March 1991
#11

Nonpoint Source EPA News-Notes

A Commentary . . .

Grassroots Involvement and Problem Ownership Key to Nonpoint Source Control Program Success

It is common knowledge among nonpoint source program managers that nonpoint sources of water pollution have diverse and diffuse origins, are naturally ubiquitous, and result from the many ways that people use (and misuse) their own (or anybody else's) land.

It is also accepted conventional wisdom among NPS managers that there are no easily available or readily adaptable engineering solutions to NPS situations/problems. No "off-the-shelf" answers. On the contrary, *best management practices* are required. And BMPs require *management* and they require *practice*, both of which introduce the human factor. People are the primary causes of nonpoint pollution and people must be the major factor in any effective solution.

Education and involvement are the keywords. It is at the most local, grassroots level where the problems are located—where effective prevention and clean-up must take place—and where ownership of the problem becomes all too evident.

These are some thoughts that have come to mind in the course of putting together the articles that make up this issue of *NEWS-NOTES*. We hope you'll be *educated/enlightened* as much as those of us here at *NEWS-NOTES*.

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NPS Electronic Bulletin Board Available

We Invite your Participation on the Nonpoint Source Information Exchange Computer Bulletin Board System (BBS)

Editor's Note: We are very pleased to announce the availability of the NPS Information Exchange Bulletin Board. It has taken several months of planning and testing to get to this point and we believe you will find the BBS to be a vital and useful tool. Of course, since the BBS is now just coming online, it does not yet offer the full range of features that will eventually be available. To date, over 100 short articles are posted as bulletins and uploadable files contain back issues of the *NewsNotes*, other text files, and computer programs. Also available is access to the Clean Lakes Clearinghouse Bibliography. Users will be the major source of information and groups will be formed as users express an interest in working with us to create special interest areas. We will also continue to post new program materials and are looking forward to responding to your suggestions and information needs. The BBS will tell you how to participate and get needed help. The following information will tell you how to join in and take advantage of this new and important NPS Information Exchange service. The BBS is yours to use. Welcome aboard.

BBS Open For General Use

As of March 1, the Nonpoint Source (NPS) Information Exchange BBS was opened for general use. The BBS is designed to provide state and local agencies, private organizations, businesses, and concerned individuals with timely, relevant NPS information, a forum for open discussion, and the ability to exchange computer text and program files.

You can use the NPS BBS to:

- Read, print, or save to computer disk current, NPS-related articles, reviews and fact-sheets.
- Exchange computer data, including database files, electronic spreadsheets, word-processor files, and software.
- Post your own articles and comments online for the benefit of others.
- Ask questions and conduct discussions directly with NPS experts.
- Exchange private letters with other users.

How to Access the NPS BBS

To access the NPS BBS, you will need a PC or terminal, telecommunications software (such as CrossTalk or ProComm), a modem (1200 or 2400 baud), and a phone line that will handle modem communications.

The NPS BBS phone number is: 301/589-0205

The telecommunication parameters are: no parity, 8 bits, and 1 stop-bit (N-8-1).

For further assistance in accessing the NPS BBS refer to your computer and modem user's manuals, or call (202) 245-3666 for a copy of the complete user's manual.

When you first access the BBS, you will be asked to register and create a password. Write down this password as you will need to use it every time you access the BBS.

The NPS BBS has a Variety of Features

Once you are registered on the system, you will have access to all the following features:

HELP	Help is available on the BBS at all times by selecting "Help" from the options menu.

NPS Electronic Bulletin Board (Continued)

NEWS FLASHES A screen or two of information that scrolls by when you first sign on or enter a conference. Read these for:

- Announcement of upcoming conferences and workshops.
- Promotion of new BBS services and files.
- Timely tidbits from the states and regions.
- Notes on new federal regulations and actions.

BULLETINS Visit the bulletin area to read, print, or transfer to a disk, text files, such as:

- Descriptions of the NPS BBS and new user information.
- Short articles on NPS-related topics.
- Conference/workshop schedules.
- Names and phone numbers of experts.
- Chapters from the NPS BBS user's manual.

FILES An area where text and program files are available for downloading (transferring to your computer). Visit this area to acquire larger text files, and free software.

MESSAGES Use the message feature to post public announcements and inquiries, to send private messages and files, or to ask questions of the BBS system operator (sysop).

SIG'S Special Interest Group areas dedicated to a specific topic that have all the features of the main BBS. These areas will be developed as necessary as the NPS BBS grows and matures.

DOORS Doors serve as a gateway from the NPS BBS software to some other piece of software without leaving the BBS. As the NPS BBS develops, Doors will be added to allow full-text searches of long documents for specific references, key-word searches of databases, and other customized database and other software applications.

The NPS BBS Will Succeed as a Vital Tool for the Exchange of NPS Information if You Use It!

Please—take advantage of this new NPS Information Exchange service. Upload your reports, articles, and non-copyrighted software (no games). Engage in the public debate and discussion via the message system. Let the system operator know about what improvements you would like to see. Tell your co-workers about the system.

SEE YOU ONLINE!

Notes from Headquarters

Final Nonpoint Source Program Grants Guidance Issued

EPA's final guidance on the award and management of nonpoint source (NPS) program implementation grants under section 319(h) of the Clean Water Act was issued on February 15, 1991. This guidance will serve as the final guidance for allocating and managing section 319 grants to states and territories for FY 1991 and beyond. In FY 1991, the second year of Congressional funding for the nonpoint control section of the Act, the appropriation was $51 million. This represents an increase of about a third over the $38 million which was made available in FY 90 after Graham-Rudman-Hollings mandated reductions.

Final NPS Program Grants Guidance (Continued)

LaJuana S. Wilcher, EPA's Assistant Administrator for Water, in announcing the issuance of the guidance, said:

> *The guidance emphasizes EPA's primary goal of ensuring that the section 319 funds are directed to implement effective, high-quality NPS programs that will achieve the best possible results in the national effort to prevent and abate NPS pollution.*

She announced that 50% of the grant monies would be used to support states' base programs and that the remaining funds would support the most effective and innovative state projects and program activities.

For the first portion of the funds, EPA has set planning targets for each state based on a series of weighted factors. Wilcher emphasized that

> *. . . these planning targets are starting points for planning purposes. (EPA's) Regions may vary the final base program grant amounts to assure that all allocated funds will comply with the goals and requirements of section 319 and this guidance.*

The second portion of the funds will be awarded by the Regions to the states on a competitive basis and in accordance with Regionally established priorities. Each Region will receive a lump sum for competitive awards equal to the sum of its states' base program planning targets.

Assistant Administrator Wilcher indicated that the final guidance document includes several aspects warranting special emphasis:

- The states are to rank waters listed in their NPS Assessment Report, either numerically or in broad categories, to ensure that the limited 319 funds are targeted effectively.
- The importance of effective, comprehensive watershed projects is emphasized. Funding priority will be given to watershed protection activities which form part of a comprehensive approach designed to control all of the major sources of NPS affecting water quality throughout the watershed or ground-water area being protected.
- Continuing emphasis is placed on monitoring to evaluate the effectiveness of watershed projects, tailored to the specific project and its objectives.
- The matter of accountability in grants-management is affirmed:

  > *. . . each grant must describe in detail the activities to be funded, the broad water quality goals and objectives to be achieved by those activities, and the specific outputs and milestones to be attained.*

For FY 91, under the guidance, states are to submit their work programs to the Regions by March 30. Such work programs will include work contemplated under the state's base program planning target, as well as their proposed work under the Region's competitive grant allocation program.

Regions are to respond to each state with a preliminary determination of the grant amount no later than May 30, 1991 with the final grant award to be made no later than August 15, 1991.

[For further information, states and other interested parties should contact their appropriate Regional Nonpoint Source Coordinator listed on page 5.]

Final NPS Program Grants Guidance (Continued)

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EPA Issues Stormwater Control Regulations

"Large" and "medium" sized municipalities and counties, nationwide, will be required to comply with new regulations aimed at limiting pollution from stormwater runoff. Issued by EPA during November 1990, the regulations (40 CFR Parts 122, 123, and 124) apply to more than 100,000 industrial plants, and 173 municipalities, as well as 47 counties, with populations of over 100,000, that must now obtain a permit under the National Pollutant Discharge Elimination System (NPDES) for their stormwater discharges.

The application of the NPDES process to stormwater discharges is a requirement of new section 402(p) added by section 405 of the Water Quality Act of 1987. Stormwater runoff from urban areas often contains metals, oils, fertilizers, pesticides, de-icing salts, and other pollutants. The regulations are also aimed at the elimination of illegal connections between sanitary or industrial sewers to storm drains.

The new stormwater regulations for municipalities and urban counties consist of two parts. Part one requires identification of stormwater outfalls, sources of pollutants in stormwater, as well as programs that control stormwater pollution. Part one is to be completed by November 1991 for "large" municipalities and counties (population greater than 250,000). For "medium" sized jurisdictions (populations between 100,000 and 250,000) the filing deadline is May 1992. EPA will determine by October 1992, how municipalities less than 100,000 in size will be regulated.

Part two, due one year after part one, requires the development of a comprehensive stormwater control program.

Stormwater Control Regulations (Continued)

Industrial facilities which are required to obtain stormwater discharge permits include: manufacturing operations where raw materials or wastes come in contact with stormwater; wastewater treatment plants; power plants; landfills receiving industrial wastes; vehicle maintenance facilities; and construction activities that disturb five or more acres. To simplify the permit process for industry, EPA has proposed general permits for classes of industrial dischargers.

Permits will be issued by EPA or by states that have exercised the option to administer an EPA approved permit program in their state. Approved states (there are 38 states and one territory so approved) must have requirements that are at least as stringent as the federal program; they may be more stringent if they choose.

[For more information contact: Thomas J. Seaton, Kevin Weiss, or Michael Mitchell, Office of Water Enforcement and Permits (EN-336), U.S. EPA, 401 M Street, SW, Washington DC 20460. Phone: (202) 475-9518.]

Notes from the States and Localities

Oklahoma Initiates An Innovative Water Quality Training and Certification Program

The Oklahoma Conservation Commission (OCC) is somewhat unique in that many of its employees work at the eighty-nine local Soil and Water Conservation Districts (SWCD) across the State of Oklahoma. These District Technicians assist the SWCDs and the local USDA Soil Conservation District Field Offices, in developing conservation plans for farmers and ranchers and in doing the field and engineering work necessary to implement the plans—survey and lay out terraces, stake out ponds, design irrigation systems, etc.

As Oklahoma's nonpoint source/water quality program began to move to the local level, more and more SWDCs began to develop water quality programs to complement their conservation plan activities. OCC responded by providing technical assistance in key areas including training in 1) the operation of water quality monitoring and assessment programs to ensure that local agricultural producers receive one-on-one assistance in recognizing water quality problems, 2) design solutions based on state water quality goals and standards, and 3) the application of the most effective Best Management Practices in conservation plans.

OCC's John Hassell, who is coordinating the development of the training program, said:

> *In order to attain a consistent level of effort across the state and to maintain a high level of quality, it is necessary that each district interested in the establishment of a water quality program have an employee trained in the techniques required to conduct these efforts. We are preparing a training program that will lead to the certification in water quality management of local district personnel.*

Funding for the development of the training program was provided to the state by U.S. EPA during FY 90 under section 205(j)(5) of the Clean Water Act.

Instructional materials and curricula covering site selection, sampling procedures, analytical techniques, habitat assessment, QA/QC, and other facets of water quality assessment are being prepared. The curriculum will attempt to cover all aspects of water quality assessments which district personnel have either the knowledge to undertake or the awareness of the resources available to help them in the planning and operation of programs. Instruction will cover lake systems, streams and rivers, and groundwater.

Oklahoma's Training and Certification Program (Continued)

Both classroom and field instruction will be conducted with the emphasis on understanding aquatic systems and their relationship to the terrestrial environment. Attendees will receive hands-on experience with sampling and analytical equipment and will work both in the classroom and in the field to determine appropriate monitoring sites.

Although the instruction will be conducted with small groups and is intended to be informal, certification will be based upon both attendance and successful completion of a post-course examination.

Susan Alexander, Region VI's NPS Coordinator, commented on Oklahoma's new training and certification program:

> *This is a creative technique that makes a lot of sense. It melds together the water quality measures and requirements of the Clean Water Act with the programs and energies of the local conservation districts in the common goal of clean water. Oklahoma should be congratulated for this exciting and innovative approach.*

[For more information contact: John A. Hassell, Water Quality Division, Oklahoma Conservation Commission, 2000 North Lincoln Boulevard, Suite 100, Oklahoma City, OK 73105. Phone: (405) 521-2384, FAX (405) 521-6686.]

People Who Live Around the Lake Acting to "Save" Lake Pontchartrain

In early 1989 the Greater New Orleans Expressway (Causeway) Commission asked an interdisciplinary team to look into and report on "sources, remedies, and economic impacts of pollution in Lake Pontchartrain." The team recommended that a non-profit foundation be established to address the problem.

The Louisiana State Legislature in July 1989 passed Act 716 authorizing the Causeway Commission to establish Lake Pontchartrain Basin Foundation "to restore and preserve the environmental and ecological balance" of the lake basin.

The basin drains some 4,700 square miles, is occupied by 14 parish governments in Louisiana and 4 counties in Mississippi, and is home to just under 1,300,000 people who reside in the New Orleans Metropolitan Area. Lake Pontchartrain has a surface area of approximately 400,000 acres and 170 miles of shoreline and is technically not a "lake" but rather an inlet bay with narrow but direct access to the Gulf of Mexico.

Lake Pontchartrain has fallen victim to a long list of classical ills stemming from exploitation and neglect typical of many large bodies of water in the United States where, in the past, there has been little public environmental concern and responsibility in evidence.

Not enough is understood about the hygiene, chemistry, or hydrology of Lake Pontchartrain, which is made up of a mix of Mississippi River drainage, storm water runoff, septic tank seepage, and Gulf of Mexico tidal influence. Leading the list of currently perceived problems are high levels of fecal coliform caused by outright lack of sewage treatment, by failing septic tanks, and by urban and agricultural runoff.

Steve Cochran, Executive Director of the Foundation, reported in September, 1990:

> *The circumstances are those with which we are all familiar, those which have created the frustrating sense of loss that is so common when we talk about the lake: from the yacht club members who won't let their children jump from a boat into the water, to the "good old Metaire boy" who can't take his granddaughter crabbing off the sea wall, from the kids who must ignore health warnings to swim at Seabrook, to the northshore fishermen who are tired of seeing their nets, and their livelihoods, lost to shell dredging. We have all experienced the sadness and the anger. Those are the circumstances.*

"Save" Lake Pontchartrain (Continued)

The Foundation's first year was full of activity on major issues demanding urgent attention, many of them organizational:

- In September 1989, the Board voted to intervene in a pending shell dredging permit application; they presented expert testimony during a State Department of Environmental Quality three-and-a-half week shell dredging hearing; in May 1990, a DEQ administrative law judge ruled that shell dredging is harmful to Lake Pontchartrain; in June 1990, DEQ denied the waste-water discharge permit and Governor Roemer terminated shell dredging in the Lake.
- In October 1989 the Causeway Commission gave a $30,000 seed money grant to the Foundation and in January 1990 followed with a two year grant for $500,000.
- Louisiana Senator J. Bennett Johnston met with the Foundation in December 1989 and then in January 1990 held a hearing of U.S. Senate Appropriations Committee Energy and Water Development Subcommittee at the University of New Orleans and asked the Foundation to develop a coordinated inter-governmental planning process for restoring Lake Pontchartrain.
- Following a national search, in February 1990, the Board chose Steve Cochran, former Chief of Staff to Governor Roemer, as the Foundation's Executive Director.
- Congresswoman Lindy Boggs, during July 1990, guided legislation through the U.S. House of Representatives to provide $275,000 for a stormwater demonstration project.
- In August 1990 the Board appointed a 15-member interdisciplinary Technical Advisory Council from area universities. A Foundation publication observed:

  The primary purpose of the Council is to provide objective advice to the Foundation on issues pertaining to the lake. These issues include both environmental and societal interrelationships.

Through all of this, the people around the Lake together took direct action. In September 1990, a *Beach Sweep '90* was held, where volunteers pitched in to help clean up the shores of the Lake. A three-day *Back to the Beach* fund-raiser held in November hoped to raise $50,000 but came away with a $120,000 profit. Additionally, local businesses supported the Foundation with more than $100,000 in professional services and in-kind contributions.

The New Orleans Times-Picayune reported on January 29, 1991, that as Foundation officials were preparing their 1991 budget "a huge chunk of the $500,000 seed money (was) still in the bank," $420,000, in fact.

"We're becoming more self-sufficient just as we expected would happen," Chairman Bennett Powell said.

"Steve Cochran . . . credited the Foundation's success to an overwhelming public perception that the lake is worth saving," the Times-Picayune reported.

Executive Director Cochran, in his September 1990 Report, spoke to *". . . what must be the greatest level of focus on the lake, and articulated support for it, in its 5,000 year history."*

> *Think about that. Because people grew tired of giving up their natural heritage and their culture, and because some of those people took strength from the rest and stood up, the rest of us began to pay attention. And now, from the bumpers and windows of cars and trucks (16,000 at last count) to Chambers of Commerce, from garden clubs to Rotary Clubs, from editorial offices to halls of government (in both Baton Rouge and Washington) the message of "Save Our Lake" is being seen and heard and responded to. In this age of squeaky-wheel politics, nothing can be more important.*

"Save" Lake Pontchartrain (Continued)

When EPA's budget for FY 1991 was enacted by the Congress in the closing days of the 101st Congress, it included two items which specifically targeted monies for Lake Pontchartrain—$500,000 for the development of a comprehensive management plan and program for the lake basin and $275,000 for experimentation and a demonstration project on the use of constructed wetlands and retention ponds for the treatment of storm water runoff.

With the assistance of EPA's Region VI office in Dallas, the Foundation is currently writing its application for these federal grant funds, including its work program, staffing assignments, and milestones for the accomplishment of the work contemplated under these Congressional appropriations.

As in the case of other watershed protection projects undertaken under the Clean Water Act, the Lake Pontchartrain management program, as developed, will be an integral element of the State of Louisiana's nonpoint source management program prepared and implemented under section 319 of the CWA.

> *We welcome this new Lake Pontchartrain initiative,* said Jan Boydstun, Nonpoint Source Coordinator, Louisiana Department of Environmental Quality, *and will work closely with the Foundation in this vital intergovernmental effort in the state's most populous location and one of its most environmentally sensitive places.*
>
> Boydstun added, *Anne Rheams, who is working on the development and implementation of Louisiana's Urban Nonpoint Source Management Program, will be working closely with the Lake Pontchartrain Foundation to coordinate educational activities and to ensure consistency with the state's NPS program.*

An editorial comment: What comes through clearly in this Lake Pontchartrain story is that *the people who live around the Lake* are deeply involved and are prepared to take action. There is broad public recognition of their ownership of the problem. It seems to us that this recognition is an essential first step to developing solutions to any nonpoint source problem, whether they be political or structural, or, most usually, both. See *Commentary* on page 1.

Bellevue, Washington Storm & Surface Water Utility Successes Detailed

Nancy Hansen manages education and public outreach activities for the City of Bellevue, Washington's Storm and Surface Water Utility. The utility was established in 1974 to provide integrated management of surface water *quality* and *quantity* in the city.

A utility is a method of financing based on payment for services, rather than from general revenues such as property taxes.

The City of Bellevue is located in the Puget Sound region of Washington State. First incorporated in 1953, it has grown dramatically from a population of 6,000 and a land area of 5 square miles to over 86,000 residents and 30 square miles today. The city has a varied topography, with a total relief of approximately 1,200 feet. Precipitation averages 35 to 40 inches per year.

Ms. Hansen reviewed the work of the Bellevue utility at the recent (January 1991) Nonpoint Source Watershed Workshop (New Orleans, LA). Speaking to the *Strengths of a Storm Water Utility* and its over 15 years of operations in Bellevue, she said:

> *The overriding advantage of a storm water utility is that it provides a mission and a source of funding dedicated to addressing the water quantity and quality issues associated with urban drainage. The use of a service charge provides an understandable link between the fee payment and benefits received. Competition for general tax revenue is eliminated. With a predictable revenue stream, a storm water management program can practice long-range planning and act to prevent problems, rather than being destined to react to them.*

Bellevue, Washington Successes (Continued)

She noted five other reasons for its success:

- **A Unified Agency.** A key to Bellevue's success is that all surface water functions—operations and maintenance, capital planning and construction, permitting and enforcement, and public education and involvement—are together in one line department whose sole charge is surface water control and management. This eliminates competition for other priorities which often happens within multi-purpose departments, and allows for maximum coordination of activities in support of the utility's mission.

- **Strong Regulations.** Bellevue's storm water utility is effective in addressing water quality concerns because it has definite regulatory authorities. . . . The utility issues clearing and grading permits that cover all land clearing and grading in the city. This allows the utility to help prevent water problems from occurring during land development, as opposed to responding to problems after the fact. The City of Bellevue also has a strict set of codes addressing the protection of sensitive areas such as wetlands, riparian corridors, floodplains, and steep slopes, and aggressive enforcement of these codes.

- **Citizen Support.** The utility would not have been able to move ahead with a strong storm water management program without support from Bellevue's citizenry and the leadership and will of the City Council. The utility is also supported and guided by a 7-member citizen advisory commission. Bellevue is fortunate to be able to be a "service oriented" city; calls for assistance are responded to quickly and problems are resolved. Public support of the utility is enhanced by the educational programs such as Stream Team. Through the Stream Team's workshops, activities, and newsletters, thousands of Bellevue's residents have become more aware of water quality concerns and the beneficial work of the utility.

- **Attention to Enforcement and Maintenance.** Unlike other jurisdictions, all enforcement and maintenance activities are staffed within the utility (as opposed to a separate maintenance division, for example). The utility's rate structure also allows adequate financial support for these important functions. A staff of four full-time field inspectors have the authority to stop work on a site if permit conditions are not being followed. An operations and maintenance staff spends time maintaining and improving the storm drainage system between storms so that it functions properly during those crucial times when it is needed.

- **Interjurisdictional Coordination.** Finally, Belleview's storm water utility does not operate in a vacuum: it coordinates extensively with other agencies and governments in the region. Several Bellevue streams run between city and county boundaries several times during their course. Coordination with the water quality and drainage activities of neighboring jurisdictions is essential to effective implementation of the utility's programs. The utility has taken an active role in several regional planning activities and has initiated interlocal agreements in the interest of managing water quantity and quality.

Ms. Hansen noted that constant contact with the public is essential. She concluded her remarks by noting:

> *The utility's true value lies in preventing problems such as flooding, erosion, water pollution, and loss of wetlands. Since the utility's benefits are difficult to demonstrate, there is a constant need to be visible, responsible, and accountable to the public.*

[For more information contact: Nancy R. Hansen, City of Bellevue Storm & Surface Water Utility, P.O. Box 90012, Bellevue, WA 98009-9012. Phone: (206) 453-4895.]

Twenty-Year Klamath River Program Links Fish Restoration and Water Quality Protection Actions

This *NEWS-NOTES* report is concerned with how a major fisheries restoration mission of the U.S. Fish and Wildlife Service (Dept. of Interior) and the clean water mission of the California State Water Resources Control Board, operating, in part, with federal funds provided through the Clean Water Act's nonpoint source control program, have found common cause and mutual support in carrying out their respective missions.

When Congress authorized a twenty-year, $42 million program to rebuild the fish resources of the 15,000 square-mile Klamath River Basin in northwestern California and southern Oregon, it was clear that the dramatic decline in the river's once abundant salmon and steelhead trout was due in large measure to the deterioration of the basin's water quality caused by nonpoint sources of pollution. The 1986 Klamath River Basin Act (P.L. 99-552) declared that

> *. . . floods, the construction and operations of dams, diversions and hydroelectric projects, past mining, timber harvest practices, and road-building have all contributed to sedimentation, reduced flows, and degraded water quality which has significantly reduced the anadromous fish habitat in the Klamath-Trinity River System.*

The statute created a 14-member Klamath Basin Fisheries Task Force composed of ocean commercial fishermen, ocean and river anglers, sovereign Indian tribes, state and local government officials, and representatives of the secretaries of Agriculture, Interior and Commerce. The Act directed the Task Force to prepare a long-range plan to assist the Secretary of the Interior in implementing a twenty-year Klamath Basin Fishery Restoration Program.

The U. S. Fish and Wildlife Service, managers of the Restoration Program, hired northern California natural resources consultants William M. Kier Associates to assist the Task Force in developing its long-range plan. Working from an inventory of nearly 700 individual fishery and stream restoration projects attempted in the last 30 years, the consultants found a high rate of failure for such fish habitat improvement efforts as log weirs and boulder clusters in stream reaches impacted by sediment from logging, grazing, road construction, and related land uses. Based on this information it was clear that such piecemeal approaches were not working and a more "holistic" watershed restoration approach would be needed to reverse the decline in fish populations.

The Plan also concluded that increased water temperatures, resulting from irrigation diversions and the destruction of riparian vegetation, have contributed greatly to downturn in fish production. Another important factor was waste loading from livestock in the Klamath River (Oregon) headwaters and the Shasta and Scott river valleys, historically, some of the best habitat for salmon and steelhead production.

Implementation of the Klamath Basin Plan is solidly underway. The Shasta Valley and Siskiyou (Scott River) Resource Conservation Districts have begun to fence cattle away from the stream banks and develop alternative water sources for livestock. These practices will allow the re-establishment of riparian vegetation to maintain cool water temperatures in the summer months which is critical to fish spawning and reproduction. The project described here was funded with FY-90 CWA section 319 monies administered by the California State Water Resources Control Board (State Board). In addition, the Shasta Valley RCD has proposed to the State Board for FY-91 319 a second project which builds on the FY-90 project. This proposal is called the Shasta River Demonstration Project, whose objectives include BMP selection, installation, monitoring, and an educational component to assist area land owners.

Under its Water Quality Standards Program, the State Board has designated coldwater fish spawning as a beneficial use of the region's streams. The Klamath River has been identified in the State's Clean Water Strategy as a high priority water body because of its high resource value. This fact, coupled with a directive from Congress to measure the effectiveness of the Restoration Program over time, has led the Task Force to conclude that the goals of improved

Klamath River Program (Continued)

water quality and fish habitat recovery go hand-in-hand. The measurable improvement of one should indicate measurable improvement of the other.

With that goal in mind, the Task Force Plan calls for the careful evaluation of fish habitat quality throughout the Restoration Program area. This will significantly increase the amount of water quality-related information collected in the Basin compared to the current routine assessments conducted by water quality managers alone. The Task Force is committed to making this new information available to the water quality agencies to strengthen water quality management efforts in the Basin. The updated habitat information will, for example, help in assessing the effectiveness of forest and range practices as best management practices (BMPs) currently under development by the State Board.

As a first step in linking fish restoration and water quality information needs, the Task Force plans to modify the Klamath Basin Reach File (EPA's national data base of surface water information) by segmenting the File's reaches into sub-reaches for more precise recording of biological and water quality data gathered for the Restoration Program. U.S. Fish and Wildlife Service's Klamath Project Leader, Ron Iverson, said:

> *We're very excited by the long-term nature of the Klamath Restoration Program. We're confident that the 20-year commitment means we can produce reliable information that will not only improve fish restoration methods but will, at the same time, contribute immensely to the improvement of water quality in the Klamath Basin.*

[For further information contact: Ron Iverson, U.S. Fish and Wildlife Service, Klamath River Office, P.O. Box 1006, Yreka, CA 96097. Phone: (916) 842-5763.]

In Ohio CLIP Stands for Citizen Lake Improvement Program

The Ohio Lake Management Society (OLMS), in cooperation with the Divisions of Parks and Recreation and Soil and Water Conservation, of the Ohio Department of Natural Resources (DNR), has begun an Ohio Citizen Lake Improvement Program (CLIP), a statewide volunteer education and training program for lake users and watershed landowners.

CLIP has four main goals

- to promote citizen awareness of the role of nonpoint source pollution in harming lakes;
- to foster a grassroots initiative to protect lakes from nonpoint source pollution and to promote support for lake management;
- to foster formation of lake management organizations at the local level to control nonpoint source pollution and improve water quality; and
- to foster educational opportunities for citizens of all ages concerning the lake as a living, outdoor laboratory.

The program has a three year budget with an equal match of $32,000 each from U.S. EPA (Region V, Chicago) and the George Gund Foundation of Cleveland, Ohio. Ohio DNR is providing an additional $12,700.

The principal elements of the program, to be carried out over the next three years, are:

- recruiting and training volunteers at 75 lakes and reservoirs statewide;
- conducting thirteen regional workshops to train lake area residents in lake management concepts and programs;
- developing a statewide water quality data base from information obtained by volunteer monitoring; and
- communicating the program results in written reports and oral presentations.

Ohio Citizen Lake Improvement Program (Continued)

The educational program (workshops) will focus on:

- the nature and sources of nonpoint source pollution;
- the inter-relatedness of land use and water quality; and
- the methods available to mitigate negative nonpoint source land and water resource effects.

[For further information contact: Kevin Klingler or Dianna Snyder, CLIP-ODNR, Division of Parks and Recreation, 1952 Belcher Drive, Columbus, OH 43224. Phone: (614) 265-6512.]

The State of West Virginia, U.S. EPA, Agriculture's SCS, and Interior's Office of Surface Mining Sign a Memorandum of Understanding to Initiate Acid Mine Drainage Pilot Project

Governor Gaston Caperton was joined on February 21, 1991, by state and federal officials to sign a memorandum of understanding to create a national demonstration project for the rehabilitation of the Middle Fork River watershed.

The agreement calls for state and federal agencies to cooperate and coordinate efforts to accelerate the development of acid mine drainage abatement/reclamation efforts in the watershed.

Due to chronic acid pollution, fish populations have been completely eliminated in the lower 24 miles of the Middle Fork River. The watershed covers a 150-square-mile area in Randolph, Barbour, and Upshur counties.

> *I am pleased that the Middle Fork River watershed was selected for this national demonstration project, and through combined state and federal efforts we can begin the process of reclaiming this watershed,* Caperton said.

Signatory agencies to the agreement are the Environmental Protection Agency, the U.S. Office of Surface Mining, the U.S. Soil Conservation Service, state divisions of Natural Resources and Energy, and the West Virginia State Soil Conservation Committee.

> *This Memorandum of Understanding is the first of its kind in the nation where these three federal agencies have formally joined forces with state agencies to address nonpoint source water pollution from acid mine drainage,* said William T. Wisniewski, Director of the Water Management Division for EPA's Region III, *which includes West Virginia, Pennsylvania, Virginia, Maryland, Delaware and the District of Columbia.*
>
> *By joining forces to address the problem of acid mine drainage in the Middle Fork River watershed area, we will be able to spread our resources even further as we tackle the problem of nonpoint sources of water pollution throughout the state and the region,* Wisniewski said.

Under the agreement, the agencies will maintain current levels of assistance and develop—within 60 days—a plan to reduce acid mine drainage in the watershed.

The agreement also will reduce unnecessary duplication of efforts, accelerate the implementation of the acid mine drainage abatement/reclamation plan, and develop cooperative routine monitoring and oversight of the watershed programs.

Interest in this coordinated watershed approach was initiated by the 1987 re-authorization of the federal Clean Water Act, which placed added emphasis on the control of nonpoint source of water pollution.

Approximately 1,900 miles of streams were identified in West Virginia's Nonpoint Source Assessment Report as impacted by acid mine drainage, mainly from abandoned coal mines.

The MOU agencies, both federal and state, are responsible for and administer programs that apply technical and/or financial assistance toward correcting pollution problems from

Acid Mine Drainage Pilot Project (Continued)

abandoned coal mines. In West Virginia these programs include: the Abandoned Mine Lands Program, the Rural Abandoned Mine Program, The W.V. Bond Forfeiture Fund and Special Reclamation Fund, and the Nonpoint Source Pollution Control Program.

The Purpose of the MOU is clearly set forth in the document that was signed:

> *This Memorandum of Understanding between agencies establishes a cooperative demonstration to resolve acid mine drainage impacts, using their combined existing authorities and programs in establishing a national pilot project in the Middle Fork River watershed.*
>
> *Recognizing the need for effective management of the nation's water resources, and further recognizing the need to protect, and, in some cases, improve the quality of the state's water resources being degraded by drainage from abandoned mines, all parties do hereby agree that cooperative and coordinated efforts will be employed to maximize the use of financial and technical assistance within each respective agency's programs toward abating the acid mine drainage pollution sources within the Middle Fork River watershed.*
>
> *This MOU seeks to demonstrate how the financial and technical expertise of its cooperators can provide focused water quality programs and projects. Coordination and cooperation between agencies will reduce unnecessary duplication of effort, accelerate the rate of implementation of acid mine drainage abatement/reclamation measures, and increase overall program effectiveness.*

Lyle Bennett, the Manager of West Virginia's nonpoint source water pollution control program in the WV Division of Natural Resources, the lead agency in the implementation of the MOU, made this comment:

> *We are very encouraged over the acceptance of the MOU by the various agencies and are confident that this process will become a functional format to be followed in the future. With the current budgetary problems facing most government agencies, program effectiveness can be maintained through this increased coordination of limited resources.*

Hank Zygmunt, Nonpoint Source Coordinator with EPA Region III in Philadelphia, said:

> *The State of West Virginia should be congratulated. This is the country's first multi-program integrated attack on acid mine drainage. Other coal mining states will be watching and learning from this National Pilot Project. We at EPA are pleased to join with the Office of Surface Mining, the Soil Conservation Service, and West Virginia in this important, pioneering water quality effort.*

[For further information contact: Lyle Bennett, Water Resources Section, WV Division of Natural Resources, 1201 Greenbrier Street, Charleston, WV 25311. Phone: (304) 348-2108.]

Some Notes on Wetlands . . .

Recent Notes from Around the Country

Note: The management of wetlands (including estuaries) and nonpoint sources of water pollution are highly interrelated parts of an environmental whole.[1] In the interest of better understanding these phenomena and relationships, we are including here some notes and recent communications we've had on the subject. If any of our readers have additional contributions to add to this dialogue use THE COUPON and let us hear from you. We promise to share your views, experiences, goals, and aspirations.

1 *See the joint national guidance on attaining water quality goals shared by EPA's NPS control and wetlands protection programs, issued June 18, 1990 by OWRS and OWP.*

Wetlands and Puget Sound's Water Quality Management Plan

The Puget Sound Water Quality Authority is a governor-appointed board with responsibility, assigned by the state legislature, to adopt and oversee the implementation of a comprehensive plan to protect and clean up Puget Sound.

The Authority unanimously adopted the 1991 Puget Sound Water Quality Management Plan on November 21,1990 with the exception of element W-4.1, which deals with local government wetlands protection.

In January, the Authority re-issued and mailed out its draft text of W-4.1, together with questions and answers on the element and a request for further public comment prior to the April meeting.

At its regularly monthly meeting scheduled for April 17, 1991, it will review comments received and will consider amending the draft that has been circulated. The Authority will also address whether the wetlands element should be adopted as mandatory standards or voluntary guidelines. After the April meeting it will prepare a proposed final draft and issue it in May for public review. The Authority plans final action on the element in mid to late summer.

We reprint here a few of the Qs & As from the public notice:

Q. *Why are wetlands important?*

A. Wetlands are among the most productive ecosystems in nature. Wetlands protect farmland, towns, and cities from flooding by slowing and storing floodwaters. They trap and modify pollutants from stormwater and runoff. Wetlands provide the basic connection between estuary and freshwater food webs. They are essential areas for feeding, nesting, cover, and breeding of a vast variety of birds, fish, reptiles, invertebrates, and mammals.

More than one-third of Washington State's threatened and endangered species require wetlands for their survival. They are also critical to the survival of Puget Sound shellfish, salmonids, and other fishery resources which had an annual economic value of over $202 million in 1988.

Q. *What is the Authority's purpose in proposing W-4.1 - Puget Sound Local Government Wetland Protection Programs?*

A. It is the short-term goal to achieve no net loss of the remaining wetlands in the Puget Sound Planning Area, defined by acreage and function, and it is the long-term goal to restore and create wetlands, where feasible, to increase the quantity and quality of wetlands.

Q. *What would be achieved if local governments met the standards or guidelines?*

A. Local governments would adopt wetlands protection programs providing a consistent level of protection through the Puget Sound basin. Local governments would use permits or other mechanisms to avoid impacts on wetlands and obtain compensation for unavoidable and necessary impacts. Permits would be required for activities such as dredging, dumping, draining, construction, or clearing in wetlands. Permits would not be required for most ongoing agricultural or forest practices.

The 1991 Puget Sound Water Quality Management Plan is the third in a series of such plans. This plan, like the 1987 and 1989 plans, focuses on a broad range of pollutants and other threats to the Sound's resources. The Wetlands element is one of some 15 primary elements in the plan. (The next update is scheduled for 1995.)

[For more information about the plan and the activities of the Puget Sound Water Quality Authority write to the Authority at Mail Stop PV-11, Olympia, WA 98504. Phone: (206) 493-9300.]

NOTE: At press time we received information that Executive Director Nancy McKay of the Puget Sound Water Quality Authority, has announced cancellation of the public hearings on the Authority's Wetlands Protection Programs, scheduled for late Febraury, pending completion of a new series of technical reports on wetland buffers and replacement ratios and completion of action by the Legislature on HB 1025, "An act relating to growth strategies," which if enacted, would be sufficient to achieve the Authority's goals without separate Authority standards or guidelines. The Authority is continuing its consideration of the means to achieve its wetlands goals in the Puget Sound watershed.

Wyoming and the West

We recently received a copy of a booklet entitled *Developing Artificial Wetlands to Benefit Wildlife and Livestock*, by Dr. Rich Olson, Cooperative Extension Service, University of Wyoming. Its chapters are headed:

Wetland Wildlife Habitat Requirements
Selecting Artificial Wetland Locations
Design Considerations for Artificial Wetlands
Constructing your Wetland
Landscaping, Seeding, and Planting
Manipulating Water Levels
Integrating Agricultural Activities

This is a very practical, straight-forward, useful treatment of the subject. Copies are available for $3.00 (Wyoming residents must add 5% sales tax) and may be ordered, citing title and publication # B-938, May 1990, from:

University of Wyoming
Bulletin Room, Merica Hall,
Laramie, WY 82071
(Make checks payable to AG REV: 4-61820)
Phone: (307) 766-3268

Maine and elsewhere

"Nutrient/Sediment Control Systems" (NSCS) is the subject of a paper entitled *Constructed Wetlands to Control Agricultural Nonpoint Source Pollution* prepared by Robert J. Wengrzynek and Charles R. Terrell, both of USDA Soil Conservation Service. The abstract of the paper states:

Seasonal variation of pollutant loads and hydrology appear to be suited to treatment by constructed wetlands. However, wetlands alone are limited in their ability to remove nutrients. An effective treatment system that incorporates wetland values with pollutant-removal features is needed.

Five prototype systems that meet the above criteria have been designed and installed by the USDA Soil Conservation Service in the State of Maine, USA. These NSCS are in watersheds draining cultivated potato croplands. Each NSCS has in series a sediment basin, grass filter, wetland, pond, and wet meadow. Selecting and managing the vegetation in each component is as important as site selection and system size. The pond is stocked with minnows and mollusks to create with the other components a living filter. Other limited uses permitted include minnow propagation and using water for fire protection and livestock. Wildlife also benefit from the constructed wetland/pond combination.

Over 90 percent of total phosphorus and suspended solids were removed by the system during all monitored storm events during the spring, summer and fall. . . . Successful implementation in the cold climate of Northern Maine would demonstrate that these treatment systems afford relatively low-cost, but effective nonpoint source pollution control in agricultural areas in the United States.

Maine and elsewhere (Continued)

The paper was presented at The International Conference on The Use of Constructed Wetlands in Water Pollution Control at Churchill College, Cambridge, United Kingdom, held September 24-28, 1990. Copies can be obtained from:

Robert J. Wengrzynek, Biologist
USDA Soil Conservation Service
Orono, ME 04473
Phone (207) 581-3436; FAX (207) 581-3434.

Oregon and Mississippi

For previously reported wetlands-related local actions, and names to contact for more information on those actions, see *Eugene, OR, Developing an Urban Wetlands Management Area,* in the October [#8] 1990, and *Mississippi Using Constructed Wetlands for Cleaning Wastewater from Concentrated Feeding Operations* in the January-February [#10] 1991, issues of *NPS NEWS-NOTES.*

Bibliographic Notes

Here are brief reviews of five recent publications. This bibliographic note was put together with the help and cooperation of APIRS (The University of Florida Aquatic Plant Information Retrieval System), for which we say THANKS on behalf of all of us.

- ***Wetlands Ecology and Conservation: Emphasis in Pennsylvania**, edited by S. K. Majumdar, R. P. Brooks, F. J. Brenner and R. W. Tiner, Jr., Pennsylvania Academy of Science. 1989. 395 pages. (Order from Pennsylvania Academy of Science, Lafayette College, Easton, PA 18042.)*

  Chapters are devoted to reviewing geology, soils, hydrology, chemistry, and the plant and animal communities of Pennsylvania wetlands.Several chapters are devoted to wetland preservation. Other chapters detail wetland issues such as endangered species, mitigation and pollution abatement, and others explain Pennsylvania's procedures for wetland boundary delineation, permitting, and restoration.

- ***Constructed Wetlands for Wastewater Treatment, Municipal, Industrial, Agriculture,** edited by D. A. Hammer, Tennessee Valley Authority. 1989. 831 pages. (Order from Lewis Publishers, 121 South Main Street, P.O. Drawer 519, Chelsea, MI 48118. $69.95.)*

  Here is an informative book about the theory and practice of designing, creating, and using man-made wetlands. (It is also the proceedings of the First International Conference on Constructed Wetlands for Wastewater Treatment, Chattanooga, Tennessee, June 13-17, 1988.) This book's emphasis is on the more difficult pollution and water treatment problems posed by urban runoff, industrial effluents, agricultural wastes, and mine drainage, rather than on the relatively simple tertiary treatment of municipal wastewater by wetlands. The book includes 42 chapters in four general areas: wetland principles (such as hydrology, chemistry, and microbiology of wetlands); case histories; design, construction, and operation; and reports of recent research that directly relate to wetland/wastewater systems.

- ***Wetland Creation and Restoration: The Status of the Science, Vol. I: Regional Reviews.** EPA/600/3-89/38a; PB90 149 758/AS; current cost $45; Microfiche $15 and VOL. II: PERSPECTIVES. EPA/600/3-89/38b; PB90 149 766/AS; current cost $23; Microfiche, $8. Edited by J. A. Kusler and M. E. Kentula, Environmental Research Laboratory, Corvallis, OR, U. S. Environmental Protection Agency. 1989. V. I: 473 pages; V. II: 171 pages.*

  These volumes were written to "synthesize the knowledge accumulated to date into a statement of the status of the science of wetland creation and restoration" and also attempts to "set priorities for future research." Reviews in Volume I summarize wetland creation and restoration experiences within the U.S. The volume also contains a very good "Executive Summary" which presents 15 conclusions and 14 recommendations for wetland creators and restorers.Volume II contains a dozen "perspectives" covering general topics related to wetland creation and restoration.

Bibliographic Notes (Continued)

Copies may be ordered from:

National Technical Information Service (NTIS)
US Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Phone (202) 487-4600

When you contact NTIS about these reports, refer to the PB stock number.

This publication is also available in one volume, from Island Press, 1718 Connecticut Avenue, NW, Suite 300, Washington DC 20009. Phone: (202) 232-7933.

Foreword by Senator George Mitchell
600 pages
Cloth: $60.00 ISBN: 1-55963-045-0
Paper: $39.95 ISBN: 1-55963-044-2

- ***Federal Wetland Regulation Reference Manual**, edited by B. N. Goode and R. J. Pierce. 1990. 283 pp. (Order from Wetland Training Institute, Inc., P.O. Box 1022, Poolesville, MD 20837-0099, (301) 972-8112. $30.00 plus $3.00 shipping and handing; Maryland residents add $1.50 sales tax.)*

  This soft cover manual would be useful to managers who must operate within the federal 404 wetland regulatory program, administered by the U.S. Corps of Engineers. The manual is a collection of the essential federal laws, regulations, and guidelines, and includes some inter-agency memoranda of agreement, guidance letters, and executive orders. It also contains a section on important judicial rulings relating to the program. Subject indices for the Corps' regulations and the guidance letters are also included.

- ***The Estuary as a Filter**, edited by V. S. Kennedy, Academic Press. 1984. 511 pages. (Order from Academic Press, P.O. Box 96448, Chicago, IL 60693. $49.00.)*

  Estuaries "tie together terrestrial, freshwater, and marine biomes, weave a web of complexity far greater than that of their three contributor systems and far out of proportion to their occupation of less than 1% of the planet's surface." Barbara L. Welsh.This collection of 23 papers describes the "filtering" processes of estuaries. Physical, geological, chemical-geochemical, and biological processes are described, and management implications are discussed. One paper (Kemp, Boynton, Twilley) describes the physical, chemical, and biological influences of the aquatic plants *Potamogeton perfoliatus* and *Ruppia maritima*. The paper also presents data on the reasons for reduced water turbidity over plant beds.

Agricultural Notes

New SCS Chief is a Conservation Tillage Enthusiast

William J. Richards, recently appointed Chief of the U.S. Department of Agriculture Soil Conservation Service (SCS), Washington, D.C., is well known for his pioneering work in conservation tillage. He began his Ohio farm operation in 1954 and was one of the first farmers to practice conservation tillage on his entire acreage.

A graduate of Ohio State University in agricultural economics, Richards received the Distinguished Service Award from the Ohio State University College of Agriculture in 1980. He has served on planning and review committees and as a visiting instructor in agricultural economics classes at Ohio State. His farm is frequently visited by classes from the university, and by farm groups from local schools, other states, and foreign countries to study conservation and residue management practices and equipment.

Mr. Richards is a member of numerous farm organizations and associations, including the Ohio Farm Bureau, the Ohio and American Soybean Associations, and the National Corn Growers Association. He attended the Harvard Business School's Agri-Business Executive

New SCS Chief (Continued)

Education Program in 1974, 1975, 1976, and 1979. In 1967, he was named one of the nation's outstanding young farmers by the U.S. Jaycees.

Mr. Richards has spoken widely on conservation tillage, soil compaction, controlled traffic, and farm management. Chief Richards has travelled extensively studying agricultural techniques and visiting farms and agricultural leaders in most of the 50 states, in addition to England, Europe, Australia, New Zealand, and South America.

Richards is featured in *The Entrepreneurs*, a book about 12 persons who took risks and succeeded. He cooperated with CBS Television in a special report on the use of agricultural pesticides for "60 Minutes."

Mr. Richards is a native of Ohio. He and his wife Grace have three sons who are managing the family farm, which began with 140 acres of neglected river bottom land.

Mulch-Till Most Common Conservation Tillage Practice

Mulch-till is the most common conservation tillage practice with the nation's field crop farmers, according to Dan McCain, Field Specialist, Conservation Technology Information Center (CTIC), West Lafayette, Indiana. According to the national survey made in 1990 by CTIC, 53.3 million acres of crops were grown under the mulch-till system, or 19 percent of the total planted acres. "Mulch-till can significantly reduce erosion in the U.S. as long as the residue goals in the conservation plans are met," advises McCain.

Through changes in tillage and planting systems, farmers nationwide have caused an upswing in the total acres of conservation tillage. McCain says CTIC tabulated more than 73 million acres of U.S. crops produced by conservation tillage (no-till, ridge-till, and mulch-till) in the 1990 national survey of conservation tillage practices; up from a little more than 71 million acres in 1989.

The survey, conducted annually by CTIC, includes data from all counties in the U.S. It's compiled through the assistance of county level personnel with the USDA Soil Conservation Service, Extension Service, Soil and Water Conservation Districts, and local agricultural industry representatives.

Highlights of the 1990 figures include a more rapid adoption of no-till and ridge-till practices than has ever been recorded since CTIC began conducting the survey, in 1982.

No-till acres now total 16.9 million or 6 percent of the total U.S. planted acres. This is a growth of 2.7 million acres in one year. More specifically, no-till increased for 10 of the 11 crop categories with full season corn and soybeans making the largest increases. In no-till planting the seed is placed in a narrow seedbed or slot while most of the soil is left undisturbed; weed control is accomplished with herbicides. Cultivation may be used for emergency weed control.

McCain reports that the leading states in these categories are: full season no-till corn—Illinois, Nebraska, and Indiana; full season no-till soybeans—Illinois, Ohio, and Indiana. The states that top the list by conservation tillage category are Illinois for the most no-till acres (2. 6 million); Nebraska reported the most ridge-till acres (1 million); and Iowa farmers planted the most mulch-till acres (6.3 million) The state with the largest total amount of conservation tillage acres is Illinois with 8.4 million.

Ridge-till increased for the ninth consecutive year. Farmers applied the system to more than 3 million acres of crops in 1990, according to the CTIC survey. In the ridge-till system planting is completed in a seedbed prepared on ridges. Crop residue is left on the surface between ridges. Weed control is accomplished with herbicides and/or cultivation.

Mulch-till system: the soil is disturbed prior to planting with chisels, sweeps, or other implements. Weed control is accomplished with herbicides and/or cultivation.

Conservation tillage is defined as any tillage or planting system that maintains at least 30 percent of the soil surface covered by residue after planting to reduce soil erosion by water,

Mulch-Till Conservation Practice (Continued)

and in areas where soil erosion by wind is the primary concern, the maintenance of at least 1,000 pounds per acre of flat, small grain residue equivalent, on the surface during the critical erosion period.

[For more information contact: Dan McCain, Field Specialist, CTIC, 1220 Potter Drive, RM. 170, W. Lafayette, IN 47906-1334. Phone: (317)494-9555.]

Conservation Reserve Targeted to Water Quality

Agriculture Secretary Clayton Yeutter announced on February 1st that USDA will place emphasis on environmental goals during the Spring sign-up for the Conservation Reserve Program (CRP). Under the CRP, producers submit a "bid" to USDA for the "annual rental payment" they are willing to accept in exchange for converting environmentally sensitive cropland to less intensive uses such as permanent grass, forbs, wildlife cover, or trees.

Including Water Quality Considerations

As in the past, the CRP will be targeted primarily to highly erodible land. However, USDA intends to maximize the water quality benefits of enrolling such land by "scoring" highly erodible land for factors such as soil leachability and the potential offsite transport of agricultural chemicals. As a proxy for water quality benefits, USDA plans to incorporate population factors into the bid acceptance formula. For example, to rank the benefits of ground-water protection, USDA will consider the total county population reliant on ground water as a drinking water source.

USDA also plans to give extra consideration to land within "Water Quality Impairment" areas. These areas include fields within the 74 Hydrologic Unit Area Projects under the President's Water Quality Initiative, and cropland within the following areas: Chesapeake Bay region, Great Lakes region, Long Island Sound region, and other areas approved by the Secretary. Lands within these areas do not have to meet the "highly erodible land" criteria.

USDA intends to continue the policy of giving priority to filterstrips and other areas having special environmental benefits. "Eligible lands" under this priority enrollment option have been expanded to include the establishment of trees for environmental purposes, grass waterways, and land with soil salinity problems. Accepted areas are subject to easements for the life of the conservation practice. The conservation practices must have been established after November 28, 1990.

Priority for Wellhead Protection Areas

One major innovation of the CRP is the treatment of Wellhead Protection Areas (WHPAs) as a priority. Bids for land within a Wellhead Protection Area (under an EPA-approved State Wellhead Protection Program) will be favored for acceptance into the CRP. USDA has been working closely with EPA on implementing this provision. The special treatment for WHPAs is similar to the past treatment of other priority lands, such as filter strips along streams, land devoted to trees for permanent habitat, etc.

Targeting State Priorities

USDA has expressed an interest in targeting state priority water quality areas under the CRP and other conservation programs. The use of the Wellhead Protection Program was limited to only 13 states that had approved programs. Similarly, many states have not prioritized surface waters in a manner sufficient for careful targeting of the CRP. USDA is willing to incorporate state priorities in future CRP sign-ups, to the extent such information is available.

Meeting USDA Information Needs

The EPA Office of Water is planning to hold a meeting in late April to discuss ways to improve EPA's assistance to USDA in implementing conservation programs. The meeting will include

Conservation Reserve Targeted (Continued)

EPA Regional and Headquarters staff as well as USDA staff. The agenda for the meeting will include a review of the Spring CRP sign-up, USDA's draft regulations for implementing conservation programs, and future steps necessary to provide environmental information to USDA in usable format.

[For more information (including information on the April meeting) contact John Reeder, EPA Office of Ground-Water Protection (WH-550G), 401 M Street, SW, Washington DC 20460. Phone: (202) 382-2438.]

Notes on NPS Technology

Idaho Holds its First Annual Nonpoint Source Monitoring Results Workshop

[The editor appreciates the help from Bill Clark, IDHW-DEQ, and Don Martin, EPA-Idaho Operations Office, in the preparation of this note.]

One hundred and forty-six people interested in NPS water quality monitoring attended this *First Annual Workshop* on January 15, 16, and 17. Most participants were from Idaho, but people from the states of Washington, Utah, and Montana were also in attendance. Attendees included a good mix of state, federal and tribal persons, environmental consultants, university researchers, industry representatives, interested citizens, and a member of the Idaho Board of Health and Welfare.

A broad range of subjects were presented, from a paper by Elbert Moore, Chief, Region X NPS Section, on NPS controls in the Pacific Northwest, to progress in implementing Idaho's coordinated NPS Monitoring Plan, to various case studies and individual research projects.

Individual papers detailed the results of monitoring for water quality trends, best management practice effectiveness, and beneficial use status of Idaho's surface waters. Other papers covered the more "nuts and bolts" approaches to NPS water quality monitoring methods. These included an array of papers on integrated monitoring approaches for measuring the effects of grazing on riparian areas and water quality. A number of papers dealt with the applied research and ongoing assessment of the effects of clean fine sediment (sediment quality) on fisheries. Several presentations were oriented to the application of rapid bioassessment protocols (RPB) and the establishment of reference sites. It was indicated that, with refinement, the applicability of RPBs for measuring the impacts of nonpoint sources of pollution to the aquatic environments of the Snake River Plain has potential.

Many positive comments were received following the workshop. These were a tribute to the work done by the steering committee made up of members from the Idaho Department of Health and Welfare, Division of Environmental Quality; US EPA, Idaho Operations Office; USDA, Forest Service Region 1 and 4; USDI, Bureau Of Land Management; and Idaho Department of Fish and Game.

Susan Martin, Manager, Idaho Division of Environmental Quality's Surface Water Section, closed the three day workshop with the message that when monitoring the impacts of NPS on the aquatic ecosystem, there is something for everyone to do. She stressed, with apt illustrations from the cartoons of Gary Larson, that an integrated monitoring approach of the aquatic ecosystem must include the biological component. She indicated that we must move forward while developing and refining our assessment tools, and that the lack of monitoring is not an acceptable alternative.

[NOTE: The *Second Annual Nonpoint Source Water Quality Monitoring Results Workshop*, set to be held in Boise on January 14-16, 1992, is in the planning process. The workshop is intended for those conducting NPS water quality monitoring in Idaho. A preliminary response for persons interested in making presentations is due June 15, 1991, with abstracts due November 15, 1991. Responses and requests for additional information should be sent to: Bill Clark or Tim Burton, IDHW-DEQ, 1410 N. Hilton Street, Boise, ID 83720. Phone: (208) 334-5860.]

USGS Studies Effects of Stormwater Runoff on Groundwater Quality

A 15-month study conducted by the USGS in cooperation with the Tennessee Department of Health and Environment examined the effects of diverting urban stormwater runoff to drainage wells, and the effect this had on the quality of ground water in an area of urban karst terrain located near Clarksville, Tennessee.

A dye-trace test verified the hydraulic connection between a drainage well and Mobley Spring. Sampling of other wells and springs during the dry season established background contaminant levels. Evaluation of the ground water component was complicated by other sources of contaminants in the area; however, it was concluded that for some pollutants associated with roadway runoff (arsenic, copper, lead, organic carbon, oil, and grease) the drainage well contributed relatively large amounts of these pollutants to local ground water during storm events.

*[**Effects of storm-water runoff on local ground-water quality, Clarksville, Tennessee**, by Anne B. Hoos. Water-Resources Investigation Report 90-4044. For additional information write to: Ferdinand Quinones, District Chief, U.S. Geological Survey, A-413 Federal Building, U.S. Courthouse, Nashville, TN 37203. Copies of the report may be purchased from: U.S. Geological Survey, Books and Open-File Reports Section, Box 25425, Federal Center, Bldg. 810, Denver, CO 80225.]*

Bibliographic Database Information Sharing Provided by Florida Center for Aquatic Plants

APRIS recently contacted *NPS NEWS-NOTES* to inform us about the availability of its free bibliographic services.

APIRS, the Aquatic Plant Information Retrieval System, is a part of the Center for Aquatic Plants. Based at the University of Florida's Institute of Food and Agricultural Sciences, APIRS has been an information sharing and referral system for thousands of researchers, managers, regulators, and students, for more than ten years.

APIRS collects, categorizes, and computerizes publication information about freshwater aquatic plants. The database now includes more than 30,000 research articles, reports, and books on the ecology, biology, utilization, and management of freshwater plants. More than 200 items per month are added to the database.

Most significantly, because of the nature of aquatic plant research, APIRS also includes much information on such environmentally associated concerns as aquatic animals, fish, water pollution, wetland ecosystems, and other similarly related areas of science.

APIRS free services:

- **Current Awareness and Retrospective Bibliographies.** Computer generated bibliographies, corresponding to any combination of species, names, categories, and keywords of their choice, are produced and mailed to users. APIRS performs searches of its own and other computer databases to answer queries of its users.
- **Referral.** APIRS has research and address files for thousands of researchers. Users are referred to organizations and experts in many fields.
- **Aquaphyte.** The APIRS newsletter is distributed to 3,500 subscribers throughout the world.
- **Environmental Education.** APIRS produces educational videotape programs for managers and the general public, including school children. Subjects range from aquatic plant management techniques to the meaning of eutrophication, to Florida limnology, to plant identification.

APIRS produces and publishes public information and technical training materials for management, regulatory agencies, and educational institutions.

Database Information Sharing in Florida (Continued)

We were informed that anyone may take advantage of APIRS and its free services. However, in exchange for services they expect users to contribute reprints and bibliographies that relate to aquatic plants, when they can.

We asked for a bibliography that would result from a search of their database using a combination of these keywords: *Government Control, Pollution,* and *Estuaries (Bays).* Within a matter of a few hours they faxed us a listing of 27 citations. This will help the NPS Information Exchange in the development of a bibliography being prepared to assist in carrying out the joint EPA-NOAA responsibilities under the Coastal Zone Reauthorization Act which set up the new *Coastal Nonpoint Pollution Program.*

They also sent the results of an additional search using one key word: *nonpoint.* This one yielded 24 entries from their database.

In return for all of this we gladly added APRIS to the *NPS NEWS-NOTES* mailing list.

Shortly, APIRS will be able to log on to the NPS Electronic Bulletin Board and access EPA's Clean Lakes Database to conduct a bibliographic search supplementing the searches they conduct on their own database.

It looks like everybody wins in this situation.

[For more information contact: Aquatic Plant Information Retrieval System (APIRS), University of Florida, 7922 North West 71st Street, Gainesville, FL 32606. Phone: (904) 392-1799. Ask for information on "How To Order a Bibliography."]

STORET Announces New Training Methodology

Cynthia Warner, of the Assessment and Watershed Protection Division, and Executive Director of EPA's Steering Committee for Water Quality Data Systems, sent *NEWS-NOTES* the following comments and announcement:

> *STORET, the Environmental Protection Agency's information system for the management of water quality data,introduces a computer based training (CBT) pilot course. STORET has traditionally used instructor led training to teach new users how to store and retrieve data. A CBT offers many advantages as a supplement to the traditional methods of training. Some of these are: immediate training without having to wait for an available seminar; self-paced training; consistency of course presentation; the option to learn only the pertinent parts; review at any time; less resources required because there will be less travel; and many others.*
>
> *The pilot CBT which contains 5 modules resides on EPA's main frame computer. Since we are planning to develop the CBT for all phases of STORET, we are looking for people who would like to use it and give us their comments. If you desire to try the CBT, please call Louis Hoelman at (703) 883-8857. He will tell you how to get started.*

Notes on Environmental Education

States are Paying Increasing Attention to Environmental Education Needs

Editor's Introduction: The subject is *environmental education* — in high schools, in the lower grades, and in universities. The training of teachers and the provision of curricula and teaching aids are gaining a lot of attention. Cooperation and involvement of a number of agencies at all levels of government, and often with the private sector, are common features of many of these state education efforts.

While a lot of these education programs have been around for a long time, new state emphasis on *environmental education* is showing up all of the time. This article will report on a few significant *environmental education* initiatives, old and new, that we would like to share with our readers.

States Attention to Environmental Education (Continued)

We all know that there are no "pat" or "off the shelf" physical design solutions to the overall control of nonpoint sources of water pollution. On the contrary, the "management" of nonpoint sources is largely a matter of changing peoples' attitudes and behavior and this means education for a better understanding. (See the *Commentary* on page 1.) If you have additional examples that can be reported on, send them in, and *NEWS-NOTES* will pass them along. Use THE COUPON.

The Tennessee Valley Authority (TVA)

Created in 1933, TVA is an agency of the United States Government. It is a regional agency, serving an area of the central southeastern United States, roughly equivalent to the drainage basin of the Tennessee River. TVA lies in parts of seven states. Today TVA's work encompasses power production, natural resources management, management of the river system and associated lands, and economic development.

TVA's Environmental Education Program administers a university-based network of 16 centers (in six states) for environmental education. (These were started in the late 1970s.) Each center has four primary functions:

- **Teacher Training.** The centers train pre-service and in-service teachers in environmental education curriculum and instruction.
- **Program Development and Distribution.** The centers cooperate with TVA staff and area teachers to develop and distribute educational materials and programs.
- **Regional Service.** The centers provide technical assistance, programs, and services such as proposal writing for citizens in their service areas.
- **Research.** The centers field test new educational products, evaluate program impacts, and conduct student/teacher surveys.

The centers are involved in a variety of special projects, and some have developed cooperative arrangements with governmental agencies, private industry, and other centers. Through this cooperation, the centers work to increase environmental literacy, address concerns and resources specific to their service areas, and develop new educational affiliations.

[For more information contact: Anne E. Lyon, Education Specialist, Environmental Education Program, Forestry Building, Norris, TN 37828. Phone: (615) 632-1639.]

Alliance for Environmental Education, Inc.

Organized in 1972, the Alliance for Environmental Education is a broad coalition advocating environmental education. Modeled after TVA's successful group of education centers, the Alliance is made up of many diverse national, international, and regional groups —conservation and education organizations, corporations, and organized labor.

One year ago EPA's Office of Management and Training provided a grant to the Alliance to help it spread the word about its mission and its services. At that time the Alliance was made up of 30 cooperating member organizations. Today it has a membership of 175.

Now, in partnership with EPA and TVA, the Alliance is establishing a network of interactive environmental education centers. An Alliance publication states:

> *. . . the Network for Environmental Education is a system of environmental education and training centers. As part of the Network, each center serves a designated geographic area with programs and services that include teacher and professional training, community outreach, program adaptation and development, and environmental research. In every region, Alliance centers are mandated to serve school (Kindergarten -12th grade), as well as members of the public at the grassroots level.*

Alliance for Environmental Education (Continued)

The centers are linked through conferences, seminars, and various communications technologies including EcoNet, an environmental computer network. Nearly 100 Alliance centers are presently operating.

[For further information, call or write: Thomas Benjamin, Alliance for Environmental Education, 10751 Ambassador Drive, Suite 201, Manassas, VA 22110. Phone: (703) 335-1025.]

Louisiana Energy and Environmental Resource and Information Center

In May, 1990, Louisiana State University's Center for Energy Studies joined the Alliance for Environmental Education as a Network Center. With this new designation, the Louisiana Energy Resource and Information Center (LERIC) expanded and became the Louisiana Energy and *Environmental* Resource and Information Center (LEERIC).

The center's primary educational efforts will focus on teaching elementary, middle, and high school teachers and students the science and economics underlying environmental considerations.

> *It is important to understand the science behind environmental problems, if we are going to find solutions. We see a great opportunity to effect a change through the education of the pre-college group,"* commented Roberta Scull, the center's director.

LEERIC has more than 8,000 energy and environmental items for loan including video tapes, books, and computer software. LEERIC also maintains an information hotline and several databases to serve educators, consumers, business and industry, researchers, and policymakers. The center is expected to play an important participatory role in Louisiana's Urban Nonpoint Source Management Program and the Lake Pontchartrain Foundation's clean-up program. (See related Lake Pontchartrain story on page 7.)

[For further information contact: Roberta Scull, LEERIC, Louisiana State University Center for Energy Studies, 1 E. Fraternity Circle, Baton Rouge, LA 70803. Phone: (504) 388-4600.]

Ohio Environmental Education Fund

On July 2, 1990, Governor Celeste signed House Bill 804 into law, creating the Environmental Education Board of Trustees and Environmental Education Fund. House Bill 804, which also created the Lake Erie Office and the Lake Erie Protection Fund, had broad-based backing from Ohio's industrial, environmental, and education communities.

The State of Ohio's Environmental Protection Agency reported in a recent publication:

> *The new law, which was effective October 1, 1990, is an exciting landmark for environmental education in Ohio. It creates the opportunity for educators, environmental organizations, industrial organizations, and others to increase awareness and understanding all Ohioans need to work together to solve the complex environmental problems affecting our lives and the lives of future Ohioans.*

Monies credited to the Environmental Education Fund consist of penalties collected by Ohio EPA air and water pollution control programs, as well as gifts, grants, and contributions. The Fund's first $1 million came from CECOS International for a violation of Ohio's hazardous waste laws. The Director of Ohio EPA, under the advice and assistance of a Board of Trustees, may award grants totaling a maximum of $1.5 million annually.

The Fund must be used to enhance the public's awareness and understanding about issues affecting environmental quality in Ohio. The House Bill does not limit the type of

Ohio Environmental Education (Continued)

environmental educational projects which can receive funding, but it does mention the following eligible activities:

- Curriculum development, elementary and secondary schools and universities;
- Teacher training in environmental issues;
- Educational seminars for the public regarding scientific and technical aspects of environmental issues;
- Pollution prevention and waste minimization seminars;
- Seminars on regulatory requirements and maintaining compliance for the regulated community; and
- Scholarships in environmental sciences and engineering at state colleges and universities.

[For more information contact Bryan Saums, Ohio Environmental Education Fund, Ohio EPA, PO Box 1049, 1800 WaterMark Drive, Columbus, OH 43266-0149. Phone: (614) 644-2873.]

Montana

Project WET (Water Education for Teachers) is a major effort of **The Montana Watercourse,** an Adult and Youth Water Education Program based at Montana State University at Bozeman. In mid-February they announced eleven 3 1/2 hour seminars for teachers at various locations throughout the state. In many cases a joint local co-sponsor was also announced. A sample local flyer, headed GET WET, states:

> *The goal of Project WET is to promote the awareness, appreciation, and knowledge of Montana's water resources.* **This seminar is fun, hands-on, action-packed, and informational.** *WET is for anyone interested in natural resources and environmental education (i.e., public and private school teachers, Girl and Boy Scout leaders, 4-H leaders, resource agency employees, and college students). The seminar offers educators exciting new activities to use in teaching science, math, language arts, social studies, and environmental studies. Each seminar participant will receive a copy of Project WET Montana Activity Guide . . . reference materials, and other innovative teaching aids to supplement and enhance teaching strategies. Project WET is made available through the cooperative efforts of public and private water management organizations in Montana.*

The seminars will be held through April and are limited to 40 participants.

- **The Montana Watercourse** is participating in several other multi-organization projects, including the conduct of a series of Water Rights Workshops around the state and participation in the Clark Fork Education Project with Missoula Conservation District and the State DNRC's Conservation Districts Division.

[For further information contact: Susan Higgins or Dennis Nelson, The Montana Watercourse, 122 Gaines Hall, Montana State University, Bozeman, MT 59717. Phone: (406) 994-5392.]

Reviews

Water Quality Standards Videos Available

EPA's Criteria and Standards Division, Office of Water Regulations and Standards, has developed four videos on the Water Quality Standards program. The videos are designed to provide information on the role and importance of water quality standards in the clean up of

Water Quality Videos Available (Continued)

the nation's waters. They can be used for training, in conferences, workshops, educational and other forums by states, federal agencies, environmental and civic groups, trade or industrial associations, or other interested groups. Titles of the productions are:

- ***Introduction to Water Quality Standards***
- ***Antidegradation Policy: A Means to Maintain and Protect Existing Uses and Water Quality***
- ***Development of Water Quality Criteria and Its Relationship to Water Quality Standards***
- ***Enumeration Methods for E. Coli and Entercocci***

The videos are available on loan from the Criteria and Standards Division at Headquarters, EPA, or from the Water Quality Coordinators at each of the ten EPA Regional Offices.

[For further information contact: Frances A. Desselle, Criteria and Standards Division (WH-585), U.S. EPA, 401 M Street, SW, Washington DC 20460. Phone: (202) 475-7320.]

Two Videos: Lake Protection: Everyone Contributes & Improved Nutrient Management: A Strategy for Economic and Environmental Protection

Two videos aimed at private individuals and their effect on nonpoint source pollution have been produced by The Beltrami Soil and Water Conservation District/Soil Conservation Service Office, in conjunction with several other local agencies including the Upper Mississippi Headwaters Board and the Headwaters Regional Development Commission.

The first video, *Lake Protection: Everyone Contributes*, details the techniques that lakeshore property owners can adopt to minimize their effect on the lake on which they live. This ten minute video deals with:

Lawn fertilization
Filter strips
Shoreline alteration
Household chemical use

This video can be used at lake association meetings or by individuals to reduce their impact on surface water.

The environmental and economic advantages of properly using manure as a fertilizer resource by dairy farmers is the focus of the second video. The importance of soil testing, nutrient analysis of manure, and proper storage and application procedures is stressed. Farmers are encouraged to take proper nitrogen credits for manure applications in order to avoid over-application of fertilizer and subsequent nitrate contamination of groundwater.

Although primarily for home use by individuals, this 12-minute video entitled *Improved Nutrient Management: A Strategy for Economic and Environmental Protection*, would also be suitable for agricultural education programs or farm groups.

[At press time there are a limited number of these videos available at no charge. After these are gone there may be a nominal fee to cover cost of reproduction. To order copies of either video, send a check for $3.00 to cover postage and handling to: Beltrami Soil and Water Conservation District, Room 403, Federal Building, Bemidji, MN 56601. For further information write or phone: Jeff Hrubes, Aquatic Biologist, (218) 751-3036.]

Datebook

This DATEBOOK has been assembled with the cooperation of: Our readers and *Conservation Impact*, the newsletter of the Conservation Technology Information Center, 1220 Potter Drive, Room 170, West Lafayette, IN 47906-1334. Their cooperation is appreciated. If you have a date you want placed in the DATEBOOK contact the editors of *NPS NEWS-NOTES*. *NEWS-NOTES* must receive material for the DATEBOOK at least two months before the event to ensure that your event is properly displayed.

1991 Meetings and Events

April

9-11 *COVER CROPS FOR CLEAN WATER*, West Tennessee Experiment Station, Jackson, Tennessee. Sponsored by the Soil and Water Conservation Society. For more program information and registration contact: SWCS, 7515 N.E. Ankeny Road, Ankeny, IA 50021. Phone: (515) 289-2331 or 1-800-THE-SOIL.

9-11 *Seventeenth Annual Hazardous Waste Research Symposium*, The Westin Hotel, At Fountain Square, Cincinnati, OH 45202. Phone: (513) 621-7700. Contact hotel directly for reservations. For further information and registration contact: JACA Corp, 550 Pinetown Road, Ft. Washington, PA 19034, atten: Kathleen Kelly. Phone: (215) 643-5466.

11-17 *The Impact and Mitigation of Oil and Gas Activities in Coastal Environments: Gulf of Mexico, North Sea, Alaska*, An International Seminar and Training Course, supported by field excursions. Le Pavillon Hotel, New Orleans, LA. Jointly organized by The Centre for Environmental Management & Planning (Aberdeen University Research & Industrial Services Ltd) and Louisiana Geological Survey (Louisiana State University, Baton Rouge). Total cost for the training and field course is U.S.$1995, including all lectures, the field guide and course material, and three nights' accommodation in La Pavillon Hotel, inclusive of meals and gratuities. For further information and registration contact: Dr. D. Davies, Louisiana Geological Survey, PO Box G, University Station, Baton Rouge, LA 70893-4107. Phone: (504) 388-5320. FAX (504) 388-5328.

14-16 *Fourth Annual Virginia Water Resources Conference*. Hyatt Richmond at Brookfield, Richmond, VA. Sponsored by The Virginia Water Resources Research Center and the Virginia Lakes Association. Basic topic areas include water resources management, tidal and nontidal wetlands protection and mitigation, the Chesapeake Bay, land use management, biodegradation of contaminants, lake management and ecology, dam and reservoir management, stormwater management, etc. Special room rates available for conference participants: $69 single, $74 double. Early registration fee $75; after April 1 $90. Fee includes lunches, reception, published collection of abstracts. For more information contact Elizabeth B. Crumbley, Virginia Water Resources Research Center, 617 N. Main St., Blacksburg, VA 24060-3397. Phone: (703) 231-8038.

14-20 *Environmental Education: The Future for Sustainable Development in Central Europe*, Bratislava, Czechoslovakia. Sponsored by the Alliance for Environmental Education, the Budapest Center, and Georgetown University. Costs for each participant will be $1254 — $554 round trip air fare from Washington or New York and $700 for in-country transportation, food and lodging. For information call Alliance for Environmental Education (703) 631-6754. Registration deadline is March 29.

17-18 *Environmentally Sound Agriculture*, Orlando, FL. Conference objective is state-of-the art technology for sustaining an environmentally sound and productive agricultural industry in the urbanizing southeastern United States. Topics include NPS control, point sources on farm, air pollution, wildlife and habitat preservation, and the urban/agriculture interrelationship. For further information contact: Dept. of Ag. Engineering, Univ. of Florida, Gainesville, FL 32611. Phone: (904) 392-8535.

23-24 *National Water Information Clearinghouse Workshops*, Sacramento, CA. Sponsored by the Interstate Council on Water Policy and U.S. Geological Survey. Purpose is to provide a forum for participants to identify their needs for a national clearinghouse that would disseminate information and data on ground water and surface water quantity and quality. Federal, state, regional, and local organizations and individuals that collect, manage, use, and/or disseminate water information and data are invited to attend. A companion workshop will be held on May 21-22, in San Antonio, TX. For further information on arrangements contact Flaminia Mangone, ICWP, (202) 466-7287.

April

23-25 *Diversity for Success,* A Midwest Regional Conference to explore the advantages and challenges of accepting women and people of diverse racial and ethnic backgrounds into natural resource professions. Holiday Inn, Stevens Point, Wisconsin. Sponsors include federal and state natural resource agencies, university departments of natural resources, and national resource associations. For further information contact: University of Wisconsin-Stevens Point, Continuing Education and Extension, 2100 Main St., 103 Old Main, Stevens Point, WI 54481-3897. Phone: (715) 346-3717.

24-27 *Resource and Public Land Use* Section, Western Social Science Association. Reno, Nevada. Annual Meeting of WSSA. For program information on the Section meeting contact Nina Burkhardt or Jonathan Taylor, c/o Fish and Wildlife Service, National Ecology Research Center, 4512 McMurray Avenue, Fort Collins, CO 80525-3400. Phone: (303) 226-9445.

May

15-17 *Enhancing the States' Lake Management Programs: Monitoring and Lake Impact Assessment,* Chicago, IL. Contact: Bob Kirschner, Northeast Illinois Planning Commission, Natural Resources Department, 400 W. Madison, Room 200, Chicago, IL 60606. Phone: (312) 454-0400.

28-31 *Third Annual National Coastal Programs Conference: "Uncommon Solutions to Common Problems."* San Diego, CA. Annual conference of EPA's National Estuary Programs and Near Coastal Waters Programs. Program will feature presentations and discussions on innovative and fresh ideas for addressing problems common to coastal programs. For further information contact: Karen Helm, American Management Systems, Inc. 1777 N. Kent St., 7th Floor, Arlington, VA 22209. Phone: (703) 841-6212.

June

10-12 *Regional Lake Management Conference: "A Lake is a Reflection of its Watershed."* Airport Hilton, Des Moines, Iowa. Sponsored by NALMS and co-sponsored by U.S. EPA Region VII, the U.S. Fish and Wildlife Service, and Iowa State University. Educational, technical, and policy/planning sessions will be held around the theme. Exhibit area and poster presentations. Technical workshop on Lake Water Quality Assessment and Modeling held on June 11-12. For program information contact: Donna Sefton, EPA Region VIII, Kansas City, KS 66101. Phone: (913) 551-7500. For registration and exhibit information contact: Steve Jones, Iowa State University, Ames, IA 50011. Phone: (515) 294-3957.

10-14 *Design of Water Quality Monitoring Networks - Short Course,* Colorado State University, Fort Collins, CO. Includes detailed procedures for designing a water quality monitoring system, including sampling frequency, measurement techniques, data storage formats, data storage and retrieval methods, and sampling locations. The course fee of U.S.$850.00 includes tuition, all class materials, the course texts, the course software, WQSTATII and users manual plus certain meals and refreshment breaks. For further information contact: Janet Lee Montera, Department of Civil Engineering, Colorado State University, Fort Collins, CO 80523. Phone (303) 491-7425. FAX (303) 491-7727.

19-22 *History of Agriculture and The Environment, A Symposium.* National Archives Building, Washington DC. The symposium will be interdisciplinary in nature and will cover the topic of the history of agriculture and the environment as broadly conceived. Sponsors: Agricultural History Society, the American Society for Environmental History, and the agencies of the U.S. Department of Agriculture. For program information contact: Douglas Helms, National Historian, Soil Conservation Service, P.O. Box 2890, Washington DC 20013. Phone: (202) 447-3766.

20-22 *Network Globally—Act Locally,* A conference sponsored by the Alliance for Environmental Education, the Tennessee Valley Authority, and the U.S. EPA. Washington Dulles Ramada Renaissance Hotel. For corporate leaders, environmentalists, teachers and students, government leaders, individuals who care about the environment. For registration and program information contact the Alliance for Environmental Education, 10751 Ambassador Drive, Suite 201, Manassas, VA 22110. Phone: (703) 631-1651. FAX (703) 631-1651.Conference registration $150 w/discounts for early registration. Phone Dulles Ramada Renaissance (703) 478-2900, for hotel reservations at special conference rates. Cut-off date June 16. Discount air fares offered by United Air Lines. Call Ambassador Square Travel at 1-800-447-3900 for details. Conference registration is limited to 500 participants.

July

8-12 *Coastal and Ocean Management, The Seventh Symposium,* Hyatt Hotel, Long Beach, CA. Sponsored by The Coastal Zone Foundation, The American Shore and Beach Preservation Association, U.S. National Oceanic and Atmospheric Administration, Port of Long Beach, American Society of Civil Engineers. Themes include Coastal and Marine Policy, Institutional Relations; Global Environment; Public Participation, Information, and Access; Environment and Information; Development and Resource Management; and International Issues. For further information contact: Coastal Zone 91, Orville Magoon / Gail Oakley, PO Box 279, 21000 Butts Canyon Road, Middletown, CA 95461. Phone: (707) 987-0114.

September

17-19 *3rd Annual EPA Tri-Regional NPS Conference.* Sponsored by the NPS Coordinators, EPA Regions III, IV & VI for the states in those Regions. Host: Region III. As arrangements are firmed up DATEBOOK will report.

Call for Papers/Exhibits

DUE 1991

April

1 *Utah's Second Annual Conference on Nonpoint Pollution Issues: Coalition Building for Nonpoint Source Problem-Solving,* to be held September 26 and 27, Park City, Utah. Project Case Studies and papers are invited. Projects: The Utah Nonpoint Source Task Force will select eight projects to serve as case studies for group study, and to facilitate an exchange of information and ideas among professionals involved in the implementation of rural and urban nonpoint source pollution projects. A project may address a NPS pollution issue: control, education, or monitoring; can be on a local, state, or federal level; must involve several agencies, institutions, organizations, or individuals; and must be ongoing at the time of the conference. Submit a two-page, double spaced (600 words) description of the project, include key players, the problem, proposed solutions, funding sources, current stage of project, public or cooperator reaction to project, and future plans. Papers: will be presented on the second day, topics welcomed in: education, xeriscaping, NPS effects on wildlife, groundwater, riparian management, urban NPS control, salinity control, mining,, and sediment and erosion control. Submit a one-page, double spaced (300 words) abstract describing project. Send descriptions and abstracts to Ann Thering, Environmental Quality Section, Utah Dept. of Agriculture, 350 N. Redwood Rd., Salt Lake City, UT 84116, Phone: (801) 538-7089.

5 *National Conference on Integrated Water Information Management* to be held August 5-9, 1991 at the Claridge Casino Hotel, Atlantic City, NJ. Sponsored by U.S. EPA, U.S.G.S., and The Multi-State Fish and Wildlife Information Systems Project. Technical papers may include: Studies or summaries of projects that demonstrate the sharing and/or integration of physical, chemical, and biological data to study aquatic, groundwater, or terrestrial environments. Projects or studies that demonstrate the use of physical, chemical, or biological data from two or more sources to solve environmental problems. Exhibits may include: Actual computer demonstration of models, databases, or other automated systems that store / retrieve / analyze environmental data. Poster sessions that summarize projects or data systems that utilize physical, chemical, and biological data in the analysis of aquatic, groundwater, or terrestrial environments.

Abstracts of 500 words or less and descriptions of proposed exhibits should be submitted to: Cynthia Warner, U.S. EPA, Assessment and Watershed Protection Division (WH-553), 401 M Street, Washington DC 20460. Applicants will be notified by May 10, 1991 of the approval of submitted abstracts or exhibits.

The Coupon

Nonpoint Source Information Exchange Coupon #11

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Nonpoint Source News-Notes is an occasional bulletin dealing with the management of nonpoint sources of water pollution. NPS pollution comes from many diffuse sources and is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and manmade pollutants, finally depositing them into lakes, rivers. wetlands, coastal waters and ground waters. NPS pollution is normally associated with agricultural, silvicultural, mining and urban runoff. NPS News-Notes, Hal Wise, Editor, is published under the authority of section 319(l) of the Clean Water Act by the Nonpoint Source Information Exchange, (WH-553), Assessment and Watershed Protection Division, OWRS, Office of Water, U.S. Environmental Protection Agency, 401 M St. SW, Washington DC 20460. Distributed by The Terrene Institute.

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