to managers, the interested public, and others. STREAM fulfills this need. The technical information and professional know-how fostered by STREAM are key tools in evaluating the cumulative effects of human activities, such as land use changes and diversions, on stream channels.

STREAM scientists share information with more than 2,500 subscribers from within and outside the Forest Service in a technical newsletter called Stream Notes. In addition, the STREAM publication Stream Channel Reference Sites is widely used by federal agencies, state and local governments, and private consultants to train people to effectively measure the characteristics of stream channels.

By working with the National Forest System, STREAM scientists have helped to evaluate, restore, and protect the public benefits of rivers and streams in our national forests. For example, STREAM helped the California's Stanislaus National Forest assess potential changes to the Clevey River from a proposed hydropower development. Scientists from the Pacific Southwest Research Station studied changes that occurred in an adjacent stream, Cherry Creek, following construction of an upstream dam. STREAM also helped field teams develop studies to determine instream flows needed by the public in adjudications involving the Snake and Klamath Rivers.

Currently, STREAM is tracking results of a channel restoration effort being completed in connection with a Federal Highway Administration project in New Mexico's Cibola National Forest. The results of this project will be used to guide other nonstructural channel restoration efforts in ephemeral streams. (See related story on STREAM in From the Grassroots...).

Educating Young People About Water

Recent studies show that people believe protecting water resources should be a national priority. The University of Wisconsin-Extension has developed a series of educational materials to help communities in their ongoing effort to educate people about the importance of protecting water resources.

Educating Young People About Water is designed to help youth educators create effective water education programs by integrating community water issues into education. The publication series includes three guides. Each guide addresses a different aspect youth water education:

- 1) A Guide to Goals and Resources introduces over 100 youth water curricula to help youth leaders find and select water education activities.
- 2) A Guide to Program Planning and Evaluation summarizes ideas for successful program planning from over 40 program managers and provides checklists to help design and evaluate programs.
- 3) A Guide to Unique Program Strategies provides brief case studies of 37 water education programs taking place across the country in unique settings, such as after school clubs, summer programs, museums, nature centers, and festivals.

The program also includes a 53-minute training video to assist trainers in teaching youth educators the concepts outlined in the guides. The video workshop offers a prime opportunity for youth educators to practice key skills for designing successful programs, linking water education programs to community issues, and managing and evaluating local water education programs.

These resources can benefit individuals looking to improve their personal skills in managing water education programs, small planning groups trying to identify what their organization or partnership can accomplish, and local youth leaders and natural resource professionals working to develop or enhance community-based water programs. The guides and video are available as a set for \$22.95 (including shipping). They can also be purchased individually for \$5 per guide and \$10.95 for the video/video guide (see the contact box at the end of the feature article for contact information).

These agencies are rising to meet the challenge of better public service. Whether encouraging public involvement in determining priorities or bringing the public the information and technical services they need, with each effort, these agencies are taking another step toward a truly holistic watershed approach.

For more information on "Bringing Government Closer to People," contact...

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Candace Stoughton

(202) 260-1737

TVA:

Carmen Lane
(423) 751-7312, or
Darcie Boden
(423) 632-8498
CA's Adopt-A-Watershed:
Kim Stokely
(916) 628-5334

U.S. Army Corps
of Engineers:
Ken Zwickl
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Bureau of Reclamation:
Shannon Cunniff
(202) 208-5007

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Statewide Watershed Approaches

This feature describes statewide watershed protection approaches and projects. For more information on this feature, please contact Joel Salter at EPA's Office of Wastewater Management, 401 M St. SW, Rm 2104(B) MC 4203, Washington, DC 20460, (202) 260-6051, fax (202) 260-1460, e-mail: salter.joel@epamail.epa.gov.

Alaska's Watershed Approach Encouraging Public Involvement

Alaska has made considerable progress in the 17 months since EPA Region 10 and the Alaska Department of Environmental Conservation entered into a partnership designed to facilitate the state's transition to the watershed approach. Group consensus has been reached on all of the major decision topics and the state's framework document is scheduled for release this Fall.

Reaching outside the agency, Alaska encourages stakeholders to be involved as much as possible in the design process. The state has been highly successful in attracting a diverse group of active participants to aid in the process; a group of approximately 30 stakeholders regularly attend monthly meetings.

The Core Workgroup's accomplishments to date include the development of (and, more importantly, agreement on): a mission statement, the content of watershed plans, a cycle for carrying out activities within each watershed, criteria for targeting watersheds, and watershed sequencing. The workgroup has also developed an exhaustive communication strategy and formed sub-groups to work on statewide GIS coordination and environmental indicators of success.

The key features that shaped Alaska's approach are its immense geographic scale and its localized ecological problems. Due to these unique characteristics, it is not necessary, or perhaps even possible, to address every watershed statewide. Therefore, the framework has a two-prong approach that targets watersheds currently known to be a problem, known as "ACTIVE" watersheds, and performs a continuous "DISCOVERY" on the lesser-known watersheds.

The "ACTIVE" watersheds will generally observe a five year schedule and will follow a seven-step watershed cycle:

- 1) Convene a watershed initiative involving stakeholders;
- 2) Review and compile existing information and define goals;
- 3) Identify issues;
- 4) Set priorities and targets;
- 5) Develop strategies;
- 6) Develop a watershed management agreement; and
- 7) Implement the plan.

This cycle of activities may or may not be repeated for a particular watershed in years six and beyond.

The "DISCOVERY" phase takes a hard look at each of the six major hydrologic areas of the state to find new watersheds to include in the "ACTIVE" category. This phase observes a six year schedule in which one hydrologic region is examined at a time, although it is possible that "DISCOVERY" may occur in more than one region simultaneously. Several steps of the watershed process will also be

used for "DISCOVERY," such as convening stakeholders, gathering data, and strategic monitoring to a lesser degree.

For more information, contact Gregory L. Kellogg at the Alaska Department of Environmental Conservation, (907) 269-7689.

Arizona's Watershed Approach A Unique Management Structure

Since last May, the Arizona Department of Environmental Quality (ADEQ) has been developing a framework for managing water quality on a watershed basis. Watershed Advisory Committees made up of representatives from federal, state, and local agencies, municipalities, tribes, and landowners/residents determined the goals, objectives, needs, and products of the state's watershed approach. The approach focuses on the following objectives:

- _ Empowering local communities to set priorities;
- _ Encouraging fair and equitable actions through public involvement;
- _ Coordinating environmental planning and implementation with other agencies;
- _ Aligning ADEQ resources to achieve more efficient, effective, and responsive customer service;
- _ Providing a sound technical basis to support environmental decisions; and
- _ Providing a forum to foster continuous evaluation and improvement of environmental programs and regulations.

The watershed approach divides the state into 10 Watershed Management Zones. In each zone, an internal ADEQ Watershed Management Zone Team works closely with the Watershed Advisory Committee. The ADEQ team reports its zone's needs to the State Watershed Coordinator, who then relays them to the ADEQ Section "round table." The "round table," made up of representatives from each of ADEQ's eight sections, determines assignments and allocations based on the reported information. A unique feature of Arizona's watershed approach, this organizational structure has proven successful.

Arizona's draft Watershed Framework document guides regional watershed planning in each of the ten zones according to a six-step process:

- 1) Stakeholder Outreach Involvement;
- 2) Collect and Evaluate Information;
- 3) List and Target Concerns;
- 4) Develop Management Strategies and Measures of Success;
- 5) Compile the Watershed Plan; and
- 6) Implement and Evaluate the Watershed Plan;

Watershed planning will rotate among each of the state's 10 zones on a five year cycle, with at least one iteration scheduled to be completed in each zone by the year 2000. Arizona's final framework document is scheduled for release this Fall.

For more information, contact Carol Aby, (602) 207-4601, or John Hathaway, (602) 207-4219, at the Arizona Department of Environmental Quality.

"Our future will be deeply compromised unless we learn to manage water as a critical ingredient of our lives." Norman Myers

Whole Basin Management in Delaware Developing Intra-Agency Harmony

Delaware's Whole Basin Management strategy is designed to break down the barriers between the divisions in the Department of Natural Resources and Environmental Control. The strategy recognizes that, although they have different focus areas, the divisions Air and Waste Management, Fish and Wildlife, Parks and Recreation, Soil and Water Conservation, and Water Resources share common ground.

Delaware's approach is to monitor, assess, and manage all the biological, chemical, and physical environments of geographic areas

throughout the state that are defined on the basis of drainage patterns. According to Stephen N. Williams, Delaware's Whole Basin Coordinator, "This means evaluating the environment in a holistic, multi-disciplinary manner in which resources from within and outside the department focus on issues and solve problems together."

"The goal is to create a road map for an ongoing process that will encourage all the players in a basin/ecosystem to cooperate in the management of natural resources and to help in the coordination of activities to protect and rehabilitate those ecosystems," Williams says. "The primary objectives are to improve communication between programs, get maximum mileage out of sometimes limited resources, promote public outreach and interaction, and integrate efforts with other agencies, the private sector, and the public."

The department is applying the approach to their first basin, the Piedmont, comprised of the six northernmost watersheds in the state. A basin team, consisting of technical and managerial staff members from each division has been formed to carry out the five-year, eight-phase plan. The phases begin with planning and continue through preliminary assessment, monitoring, analysis of the problems and issues, development of management and resource protection strategies, and, finally, implementation of the plan. The public will be involved throughout the process and people will have the opportunity to express their ideas and opinions about both environmental problems and how they want the environment to look.

The Piedmont Team, currently in the preliminary assessment phase, is gathering data and information based upon mediums, such as land use, sediment, surface water, water quantity, living resources, air, soils, wetlands, and contaminant sources. Subgroups have been organized for each medium to unite individuals from different divisions with a common interest. The subgroups will be identifying data gaps, making recommendations, and prioritizing issues.

While the Piedmont Team has only been active for the past seven months, the participants have already found the experience to be very rewarding. Team members believe the approach provides for a more direct focus on protecting natural resources and pulls together all of the right "pieces" to create the "big picture." Another immediate benefit is the data and information sharing which is taking place between divisions. This process has identified the need for the department to link divisional databases and dedicate more resources to database/GIS management.

For more information, contact Stephen N. Williams, Delaware Department of Natural Resources and Environmental Control, (302) 739-4403.

SRF Funding Framework Workshops

The State Revolving Fund (SRF) Branch will be hosting five Regional SRF Funding Framework Workshops this spring. These workshops should provide very useful information on how to support watershed projects through the SRF. The workshops will be most successful if they have a good mix of program and SRF staff in attendance! Online registration is available through the University of Maryland Environmental Finance Center at: <http://www.mdsg.umd.edu/mdsg/envifin/srf>. For more information, contact Andy Kurtzman at (301) 405-6384 or Kong Chiu at (202) 260-1722.

March 19-20 Portland, OR
March 26-27 Austin, TX
March 31-Apr 1 Charleston, SC
April 9-10 Ann Arbor, MI
April 16-17 Boston, MA



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Did You Know About Filter Strips?

_ Iowa State University research shows that 10-foot wide buffer strips are capable of removing more than 70 percent of the sediment from runoff flowing from slopes with grades as high as 12 percent.

_ A recent review of published studies shows that filter strips of varying widths remove an average of 48 percent of the herbicides contained in field runoff during both natural and simulated rainfall.

(Source: CTIC Partners, August/September '96)



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MORE ON WHAT'S HAPPENING IN THE STATES

This feature describes state watershed projects and the lessons states have learned through their watershed efforts. We welcome your submissions.

USGS and New York State Cooperative Pesticide Monitoring Program

This past July, New York Governor Pataki signed a bill establishing a statewide pesticide registry and a pesticide water-quality monitoring program. Known as the Breast Cancer Bill, the law is designed to help determine the links, if any, between breast cancer and pesticides.

The law directs the New York State Department of Environmental Conservation (NYSDEC) to establish a water-quality monitoring program for pesticides in cooperation with USGS and others (including the New York State Water Resources Institute). If implemented, this monitoring program will fall under the Federal-State Cooperative Program between the USGS and New York State agencies.

USGS is already sharing data on the occurrence and distribution of commonly used pesticides in ground water and surface water with the NYSDEC under the USGS Hudson River Basin National Water Quality Assessment (NAWQA) project. According to the NYSDEC, this information is essential for evaluating pesticide management policies and practices in New York State.

For more information, contact L. Grady Moore, USGS District Chief, (518) 285-5659.

Stream Partners Go to Work in West Virginia Watersheds

A new grant program in West Virginia will restore and protect the state's rivers and watersheds through local action.

The Stream Partners Program will provide up to 20 community organizations with the opportunity to obtain \$5,000 grants. The \$5,000 grants, matched by donations and in-kind services, will provide support for community watershed projects.

"Local residents, throughout the state, say they want a greater role in determining how rivers and streams are protected and restored," according to Roger Harrison, Executive Director of the West Virginia Rivers Coalition. "The Stream Partners Program would allow ideas to 'perk-up' from the local level instead of the...traditional top-down state and federal approaches to water quality improvement."

To qualify for the grants, groups must be broad-based and include representatives from industry, environmental groups, agriculture, local government, tourism, recreation, and education. Sixty-six groups applied for funding in 1996.

One local organization, the Davis Creek Watershed Association, is seeking a Stream Partners grant to support restoration of the watershed's once abundant smallmouth bass fishery, which has declined from years of stream degradation and illegal dumping.

Members of the local community have organized and adopted the stream in hopes of restoring it. As Diana Green, a local landowner and member of the Davis Creek Watershed Association, explains, "Stream Partners...is a golden opportunity for groups like ours who have a lot of motivation and people power but lack financial resources."

For more information, contact Pam Moe-Merritt at the West Virginia Rivers Coalition, (304) 472-0025.

Building Partnerships for Clean Water in Massachusetts

In Massachusetts, the Partnerships for Clean Water program is uniting conservation districts, watershed associations, the Massachusetts Watershed Coalition, the Natural Resources Conservation Service, and other partners to help communities protect and restore local waterways. Primarily an education campaign aimed at municipal boards and residents, the Partnerships pilot project focuses the expertise of these partners on addressing the impacts of polluted runoff on rivers and streams.

As a first step, the pilot project conducted a survey of local boards to identify their information needs. Feedback from the survey is being used to publish a monthly bulletin for municipal officials showcasing the nonpoint source Best Management Practices (BMPs) available for addressing polluted runoff.

The survey was also used to design a series of workshops to promote the benefits of BMPs. These workshops were tailored to the concerns of each individual municipal board, including Conservation Commissions, Planning Boards, Boards of Health, and Departments of Public Works.

The pilot project also raised awareness of how people can get involved in watershed protection by conducting a "Best and Worst Streams Poll" that identified problems and recruited people interested in lending a hand. The project is organizing and training volunteer stream teams to survey and monitor local streams. Technical expertise and funding from local, state, and federal partners will then be targeted to resolve problems identified by the teams.

In addition to restoring waterways in central Massachusetts, the Partnerships pilot will serve as a model for the establishment of other clean water partnerships across the state.

For more information, contact Ed Himlan at the Massachusetts Watershed Coalition, (508) 534-0379.

Tennessee and Ohio Water Parks Offer Unique Watershed "Experience"

Visitors to Mud Island in Memphis, Tennessee have a unique opportunity to experience the Mississippi River watershed. They can traverse, or swim, River Walk, a five-block scale replica of the lower 1,000-mile span of the Mississippi watershed.

Each 30-inch stride of River Walk represents an actual mile of the river. Eight hundred gallons of water flow through the model each minute, which empties into a 1.3 million gallon replica of the Gulf of Mexico.

A similar experience awaits visitors to Cincinnati, Ohio. The city has incorporated a scale model of the Ohio River, similar to the Mississippi model, in its new riverfront park.

Other cities could easily replicate these efforts by constructing scale models of their local watersheds. By doing so, they will be creating an invaluable tool for watershed education and a refreshing experience for visitors seeking relief from the summer heat.

For more information on Mud Island's River Walk, call 1(800) 507-6507.

American Wetlands Month '97 Photo Contest

Florida Wetlandsbank, EPA, and the Terrene Institute are sponsoring a wetlands photo contest to celebrate American Wetlands Month. The winning photo will become the American Wetlands Month '97 poster and will be provided to attendees at the May 7-9, American Wetlands Month Celebration: Communities Working for Wetlands conference in Alexandria, Virginia. The winning photographer will also be honored at the conference.

To enter, you must submit a photo (black and white or color, 5" x 7" or 8" x 10") of a wetland in the United States, accompanied by a completed entry form. For more information and an entry form, contact the Terrene Institute: (703) 548-5473 phone, (703) 548-6299 fax, terrene@gnn.com.



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The 1996 Farm Bill Enhancing Public Participation

The 1996 Farm Bill is providing new opportunities for public involvement in selecting priority watersheds and conservation areas. The Conservation and Wetlands Reserve Programs, are reauthorized through 2002, with up to 36.4 million acres and 975,000 acres, respectively, eligible for enrollment at any one time. In addition, \$200 million will be available annually to help agricultural producers establish conservation practices under the Environmental Quality Incentives Program.

The State Technical Committees will advise their USDA-NRCS State Conservationist in designating priorities. This gives the State Technical Committees expanded authority. The new bill also enhances public participation in this process by opening committee membership to federal, state, and local representatives, as well as agricultural producers, non-profit conservation organizations, and individuals with conservation expertise.

For more information, contact your USDA/NRCS State Conservationist. A list is available on the internet at <http://www.nrcs.usda.gov/state.html>. Or contact your local NRCS field office.



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From the Tribes . . .

The Northwest Indian Fisheries Commission

Indian tribes have always lived in every major watershed in Washington State. Tribal cultures, spirituality, and economies have centered on fishing, hunting, and gathering the natural resources of the region. Today, tribes in nearly all of the state's major river basins are concerned with watershed management programs and the key role these programs play in protecting their resources especially their salmon fisheries.

In 1974, the treaty Indian tribes in western Washington created the Northwest Indian Fisheries Commission. The commission was established as the result of litigation (U.S. v. Washington) that affirmed tribal fishing rights reserved in treaties with the federal government in the 1850's.

The commission assists tribes in conducting orderly and biologically sound fisheries and provides the tribes with a single, unified voice on fisheries management and conservation issues. Currently, member tribes of the commission include the: Nisqually, Squaxin Island, Puyallup, Jamestown S'Klallam, Port Gamble S'Klallam, Elwha Klallam, Skokomish, Swinomish, Sauk-Suiattle, Upper Skagit, Tulalip, Makah, Stillaguamish, Muckleshoot, Suquamish, Nooksack, Lummi, Quinault, and Quileute.

Cooperative Watershed Management

As co-managers of the fisheries, the tribes recognize that the fisheries are a basic, but important, natural resource and that conserving them requires effective and progressive management. The tribes believe that a unified effort can best accomplish this goal, for their benefit and the benefit of all the people of the Pacific Northwest.

To this end, the tribes have undertaken several cooperative initiatives focused on integrated resource management, habitat conservation, hatchery management, and harvest management. Tribal activities and accomplishments to date include the following:

_ In 1985, the United States and Canada signed the Pacific Salmon Treaty. The result of a joint effort among tribes, state government, sport and commercial fishing groups, and federal fisheries officials, the treaty established a mechanism for cooperative salmon management, protection, sharing, and restoration. Fisheries research is an integral part of the treaty and tribes conduct extensive data collection and monitoring to manage salmon fisheries in accordance with the treaty's goals.

_ In 1986, the tribes, in cooperation with the Department of Fish and Wildlife, developed a system of watershed planning to enhance salmon fisheries on a watershed basis. The tribes and the state solicited public comments, held hearings, and developed sub-regional work teams that identified goals, objectives, problems, and opportunities for each watershed. The effort has since produced Comprehensive Resource Production and Management Plans for several watersheds.

_ Also in 1986, tribes, state agencies, environmental groups, and private timber owners developed the Timber/Fish/Wildlife (TFW) Agreement to protect streams and watersheds from the impacts of logging. TFW created a cooperative process for identifying and applying best management practices to timber harvesting operations.

_ Under the Chelan Agreement of 1990, tribes, state agencies, environmental groups, agriculturalists, counties, cities, and other water users are pursuing cooperative approaches for protecting and enhancing water resources. Demonstration projects in the Methow River and the Dungeness River watersheds are testing cooperative approaches for addressing water issues while avoiding costly litigation.

_ In 1992, the tribes and the Department of Fish and Wildlife completed the Washington State Salmon and Steelhead Stock Inventory as the first step in the Wild Stock Restoration Initiative. Part of an effort to restore Washington's depressed salmon and steelhead runs, the inventory provides a standardized approach for annual monitoring of salmon and steelhead stocks and lays the foundation for the restoration program.

In addition to these achievements, the tribes are also implementing the watershed-based Coordinated Tribal Water Quality Program. The program provides the tribes with a mechanism for addressing water quality issues on and off the reservation that are critical to their economic, spiritual, and cultural survival. By working with local, state, and federal governments, the program has been able to transcend jurisdictional boundaries, making efficient use of limited financial and professional resources.

Most recently, the tribes, the Department of Ecology, and EPA Region 10 developed a draft cooperative agreement for the co-management of environmental programs, in particular the Clean Water Act section 303(d) impaired waters listing process, including the prioritization of total maximum daily load (TMDL) studies. The initiative aims to build consensus for identifying problems, implementing solutions, avoiding litigation, and coordinating tribal, state, and federal watershed management activities over time.

For more information, contact Fran Wilshusen of the Commission's Water Quality Program, (360) 438-1180, e-mail: fwilshus@nwifc.wa.gov.

gov; Paul Kraman of the Commission's 303(d) Program, (360) 438-1180, e-mail: pkraman@nwifc.wa.gov; or Chris Maynard with the Washington Department of Ecology 303(d) Program, (360) 407-6484, e-mail: cmay461@ecy.wa.gov.



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Conference Schedule:

March 6-8, 1997

Building Watershed Partnerships in the Southeast, Chattanooga, TN. Contact Don Anderson, SE NALMS Regional Director, (423) 751-7329, E-mail: dwanders@tva.gov.

March 19, 1997

Tools for Drinking Water Protection Satellite Presentation. Contact the PBS Customer Support Center, 1(800) 257-2578, Internet: www.pbs.org/als/programs/vc/water.

May 1, 1997

Community Water Education for Youth: Focus on Watersheds Satellite Videoconference, 12:45-3:00 PM CDT. This video-conference incorporates the Educating Young People About Water materials described in the feature article. For more information, or to offer a site, call (888) WATERWI (toll-free). Internet: <http://www.uwex.edu/erc/ywc>.



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From the Grassroots . . .

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

EPA's Pilot Technical Assistance Center Working to Promote Biocriteria

EPA's Pilot Technical Assistance Center in Region III (see feature article this issue) is already helping establish biocriteria programs, both inland and on the shore.

In the Chester River Project, the pilot center is applying biocriteria to define the effect of nonpoint source nutrient loadings on water quality. Since 1994, Maryland DNR has collected water, sediment, and biological samples in the agricultural and municipal watershed. The National Oceanic and Atmospheric Administration's (NOAA) Cooperative Laboratory in Oxford, Maryland and EPA's Central Regional Laboratory in Annapolis, Maryland are assisting in the effort by analyzing the samples for parameters such as nitrogen, phosphorus, dissolved oxygen, and benthic invertebrates.

Already, a parallel has been observed between high nitrogen and phosphorus in the agricultural headwaters of the Chester River and diminishing diversity of benthic invertebrates. In the future, the project will establish biological reference conditions for the upper and middle Chester River using data from other rivers in the region and will explore water resource conditions of streams entering the river. Ultimately, the project is intended to produce a land use management approach for consideration by state and local governments.

The pilot center is also surveying a nine station segment along the Atlantic Coast from above Bethany Beach, Delaware to below Ocean City, Maryland. Three years of data collection have revealed measurable impacts on the benthic macro-invertebrate community at the sewage outfall discharge sites of both of these ocean resort cities.

The project has generated interest from a number of sources: EPA Region III will use the project's findings to assist them in their NPDES (National Pollution Discharge Elimination System) permit evaluations; the U.S. Fish and Wildlife Service is following the project because the U.S. Army Corps of Engineers is assessing the possibility of establishing a beach replenishment program in the area; NOAA biologists are looking to gain scientific information from the project; and staff at the EPA Regional lab will use the sampling sites and samples to improve their analytical proficiency.

For more information, contact George Gibson, (410) 573-2618,
e-mail: gibson.george@epa.gov.

Grassland Birds Benefit from Chesapeake Bay Partnerships

The U.S. Fish and Wildlife Service (Service) has taken the lead in coordinating federal efforts to help the U.S. Naval Academy (Naval

Academy) restore wildlife habitat at the Greenbury Point Naval communications facility. A 231-acre peninsula in the lower Severn River and the Chesapeake Bay in Maryland, Greenbury Point provides critical open space and habitat for the Annapolis area.

In June, the Service coordinated a 20-acre grassland restoration project at Greenbury Point. Along with biologists from Maryland's Department of Natural Resources, the Service designed the grassland restoration project, provided some native seed material, and donated a warm-season grass drill for the effort, as well as a technician to carry out the planting. The Naval Academy purchased native warm season grass seed, as well as seed for native wildflowers, and mowed and sprayed the non-native turf grasses in the restoration area.

Recent data compiled by the National Biological Service indicates that several grassland bird species, including the field, vesper, and grasshopper sparrows; the eastern meadowlark; and the Northern bobwhite are declining in Maryland and the Northeast. Restoration of the grasslands on Greenbury Point is expected to benefit breeding populations of these birds. In addition, warm season grasses provide habitat and forage for a variety of small mammal species.

The Naval Academy is also incorporating a variety of other habitat restoration initiatives into its facility resources management plan, such as mounting osprey nesting platforms, wildlife food plantings, other warm-season grassland restorations, and managing several small impoundments as sanctuaries for waterfowl. The Naval Academy consults with EPA's Chesapeake Bay Program (CBP) Federal Agencies Committee, of which the Service is a member, to obtain technical and financial assistance for these projects. In the future, CBP partners will continue to explore habitat restoration opportunities at Greenbury Point and other Department of Defense facilities.

For more information, contact Laura Mitchell at the U.S. Fish and Wildlife Service, (410) 573-4531.

The Watershed Science Institute Sharing Watershed Planning Tools

The Natural Resources Conservation Service's (NRCS) Watershed Science Institute (WSSI) is assisting in two watershed assessment and management projects sponsored by EPA Region 10 and the Portland Area Metro Regional Government in Oregon's Clackamas River watershed.

The first project, the Metro Clackamas River Watershed Project, is compiling existing data on the watershed into a Geographic Information System, identifying a rapid assessment methodology for use in selected sub-basins, and identifying current citizen stewardship activities in the watershed. The second project, Evaluating the Effects of Ecosystem Protection, is supporting the development of indicators for rapid environmental assessment to aid community-based organizations in establishing environmental benchmarks. These benchmarks will be useful in evaluating the effects of land use management and environmental protection on watershed health.

The WSSI is supporting these projects through The Center for Urban Water Resources Management at the University of Washington. On behalf of the WSSI, the Center will review, integrate, evaluate, and summarize the two projects into a working guidance document on establishing and using environmental benchmarks for community-based approaches to watershed management. Once prepared, the guidance document will be distributed to all NRCS field offices to assist NRCS staff working with suburban and urban clients on watershed scale resource conservation. The guidance document is scheduled to be released in October 1997.

For more information, contact Rosemary Furfey, Senior Regional Planner, Portland Area Metro Regional Government, (503) 797-1726, or Carolyn Adams, Director of the Watershed Science Institute, (206) 616-5724, e-mail: houston@geology.washington.edu.

A Partnership Promoting Ecosystem Health

Since 1994, the Bureau of Reclamation has teamed with the National Fish and Wildlife Foundation to fund state and tribal projects that promote ecosystem health in the American West. The following are some of the projects funded by the partnership this year:

_ Hungry Horse Fish Passage, Montana The Forest Service will use a \$72,000 challenge grant and matching funds to replace culverts for fish passage on Felix and Harris creeks in Montana's Flathead National Forest. The culverts will reconnect spawning habitat on 11 miles of stream, lost due to road construction associated with the construction of the Hungry Horse Dam in 1953. Contact Robert Christensen, (208) 378-5039.

_ Hackberry Flat Wetland Restoration, Oklahoma The Oklahoma Department of Wildlife Conservation will work with public and private partners to restore 3,750 acres of wetlands in southwestern Oklahoma. The project will use a \$30,000 challenge grant to construct water control structures and revegetate upland areas with native plants and grasses, improving habitat for migratory waterfowl and shorebirds. Contact Jerry Jacobs, (406) 247-7718.

_ Muddy Creek Watershed Restoration, Montana The Cascade County Conservation District will work with the Muddy Creek Task Force, the Greenfields Irrigation District, and Reclamation to apply a \$41,000 challenge grant to promote instream restoration. The project is part of a watershed restoration plan to improve water quality in the Sun and Missouri rivers. Contact Jerry Jacobs, (406) 247-7718.

_ Asaayi Lake Habitat Restoration, New Mexico/Navajo Reservation The Navajo Nation Department of Water Resources will use a \$50,000 challenge grant to benefit native fisheries by planting and fencing 40 acres of riparian habitat. Contact William Rinne, (702) 293-8709.

USGS Goes to Work on the River of Promise

The U.S. Geological Survey (USGS) is a signatory agency of the "River of Promise," a cooperative initiative aimed at restoring West Virginia's Cheat River Watershed.

The River of Promise partnership works to facilitate and coordinate citizen groups, university researchers, the coal industry, corporations, the environmental community, and local, state, and federal government agencies for environmental restoration in the watershed. In addition to USGS and the U.S. Office of Surface Mining (both bureaus of the U.S. Department of the Interior), task force members include the West Virginia Rivers Coalition, Friends of the Cheat, West Virginia state agencies, EPA, Trout Unlimited, the Preston County Commission, and Anker Energy (a local coal company).

American Rivers named the Cheat, severely polluted by acid mine drainage from abandoned mines, one of the 20 most threatened rivers of 1996. The continuing legacy of this pollution has been the loss of fish and wildlife, aesthetic damage, degraded drinking water, and the loss of millions of dollars annually in the local economy from diminished recreational activities, such as fishing, boating, and white-water rafting.

Although eliminating acid drainage is now a federal government priority, the problem is so widespread and costly to solve that it can only be addressed through public and private partnerships. The River of Promise initiative has heightened public awareness and has already made significant progress in the watershed.

In the past year, the partnership initiated acid pollution mitigation projects in several Cheat tributaries and began a comprehensive watershed assessment to aid in prioritizing restoration efforts. Members of the task force have also developed a watershed approach for monitoring, evaluating, and remediating acid mine drainage within the lower reaches of the Cheat River. In addition, the West Virginia Department of Environmental Protection, USGS, and EPA will each participate in monitoring in the watershed. The water quality data collected by USGS will serve dual purposes, meeting the needs of the River of Promise initiative and providing data for USGS's National Water-Quality Assessment (NAWQA) Program on the Allegheny-Monongahela River Basin.

For more information, contact David P. Brown, USGS West Virginia, (304) 347-6131, e-mail: dbrown@usgs.gov.

The Upper Arkansas Watershed Council A Common Sense Approach

The Upper Arkansas River basin is no stranger to water-related conflicts. Historically, disputes revolved around water quantity. Today, concerns for water quality, fish, recreation, wetland areas, and related natural resources reflect the needs of a growing and changing community.

A new organization, The Upper Arkansas Watershed Council, is working to reduce conflict and address these needs by improving communication among diverse water-related interests in the basin. As Jeff Keidel, the council's coordinator, explains, "We recognize that when we sit down and discuss our needs not our positions there may be opportunities for good things to happen." It is an approach that is working for the 24 member organizations of the council.

One of the council's early successes was a meeting of downstream water users and upstream businesses regarding the May Caddisfly Festival celebrated in Chaffee and Fremont counties. Last year, water releases from upstream reservoirs were needed to overcome early drought conditions on the Eastern Plains. These elevated river flows ruined the famed caddisfly "hatch" and interrupted angling. By understanding each other's needs, the participants agreed to keep river flows low during the hatch, whenever possible, without impacting water rights.

At the council's first meeting, Lake County rancher Bernard Smith laid out the common sense approach "If I don't drink coffee with you, how am I ever going to know your needs? How are you ever going to know my needs? They might be remarkably similar."

For more information, contact Jeffrey Keidel, Upper Arkansas Watershed Coordinator, (719) 395-6035.

Pursuing the Watershed Approach in Bucks County, Pennsylvania

Elected officials, township managers, environmental groups, and industry representatives participated in a two-day workshop in Doylestown, Pennsylvania in September to review the success of past watershed efforts and to examine future watershed challenges. The group explored how to balance economic development with open space, maintain agricultural needs, and promote a healthy environment as Bucks County enters the 21st Century.

The workshop kicked-off with a history of efforts to protect valuable natural resources and support economic prosperity, followed by a panel discussion of critical issues of concern in Bucks County. Following this organizational session, state representatives discussed the current and proposed legislation that will be used to address some of the issues and speakers presented case studies on various watershed management technologies.

Workshop participants also played a role, dividing into groups to address four critical areas of concern: 1) education, 2) stormwater management, 3) groundwater/surface water issues, and 4) agriculture/urban interface issues. Each breakout group addressed the following questions: What are the critical short-term needs?; How will these needs be financed?; What are the technical challenges?; and What are the hurdles that need to be overcome? The groups then reconvened to share their findings.

In the final session, representatives from federal, state, and local governments, environmental groups, and industry joined in a panel discussion to present "tool boxes" available for addressing or supporting the issues identified in the breakout sessions. As a follow-up action, the Bucks County Commission has requested a report card from the workshop steering committee.

EPA, the Bucks County Planning Commission, and the Bucks County Conservation District sponsored the workshop in conjunction with several other state and local organizations. A similar workshop is being planned for Montgomery County, Pennsylvania in the near future.

For more information, contact Hank Zygmunt, EPA Region 3, (215) 566-5750.

Watershed '96 Videos Available

Cornell University has several Watershed '96 videos available, including:

Watershed '96 On the Air (112 minutes/1996) An edited version of the final plenary session of the Watershed '96 conference, this video addresses a range of water quality problems in a variety of settings (\$45).

Watershed Management: Four Examples (60 minutes/1996) A compilation of the four Watershed '96 case studies profiling watershed management efforts in Greenwich Bay, RI; Milwaukee River, WI; Henry's Fork, ID; and Edward's Aquifer/Seco Creek, TX (\$34 for all four on one tape or \$19.95 each for individual project videos).

Contact the Cornell University
Resource Center, (607) 255-2090, e-mail: Dist_Center@cce.cornell.edu.



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Industry Initiatives

Many industries and industrial associations have participated in the watershed approach at different levels, in different capacities. The following are a few examples. We encourage their continued involvement and welcome their submissions to this feature.

PG&E Invests in Upstream Water Quality

California's Feather Creek watershed is a prime example of how investing in upstream water quality can bring downstream returns. The Natural Resources Conservation Service estimates that, each year, 1.1 million tons of eroded soil travel down the Feather River to Pacific Gas and Electric's (PG&E) Rock Creek Reservoir.

Sedimentation from this erosion has already reduced the storage capacity of the electric utility's Rock Creek and Cresta Reservoirs by 46 and 56 percent respectively. This loss affects not only PG&E, but the 600,000 electrical power consumers served by the reservoirs and the 20 million water consumers that rely on them for a quarter of their water supply.

In order to protect its reservoirs, PG&E turned its attention upstream, initiating a series of meetings with the government agencies responsible for controlling erosion upstream of the dams. In 1985, the agencies organized into the Feather River Coordinated Resource Management (CRM) group and signed a Memorandum of Understanding that established goals and guidelines for conducting projects in the watershed.

To date, the Feather River CRM has completed 40 watershed projects. For its part, PG&E has invested \$1.1 million towards the effort, anticipating that, in return, sediment deposits in the reservoirs will decrease by as much as 50 percent over time.

Contact Leah Wills, Feather River CRM Coordinator, (916) 283-3739.
Golf and the Environment Consortium Charts

Sustainable Future for the Nation's Golf Courses

The Golf and the Environment Consortium, a partnership of approximately 25 golf, environmental, and government representatives, recently released a set of national principles focusing on environmental considerations associated with golf course planning, siting, construction, operation, and maintenance.

The principles are the culmination of an effort initiated in 1994 by the Center for Resource Management, Golf Digest Magazine, the National Wildlife Federation, and the Pebble Beach Resort Company to address issues related to golf and the environment. Released this past March at the second meeting of the Golf and the Environment Consortium, Environmental Principles for Golf Courses in the United States is intended to assist golf course owners in developing and operating their courses while preserving the beauty, integrity, and health of the local environment.

Copies of the principles document are available for \$5.00 each by contacting Utah's Center for Resource Management, (801) 466-3600.

The Value of Clean Marinas

EPA's Office of Water recently released a publication showcasing the economic benefits realized by marina managers who have implemented environmental management measures at their marinas. The following case studies are among the 25 marinas featured in Clean Marinas Clear Value (EPA 841-R-1996-003):

_ Ohio's Battery Park Marina pumped out more than 1,000 boat holding tanks at its pumpout and dump station. The amortized annual cost of providing these services is estimated to be \$317 in addition to a \$20 annual maintenance cost, while income generated by the pumpout service in 1995 was \$1,500. Adding increased fuel sales in the amount of \$11,000 associated with the service, the overall benefit of the pumpout and dump equipment totaled \$12,163.

_ New Jersey's Winter Yacht Basin, Inc. installed personal watercraft drive-on blocks to improve access to fuel pumps. The blocks cost \$3,138 to install, but their added convenience brought the company an additional \$6,730 in fuel income, while eliminating the expense associated with small fuel spills common in the past.

_ Washington's Elliott Bay Marina, found that a task as simple as handing out dog waste disposal bags (valued at \$0.19 each) saved approximately \$4,000 in labor costs for waste cleanup.

The marina guide is available from NCEPI, (513) 489-8190.

*"In brief, a land ethic is nothing more than the acceptance of constraints on human treatment of land in the short term to ensure long-term preservation of the integrity, stability, and beauty of the biotic community."***Jack Ward Thomas**



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NEWS BITS

In November 1995 the Corps of Engineers Vicksburg District and the Arkansas Game and Fish Commission (AGFC) officially dedicated an environmental improvement project designed to improve water releases from Narrows Dam/Lake Greeson. Low in temperature and dissolved oxygen, water releases from the dam were causing adverse impacts on a native fishery of the Little Missouri River. The project replaced some of the existing trash racks in Narrows Dam with solid plates to provide warmer, more oxygenated water for releases; constructed three lowhead rock weirs to provide additional aquatic habitat, aeration, and minimum water flow; added 67 boulders in the river just below the dam for increased aeration and aquatic habitat; and modified the cooling system of the hydroelectric power system to offset any potential adverse impacts from higher water temperatures. Jointly funded by the Corps and the AGFC, both agencies will monitor downstream water quality and fisheries improvements to gauge the success of the \$300,000 project. In addition, the AGFC will stock smallmouth bass and other fish species to assist with the recovery effort.

In partnership with the Leech Lake Band of Chippewa Indians, the St. Paul District of the U.S. Army Corps of Engineers recently modified a reservoir project at Lake Winnibigoshish, Minnesota to restore 44 acres of wetlands habitat for the benefit of migratory waterfowl. The \$78,000 project extended a water intake pipe through Winnibigoshish Dam to allow the Leech Lake Band to supply water to three diked ponds immediately downstream. Water levels will be regulated within the ponds to restore wetland habitat values for waterfowl breeding, nesting, brood-rearing, and feeding. Mallards, blue-winged teal, and wood ducks are expected to benefit from the restored habitat. The U.S. Fish and Wildlife Service and the Minnesota Department of Natural Resources supported the project. For more information, contact the project manager, Gary Palesh, St. Paul District, (612) 290-5282.

The Oregon State University Extension Service recently released a half-hour educational video on the greatest threat to America's drinking water supplies nonpoint source pollution. *We All Live Downstream* examines urban and rural runoff and the problems it creates for surface and ground water. Taped mainly in Oregon's Tualatin River basin, the video explores how Oregon residents and government officials are trying to reduce nonpoint source pollution. The video is available for \$30 (including shipping) by writing to Publications Orders, Extension and Experiment Station Communications, Oregon State University, 422 Kerr Administrative Services Building, Corvallis, OR 97331-2119.

For the Sake of the Salmon (FSOS), a Pacific region organization, has obtained a \$1 million appropriation from Congress to support locally-hired watershed coordinators in the Pacific states (California, Oregon, Washington). To be eligible for coordinator funding, applicants must have an established watershed council or steering committee representing a broad diversity of stakeholders and they must incorporate a watershed-wide perspective (ridge top to stream channel) in the area they define as their watershed. In addition, the watershed must have anadromous salmonids and the watershed plan must address their needs. The deadline for the second round of funding is March 1, 1997. For more information and an application, contact FSOS, (503) 650-5447, or e-mail: karen_mcgill@psmfc.org.

The deadline for applying to become a National Civic League All-America City is March 27, 1997. The All-America City (AAC) awards program recognizes citizen-based, collaborative efforts to anticipate problems and to confront current challenges in communities. The ten AAC award recipients will receive \$10,000 from The Allstate Foundation, sponsors of the program. In addition to incorporated cities, the program is open to towns, villages, neighborhoods, counties, and other communities. For more information and an application package, contact Carole R. Bloom, Director, All-America City Award Program, 1(800) 223-6004.



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NEW IN PRINT

Regional Recreation Demand Model (RRDM) This Corps model predicts recreation use (visits) and economic benefits (consumer surplus) for reservoir projects in a region, basin, or watershed. For a technical report on the development and applications of RRDM (Technical Report R-96-2), a Users Guide (Instruction Report R-95-1), or the RRDM software, contact Jim Henderson, US Army Engineer Waterways Experiment Station, Environmental Lab, 3909 Halls Ferry Rd., Vicksburg, MS, 39180, or via e-mail at HENDERJ@EX1.WES.ARMY.MIL.

Civil Works Environmental Desk Reference (EDR) This Corps publication contains summary profiles of 62 environmental laws applicable to the Corps' Civil Works program and full text of 22 executive orders relevant to the environment and environmental resources. Contact Lynn Martin, (703) 428-8065, or fax (703) 428-8435.

Beyond SRF: A Workbook for Financing CCMP Implementation (EPA 842-B-96-002) This EPA Office of Water publication is intended to introduce different financing approaches for state, tribal, and local conservation and restoration efforts. For a copy, call NCEPI, (513) 489-8190.

The Quality of Our Nation's Water: 1994 (EPA 841-S-94-002) This EPA Office of Water publication, printed in vibrant color, summarizes information on the nation's water quality conditions, problems, and programs. For a copy, call NCEPI, (513) 489-8190.

Watershed Restoration: A Guide for Citizen Involvement in California (NOAA Coastal Ocean Program, Decision Analysis Series No. 8) This National Oceanic and Atmospheric Administration (NOAA) document explains why citizen, in addition to government, involvement is essential for the success of watershed protection and restoration efforts. Contact NOAA's Coastal Ocean Office, (301) 713-3338, or write to Isobel C. Sheifer on the Internet at isheifer@cop.noaa.gov.

Chesapeake Bay Communities Making the Connection: A Catalog of Local Initiatives to Protect and Restore the Chesapeake Bay Watershed (CBP/TRS-142/95, EPA 903-R-95-018) Produced by the Chesapeake Bay Program, this catalog provides project descriptions and contact information for local watershed protection and restoration efforts in the Chesapeake Bay watershed. Contact the U.S. EPA Chesapeake Bay Program Office, 1-800-YOUR BAY.

Water Quality: A Catalog of Related Federal Programs (GAO/RCED-96-173) This U.S. General Accounting Office report describes 72 federal programs and initiatives that assist states, tribes, municipalities, and individuals in their efforts to improve and/or protect water quality. Contact GAO, (202) 512-6000.

OSEC Releases "Case Study Examples" Package EPA's Office of Sustainable Ecosystems and Communities (OSEC) compiled this package of five case studies illustrating how EPA can help enable Community Based Environmental Protection efforts. Call Chris Solloway, (202) 260-3008, e-mail: solloway.chris@epamail.epa.gov.

The Water-Wise Gardener Handbook Developed by Virginia Cooperative Extension, this handbook is useful in educating the public about maintaining attractive lawns, while minimizing fertilizer and pesticide runoff. The handbook is available for \$15 (including shipping) from the Office of Consumer Horticulture, (540) 231-6254.

Atmospheric Nutrient Input to Coastal Areas: Reducing the Uncertainties (NOAA Coastal Ocean Program, Decision Analysis Series No. 9) This NOAA publication presents the issues related to atmospheric deposition, which can account for 10 to 45 percent of nitrogen loading to waterbodies. Contact NOAA's Coastal Ocean Office, (301) 713-3338, or write to Isobel C. Sheifer on the Internet at isheifer@cop.noaa.gov.



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CYBERSPACE

The following is a listing of Internet Resources which may 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 Richard Huffine, (202) 260-5080, e-mail: huffine.richard@epamail.epa.gov. Watershed Events appreciates the cyberspace contributions provided by Richard and other readers.

Watershed '96 Online

URL=<http://www.epa.gov/owow/watershed/w96index.html>

It's the Watershed '96 conference in cyberspace! Peruse the plenary topics, browse a photo album, or link to related web sites.

USDA Forest Service Welcome Page

URL=<http://www.fs.fed.us/fs/welcome.html>

Access selected information on land management, research, and state, private, and international forestry activities focusing on America's forested lands.

Water Treatment Path for Kids

URL=<http://www.epa.gov/OW/OGWDW/kids/treat.html>

Children of all ages can follow a drop of water from its source, through the treatment process.

Encyclopedia of GAP Analysis

URL=<http://www.nr.usu.edu/gap/>

Information on GAP, a Geographic Information System (GIS) application developed by Michael Scott and others at the University of Idaho. GAP superimposes GIS layers, such as vegetation, topography, and rare and endangered species distributions, in order to identify potential gaps in conservation programs aimed at providing habitat and conserving biodiversity.

Surf Your Watershed

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

EPA's Office of Wetlands, Oceans, and Watersheds is developing this watershed web site on the Internet. Surf Your Watershed will allow web surfers to find their watershed, request a map, search for information, and contribute information.

River Network Online

URL=<http://www.rivernet.org/~rivernet>

Provides tools to help people organize to protect and restore rivers and watersheds.

Science Advisory Board (SAB)

URL=<http://www.epa.gov/science1/>

Browse the SAB's 1995 and 1996 reports, background information about the organization, and the most current issue of HAPPENINGS.

Educating Young People About Water

URL=<http://www.uwex.edu/erc/ywc/>

Provides materials, searchable by grade level or by subject, that can help users develop community-based, water education programs that target youth while forming key community partnerships (see related story in the feature article at the beginning of this issue).



Note: This information is provided for reference purposes only. Although the information provided here was accurate and current when first created, it is now outdated.

Five Fundraising Strategies for New Watershed Groups

by Pat Munoz, Program Manager at River Network, a national nonprofit organization working to help grassroots watershed groups. Readers are encouraged to contact Pat at (202) 364-2550 for information on these and other fundraising strategies.

One of the biggest challenges a newly established watershed group faces is raising money to carry out its programs. Here are five things your new group can do to raise your first year's funding:

- 1) **Find a Few Good Friends** To get started, most groups need to find a few generous supporters who will provide the seed capital to get a project rolling and underwrite major expenses, such as postage and printing. These friends may be individuals, businesses, local foundations, or government agencies. Take the time to do some research, talk to community leaders and friends who work at other nonprofits and prepare a list of prospective supporters. Then prepare a simple case statement outlining the problem and what your organization plans to do about it. Armed with your list and your case statement, get on the phone and start talking. Set up visits with prospective supporters. Tell them about your work and how it will benefit the community and then ask them to help by contributing a specific amount.
- 2) **Hold a Special Event** While events take time to plan, they are one of the best ways to put your organization front and center in the community. Events can raise money while informing the community about your organization, involving volunteers, recruiting new members, and attracting media coverage. Try to pick an event that you can repeat year after year to create a source of reliable income. Incorporate creative add-ons, such as sponsorship by local businesses.
- 3) **Build a Membership** Building a base of committed members and volunteers is essential to the survival of any grassroots watershed organization. This won't happen overnight, but with care, your members will become a steady source of income. One successful strategy employed by some organizations has been to collect names and addresses of riverside landowners by reviewing land ownership and tax records. Armed with the list, you can rely on mailings or door-to-door visits to publicize your project and gain support. Another alternative is to host a project party in your home and invite potential members. Whatever strategy you use to build membership, you will need to devise a system for recording the names and addresses of your members so that they can be kept informed.
- 4) **Hold a Public Meeting** Is your watershed in crisis? If you are working on a high visibility issue, a public meeting is a good strategy for mobilizing the volunteer and financial resources needed to get the project off the ground. Pick a date and time that will allow for the largest possible attendance and publicize the meeting thoroughly in the paper and by posting flyers. Limit the agenda to three topics: 1) the problem; 2) your strategy and examples of how similar strategies have succeeded elsewhere, and 3) your need for time and dollars. Then pass the hat. Often volunteers, in addition to funding, will come forward.
- 5) **Look for In-Kind Donations** Often, what you need to accomplish your programs are services (writing, printing, planting, hauling) or goods (computers, furniture, lumber, trees). Try to get these items donated. In many cases, people who cannot contribute cash, will contribute goods, services, and even office space for a cause with which they can identify. Local businesses may be more eager to get involved if you can give them visibility in the community. By contrast, large companies usually react to their employees desires, so you should ally with an influential employee who can act as your spokesperson.



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Lessons Learned in Fountain Creek

by *Karen V. Guglielmono*, Chair, Information Resources Focus Group

Human activity throughout the Fountain Creek watershed exacerbates the creek's natural propensity for variable streamflows and streambank erosion. In April 1995, the Pikes Peak Area Council of Governments and the U.S. Department of the Agriculture, Natural Resources Conservation Service (NRCS) joined forces to address these problems, jump starting the Fountain Creek Watershed Project.

Within one year, with the help of a Watershed Coordinator, the Fountain Creek Watershed Project (FCWP) is on its way, creating a shared vision for the watershed, educating the public, and determining what information is needed to make the most informed decisions for solving problems. Already, we have learned some valuable lessons that could be useful to other watershed initiatives:

DESIGNATE A LEADER! The FCWP needed a champion (a coordinator) to keep momentum.

BE SURE YOU ARE COMMUNICATING! A key role of the FCWP Coordinator is to ensure that all stakeholders are using the same vocabulary.

BE ORGANIZED 1! The FCWP discovered early on that we needed to have a workable organizational structure.

BE ORGANIZED 2! All FCWP Steering Committee and Focus Group meetings have a focused agenda that is sent out before the meeting.

BE REALISTIC 1! It took some time for the Steering Committee to accept the fact that stakeholders will become more interested and active once they see how the process can affect them.

BE PATIENT! Actively participating stakeholders have been extremely anxious for the severe erosion problems along Fountain Creek to be solved. This has created tremendous pressure to get projects on the ground, even before there is stakeholder buy in, adequate funding, and scientific assurance that the best management practices will work and will not create additional damage downstream.

SECURE LONG TERM FUNDING! The FCWP has been funded over the past year by grants from the NRCS and EPA Region 8. Limited funding has made it difficult to plan wholeheartedly for activities beyond one year and has led the Steering Committee to discuss strategies for getting our stakeholders to reach into their own pockets.

For more information, contact Karen Guglielmono, (303) 743-5436.



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National Watershed Assessment Program

The Office of Water, working with states and other partners, has initiated the National Watershed Assessment Program (NWAP). NWAP is designed to collect, organize, and evaluate multiple sources of environmental information to characterize the condition of the 2,150 watersheds of the United States; identify those at risk; empower citizens to learn more about their watersheds and work to protect them; provide for dialogue among the many public and private partners who can help assess and improve the condition of their watersheds; and measure progress toward watershed protection goals. In Phase 1 of this project, EPA has taken the lead to work with partners in aggregating environmental information from states, tribes, and other federal and private partners to characterize the condition of these watersheds. In Phase 2, states and tribes will take the lead, working with EPA Regions and other partners, to use the data to decide where pollution prevention, remediation, or more data are needed. Also in Phase 2, EPA will continue to improve NWAP data and add six important missing elements: biological integrity, habitat, ground water, coastal waters condition, air deposition, and downstream impacts.

Among the seven sources of data being used to characterize watershed conditions are the state water quality assessment reports produced under section 305(b) and fish consumption advisories. A set of vulnerability indicators (e.g., aquatic species at risk, hydrologic modification) will also be included in the watershed characterization.

The draft NWAP products were transmitted to the states and tribes for review in January. Completed product will be ready in May. For more information, contact Sarah Lehmann at (202) 260-7021.

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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