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EPA News-Notes

The Condition of the Environment and The Control of Nonpoint Sources of Water Pollution

A Commentary . . .

IT MAKES A DIFFERENCE . . . The Starfish Parable

A mid-westerner was vacationing on the New England coast. One morning, very early, she was walking along the beach—the sun was still below the horizon, the rain had ended, the sea was calm, and a rainbow bridged the blue Atlantic with the green shoreline. While enjoying the beauty about her, she glanced down the beach and saw a lone figure of a young man silhouetted against the sea. He skipped and frolicked as if performing a ritual dance to celebrate the dawn. Fascinated, she moved closer. As she approached, she realized the young man was not dancing—he was, with graceful and joyous movements, picking up objects and tossing them into the sea. Soon she realized the objects were starfish.

"Why are you throwing starfish into the sea?"

"The tide is going out and if they are still here when the sun rises, they will die."

And without breaking his rhythm he continued tossing them out to sea.

"That's ridiculous! There are thousands of miles of beach and millions of starfish. You can't really believe that what you are doing could possibly make a difference!"

He smiled, bent over and picked up another starfish, paused thoughtfully, and remarked as he tossed it into the waves...

"It makes a difference to this one."

—Contributed by Michael Furniss, Hydrologist, Six Rivers National Forest, Eureka, CA, who commented when he sent it in, "There is something about nonpoint source work that this parable speaks to . . . ."

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Assorted Newsworthy Notes

EPA Embarks on Long Term Environmental Monitoring and Assessment Program: EMAP

In 1988, the Science Advisory Board recommended that EPA initiate and implement a program that would monitor ecological status and trends to identify emerging environmental problems before they reach crisis conditions. The next year, EPA began to refine its program focus by calling for "managing for results," for an active confirmation that its programs are truly maintaining or improving environmental quality.

These two policy directives have resulted a major new EPA program, The Environmental Monitoring and Assessment Program (EMAP), housed in the Office of Research and Development (ORD). EMAP's goal is to monitor the condition of the nation's ecological resources. EMAP's data enables program managers and the public to evaluate the success of current policies and programs. Program managers can use the data to identify emerging environmental problems before they become widespread or irreversible.

EMAP has published an overview of the program, in which it was stated:

> *Both the incidence and scale of reported environmental problems have increased over the past two decades. The public is increasingly concerned that the resources upon which they rely for recreation, quality of life, and economic livelihood remain sustainable. Scientists are increasingly concerned that the impact of pollutants now extends well beyond the local scale: global climate change, acidic deposition, ozone depletion,nonpoint source pollutant and sediment discharges to waterways, and habitat alteration threaten our ecosystems on regional and global scales. Years of scientific study have not only heightened our environmental awareness, but also have convinced us that the ecological processes that determine how our ecosystems respond to both natural and anthropogenic disturbances are extremely complex. Unfortunately, the current status of our environment is currently not well documented, making it impossible to assess quantitatively where and at what rate degradation may be occurring. While we believe that our policies and programs are protecting the quality of our environment, we cannot prove it with currently available data.*[1]

The publication sets forth three EMAP objectives:

- *Estimate the current status, extent, changes, and trends indicators of the condition of the nation's ecological resources on a regional basis with known confidence.*
- *Monitor indicators of pollution exposure and habitat condition and seek associations between human-induced stresses and ecological condition.*
- *Provide periodic statistical summaries and interpretive reports on ecological status and trends to resource managers and the public.*

In commenting upon the developing program for realizing these objectives, the *EMAP Monitor* recognized that the agenda for EMAP is ambitious and said,

> *. . . the Program represents the type of monitoring program that is needed for the 1990s and beyond. . .*
>
> *The Program will make maximum use of existing information to avoid duplication and will capitalize on the experience of past efforts, both the successes and failures. Above all, EMAP data, plans, and reports will be presented for critical review by the scientific community and representatives from government agencies whose mission complements EMAP's. Comment and input on EMAP's priorities will be actively solicited from business groups, citizen groups, and other public interest groups. Only through a broad-based, open forum can we ensure that the products from EMAP will have a significant influence on the setting of this nation's environmental policies.*

1 See *EMAP Monitor*, January 1991, [EPA-600/M-90/022], U.S. EPA, ORD, (RD-680), 401 M Street, SW, Washington DC 20460.

EPA Embarks on Long Term Environmental Monitoring and Assessment Program: EMAP (continued)

EMAP has been organized under five associate directors who head-up major categories of concern, that are in turn, subdivided into significant activity areas, as follows:

Near Coastal
- Estuaries
- Great Lakes

Terrestrial Systems
- Forests
- Agroecosystems
- Arid Ecosystems
- Landscape Characterization
- Information Management Center
- Logistics
- Quality Assurance

Aquatic Systems
- Surface Waters
- Wetlands
- Indicators
- Design and Statistics

Air and Deposition
- Integration and Assessment

Headquarters Liaison
- Staff Liaison Functions
- Operations/Administration/Planning

Elizabeth Jester, Chief of the Monitoring Branch, Assessment and Watershed Protection Division is the Office of Water's (OW) principal contact person working with EMAP. She said,

> *EMAP seeks to provide the monitoring that can describe national water quality trends. EMAP will provide statistically consistent national monitoring coverage, and will also provide scientific work to develop appropriate indicators and monitoring methods. EMAP has Memoranda of Understanding with USGS, NOAA and FWS[2] and other Federal agencies that monitor to try to ensure that methods and research are consistent.*

She went on to explain the close working relationships that are emerging between EMAP and OW's Office of Wetlands, Oceans, and Watersheds (OWOW). She said,

> *The surface water, coastal and wetlands components of EMAP are in initial stages, and...OWOW and EMAP are working closely together to define how the activities of both can be integrated to achieve the clean water goals.*

[For further information, contact: Elizabeth Jester, Chief, Monitoring Branch, AWPD (WH-553), U.S. EPA, 401 M Street, SW, Washington, DC. Phone: (202-FTS) 260-7066.]

EPA Region 6 Sponsors New NPS Outreach and Technology Transfer Project

Russ Bowen, Chief of the Water Quality State Programs Section in Region 6 recently reported that Susan Alexander, the region's former NPS coordinator, is lending her talents to a new information project that targets diverse groups that are often missed by existing NPS outreach programs.

Alexander hopes to make contact with groups that recognize that their special activities can contribute to nonpoint source pollution and that want to become part of the solution. Such groups (including trade and growers associations, outdoor enthusiasts, landowners, ranchers, county road commissioners, etc.) often have large memberships and can be valuable allies in distributing information on NPS control and prevention.

Groups like these sometimes don't fit neatly into the usual NPS categories and tend to "fall between the cracks" when it comes to technical assistance. One way to reach them, according to Alexander, is to work with them cooperatively on developing fact sheets or other materials. She is currently crafting eleven such fact sheets, each aimed at a different segment of the NPS community.

"I consider this project one of the most progressive and innovative steps the Region has taken to support our states' NPS programs," Bowen said.

Alexander is on loan from EPA to the not-for-profit Terrene Institute, which specializes in producing environmental education material. "My first task was to solicit lists of ideas and needs from our states. They came up with some pretty innovative suggestions, including

2 United States Geological Survey, National Oceanic and Atmospheric Administration, Fish and Wildlife Service.

EPA Region 6 Sponsors New NPS Outreach and Technology Transfer Project (continued)

posters, a video, brochures, inspection checklists, and an animal waste system operation and maintenance manual," she said. Other projects she will be tackling in her new role include:

- Developing a technical guide for watershed project managers.
- Participating in outreach and educational activities, including making public presentations and designing slide shows and other educational products for states to use.
- Putting together a "Lessons Learned" report of completed or nearly completed Region 6 NPS projects to enable project managers to learn from the experiences of others. Many of these projects have produced valuable water quality data.
- Providing technical assistance on water quality issues and projects to USDA on request.
- Representing Terrene Institute at national meetings and technical workshops on such subjects as CZMA management measures guidance and development of other water quality technical documents.In addition to the above tasks, Alexander intends to continue honing her pet project, The NPS Watershed Game. The board game teaches the basic principles of NPS control, including the relationship of BMPs to water quality standards in a real-world, free-enterprise setting. It was unofficially launched two years ago at the annual Tri-Regional NPS Conference. "I'm eager to finish it," said Alexander. "But it will need to wait until I get started on some of our state-specific projects."

"This is a new and exciting role for me," said Alexander. "I think I will be able to merge my program experience with my teaching background to produce some creative products."

Dov Weitman, chief of the NPS Control Branch at EPA Headquarters, commented, "I look forward to seeing some very positive results from Susan's work. We need more education programs like these that actively and effectively involve citizens in the quality of their community's water."

[For more information, contact Susan Alexander, Terrene Institute, Highway 2024, Route 1, Box 262, Pineland, TX 75968. Or call (409) 787-4821.]

Letter to EPA Says Proposed Wetlands Manual Would Hurt Chesapeake Bay Restoration Effort

***NEWS-NOTES* EDITOR'S NOTE:** The following article appeared in the January–February 1992, issue of the Alliance For The Chesapeake Bay's publication *Bay Journal*, Karl Blankenship, Editor, and is reprinted here with permission. Their Editor's Note starts the story.

***BAY JOURNAL* EDITOR'S NOTE:** The following letter to EPA Administrator William K. Reilly regarding proposed changes in the federal wetlands delineation manual was recently sent on behalf of four members of the Chesapeake Executive Council — the governors of Maryland, Pennsylvania and Virginia and the mayor of Washington D.C. The letter was signed by Helen Wise of the Pennsylvania Governor's Office; David Carroll, the Maryland Chesapeake Bay Coordinator; Elizabeth Haskell, Virginia Secretary of Natural Resources; and Aubrey Edwards, District of Columbia Department of Consumer and Regulatory Affairs. Not signing it were representatives of two other council members, the Chesapeake Bay Commission, which represents the legislatures of the Bay states, and the EPA.

In recognition of the crucial functions which wetlands perform within the Bay ecosystem, the Chesapeake Bay Executive Council maintains an active interest in federal and state wetlands management actions affecting the Bay region. The Council formally adopted a Chesapeake Bay Wetland Policy in December 1988 which is heavily dependent upon a federal-state "partnership" approach to protecting wetlands. The Policy established an immediate goal of no net loss of wetland acreage and function with a long-term goal of a net resource gain for tidal and nontidal wetlands. Further, the Chesapeake Bay Program continues to serve as a national model for estuarine systems restoration. For these reasons, we are vitally concerned with the outcome of the proposed revisions to the 1989 "Federal Manual for Identifying and Delineating Jurisdictional Wetlands."

Letter to EPA Says Proposed Wetlands Manual Would Hurt Chesapeake Bay Restoration Effort (continued)

Detailed technical comments will be forthcoming from the Bay Agreement signatories that actively participated in field testing of the proposed revisions. Additionally, attached are letters from the Local Government Advisory Committee and Citizens Advisory Committee conveying concern with the manual. As the primary parties responsible for implementation of the Chesapeake Bay Program, the Principals Staff Committee of the Executive Council is concerned that the adoption of the proposed revisions would have the following adverse consequences:

1. ***Loss of Protection:*** We are concerned that the proposed revisions, if implemented as written, would no longer identify ecologically significant wetlands which are vital to our regionwide restoration and enhancement efforts. These areas include wetlands with federally endangered plant and animal species and many seasonally saturated forested wetlands which provide essential wildlife habitat and perform critical water quality maintenance functions.
2. ***Time Consuming, Expensive Delineation Process:*** Contrary to what was intended, the revisions make wetland delineation more labor intensive and technically complex. Regardless of the degree to which it is apparent that wetlands are present in a specific area, the application of the time-consuming, prescribed methodologies is mandated to verify the existence of wetlands. A great deal of botanical expertise is necessary in order to compute the mandated "prevalence index." Similar in-depth knowledge of soils characteristics is critical to the proper application of the manual. This will add significant costs to the permitting process for applicants and regulatory agencies alike. Additional costs and time delays for the delineation aspect of the process will increase tremendously.
3. ***Undercuts Public Support and Confidence in Wetlands Management:*** The proposed revisions will be difficult for regulators to administer and equally frustrating for applicants to use. The complex, expensive, time-consuming proposition of complying with the proposed revisions would further erode the public understanding and support for wetlands management which we so desperately need. This situation is counter-productive to protecting valuable wetland resources that are preserved, in a large measure, through the cooperative efforts of concerned citizens.

In conclusion, we believe adoption if the proposed revisions would be contrary to our ongoing efforts to revitalize the biological productivity of the Chesapeake Bay and its tributary waters. We strongly oppose implementation of the revisions and urge EPA to resurrect a practical, scientifically based approach for wetland delineation. Wherever appropriate, the new manual should provide for a more rapid delineation process which can be readily performed and produce ecologically defensible results at a reasonable cost.

The Principals Staff Committee would be pleased to arrange a technical briefing with appropriate Chesapeake Bay Program representatives to highlight in greater depth the technical findings of those agencies involved with field testing activities.

[For further information on the Chesapeake Bay Program contact the Alliance for the Chesapeake Bay, Frances Flanigan, Executive Director, 6600 York Road, Suite 100, Baltimore, MD 21212. Phone: (717) 236-8825.

1st International Conference on Groundwater Ecology: April in Tampa, Florida

U. S. EPA, The American Water Resources Association and the Ecological Society of America are jointly sponsoring the First International Conference on Groundwater Ecology, to be held in Tampa, Florida, April 26-29, 1992. Overseas participants include scientists from Austria, Sweden, Netherlands, France, Israel, and South Africa who will meet with their North American counterparts from the U. S. and Canada in the four-day symposium.

John Simons of EPA's Groundwater Protection Division, is the general chairman of the conference. In speaking of the conference, he said:

> *In spite of the fact that groundwater accounts for over 95% of all fresh water available on earth, excluding glaciers and ice-caps, almost all study of fresh water ecology has been of surface water*

1st International Conference on Groundwater Ecology: April in Tampa, Florida (continued)

and little attention has been given to ground- water ecology. Most of the attention given to groundwater has been limited to its use as a safe source of drinking water. Consequently, we have limited knowledge of groundwater ecology. Increasingly it is becoming evident that we need to understand more about groundwater ecology in order not only to protect the drinking water supply depended on by half of the nation, but also to protect critical aquatic ecosystems, including groundwater, wetlands, streams, lakes and estuaries.

This conference will bring together for the first time many who are pioneering in these ecological investigations. We welcome those who will be participating with us in this innovative meeting.

For details on registration see the Datebook in this issue of News-Notes.

Notes from The States and Localities (where the action is)

Casco Bay Estuary Project Municipal Technical Assistance Strategy

EDITOR'S NOTE: For state and local governments beginning to develop coastal NPS plans, the following program provides a good example of state-local coordination and is the type of state technical assistance that EPA and NOAA are encouraging.

The Casco Bay Estuary Project has developed a strategy to address nonpoint source problems by bringing together the various state, regional and local regulatory and planning agencies that have jurisdiction and provide technical assistance in the Casco Bay, Maine watershed. (The 979-square mile watershed contains 40 towns, including Portland.) The plan is to coordinate and focus limited technical assistance resources.

This strategy was developed in the fall of 1991 as a result of a $50,000 National Estuary Program (NEP) Action Plan Demonstration Project grant by EPA to the Maine Office of Comprehensive Planning (OCP), which was established to administer the state's comprehensive planning effort.

Unfortunately, as a result of the recent fiscal crisis in Maine, the state legislature in December gutted the Growth Management Act. What remains of the act no longer requires comprehensive plans, and the comprehensive planning staff of OCP has been eliminated to save $2 million. While towns are no longer required to prepare comprehensive plans, the coastal staff (federally funded) remains and will continue to work on providing technical assistance to interested towns.

The comprehensive planning program required each town to prepare a comprehensive plan which designates growth and rural areas. Of the twenty-four targeted towns, eighteen received planning grants from the state. Five towns have state-approved plans, which are still in effect. Six towns submitted plans that the state did not approve, and seven have not completed plans. At this time, it is not known whether these towns will revise or complete their plans. Six towns have not yet received any planning grants.

At this time, project coordinators are unsure whether any towns will continue to develop comprehensive plans. However, they hope that towns will see the usefulness of having such plans. In addition, they are on the lookout for other funds to provide grants to interested towns.

The primary purpose of the NEP grant was to fund one new technical assistant position. However, it has been successful in leveraging the entire coastal planning staff (funded with federal CZM funds) at OCP to develop and implement this strategy.

One of the most important aspects of providing technical assistance to help towns is that the rural nature of Maine is taken into account. Communities are divided into two major groups—those with professional planning staffs and those without professional planning staff.

Casco Bay Estuary Project Municipal Technical Assistance Strategy (continued)

This two-fold approach allows a higher level and more in-depth discussion with professional staff, and more basic and personal attention to towns with volunteer town officials.

For towns with full-time planning staffs, one or two regional workshops will be held for planners, CEOs, and public works directors to discuss nonpoint source issues, introduce the new state BMP manuals, and provide specific direction on how ordinances can be updated to reference the new BMPs. The workshop content was developed by a group of state and local agencies, including OCP, the Maine Department of Environmental Protection (DEP), regional planning commissions and the local soil and water conservation district.

The first workshop was held on December 12, 1991 and was attended by over 70 people representing almost all of the targeted towns. Linkages to other DEP programs for phosphorus control and shoreland zoning, and enforcement of nonpoint source controls were addressed. One-on-one follow-up sessions will be held with each town to address town-specific issues.

For towns without professional planning staff, individual work sessions will be arranged with planning boards, CEOs, and conservation commissions to discuss the same types of issues. Local plans and ordinances will be reviewed in advance to enable these sessions to be tailored to the individual needs of each town as much as possible. More time is allocated for this group, as OCP staff and regional planners will serve as the professional planning staff for these towns.

In addition to providing technical assistance on BMPs, the Office of Comprehensive Planning also works directly with the comprehensive planning process. The program works both with towns in the process of developing their plans and with towns that have completed their plans and are now faced with implementation. For all towns, OCP will:

- develop a resource center on water quality issues, including information available from Federal, state, local, and private sources on water quality protection—an annotated bibliography will be distributed to towns;
- develop a list and discussion of implementation actions that can be taken to address various water quality problems; and
- direct Maine Audubon to provide public education by meeting with interested municipal groups and schools to discuss the nonpoint source problem using various media, including slide and video presentations.

For the towns developing their comprehensive plans OCP will:

- compile (on a town-specific level) existing state water quality and marine resource data;
- conduct a follow-up to the data package by meeting with the towns individually to provide assistance to their planning committees on policy directions and implementation strategies;
- in coordination with the Maine Department of Environmental Protection, develop a long-term strategy for using the state GIS to assist municipalities with comprehensive plan development and plan implementation.

For the towns which have completed plans, OCP will:

- prepare written assessments of completed comprehensive plans and existing ordinances to determine how well they address water quality issues;
- in coordination with other state agencies and the regional planning agencies, provide technical assistance to Casco Bay watershed communities and landowners on incorporating stormwater best management practices, or BMPs into local ordinances. This will be accomplished through group workshops and one-on-one meetings with town officials; and
- develop a model program and ordinance to require regular inspection and maintenance of existing and new septic systems.

[For further information, please feel free to contact Mark Smith, Coordinator, Casco Bay Estuary Project, U.S.EPA, J.F.K. Federal Bldg. (WQE-425), Boston, MA 02203]

Schools and The State Join Forces To Build A River Watch Network in Colorado (ROCWWN)

EDITOR'S NOTE: One of our numerous corespondents in EPA's Region VIII office in Denver sent us the facts upon which the following story is based. Needless to say, we are very impressed with the breadth of this effort and with the involvement of the schools, state and federal agencies, and the communities through which the rivers of Colorado flow. They just might have established new standards for voluntary monitoring and environmental education. Congratulations to ROCWWN. We are happy to pass this valuable information on to our readers. Thanks.

The Creation of ROCWWN

The Colorado Division of Wildlife (CDOW) has developed an exciting, far-reaching new program called the Rivers of Colorado Water Watch Network (ROCWWN, known locally and affectionately as *the Network*). This program, currently directed at middle/junior high and high school youth and their teachers, creates opportunities to learn and to appreciate Colorado's rivers in a special and direct way.

Definition

The Water Watch Network is an interdisciplinary, hands-on, real science aquatic education program. It is also a water quality monitoring program and a computer communications network. It is a growing and dynamic consortium of students, teachers, natural resource personnel, private industry, and community representatives.

The students, with supervision and support from their teachers and community, monitor a stretch of river near their homes and schools, collecting biological, physical, and chemical data over time. After data collection, the kids learn how these three parameters interact to produce the river ecosystem. They learn that when one of these three components is disturbed and undergoes change—good or bad—the other two benefit or suffer as well.

Goals

The three primary goals of the program are:

1. Provide an educational opportunity for middle/junior high and high school students to understand and value Colorado's river ecosystems. The students also learn ethical approaches to taking action in response to environmental problems.
2. To obtain accurate and consistent baseline water quality data on the rivers in Colorado.
3. To establish an electronic (or computer) communications network that provides information on Colorado's rivers. With this information, agencies and citizens can educate, safeguard, and make informed decisions concerning the health, quality and conservation of Colorado's water resources. (The communications network is also available for other educational and environmental uses.)

All these goals have the same ranking and are sought after simultaneously. The technical and material support comes from the CDOW, through the Aquatic Education Five-Year-Plan funded with U.S.Fish and Wildlife Service (FWS) Wallop-Breaux funds. The CDOW provides technical expertise via aquatic biologist Barb Horn and educational expertise via Carol Bylsma. Additional field support comes from interested District Wildlife Managers, CDOW technicians, hatchery personnel, and biologists. Other folks from the Water Division of the Colorado Department of Health, U.S. EPA, and other related agencies and even local nature centers, often eager participants.

Beginnings

The concept of students monitoring a river and performing "real science" by collecting environmental data is a powerful educational tool. While not new, each river watch program has found its own niche in terms of methodology, curriculum, funding, and support system. ROCWWN is generally patterned after the University of Michigan's Rouge River Project,

Schools and The State Join Forces To Build A River Watch Network in Colorado (ROCWWN) (continued)

fathered by Professor Bill Stapp. The sponsorship and network established by Project WILD[1] was also used as a building block. Incidently, ROCWWN is currently looking beyond CDOW and FWS to diversify sponsorship and funding.

How ROCWWN Works

First, CDOW wrote a seven-year plan which phased in each of the major river systems in Colorado, setting the time for the rivers to "come on line." During 1990, schools along the rivers identified in the seven-year plan were invited to participate. Those schools which responded became team members and reserved their "spot" on their river.

By the time a river "comes on line," students and teachers from the schools along that river are trained and have received their equipment. At least one teacher and two students from each participating school must attend a four-day training session. These training sessions are usually held in the fall at a location central to all schools along the river. This training is mandatory. If a school doesn't attend training, the school does not receive any equipment and is bumped to the end of the current river watch agenda (i.e., past 1997). The CDOW pays for each participant to attend. The school must pay for transportation and provide release time.

In the training sessions, students and teachers are treated equally. Both are taught about water as a resource, the methodology used for water sample collection, analysis, recording, quality control and assurance measures, physical habitat analysis, biological parameters such as macroinvertebrate collection, and the ethics of taking environmental action. Guests from the staff of Colorado's Water Quality Control Commission and EPA usually participate in the training sessions.

The workshop brings the middle and high schools that will be monitoring each river together as a team. During the training session, schools and the CDOW chose stations. Access, flow, and logistics usually dictate station location. The frequency of sampling is a minimum once a month in January, February, September, October, November, and December; twice a month in March and August; three times a month in April and July; and four times a month in May and June. Schools receive the water quality sampling equipment at the training workshop.

Schools begin sampling about one month after training. They receive a computer, software, modem, and printer in late January. Teachers and students then attend a one day training session focused on water quality data entry and the computer network.

In the spring, schools participate in a quality control/assurance visit. This is one of several quality control/assurance steps the school must perform in order to become certified. Certification is done by a qualified CDOW biologist, and certification means the school is producing accurate and consistent data. A school can become uncertified at any given time based on unsatisfactory performance.

The schools can keep the equipment given to them (about $7,000 worth) if they sample for the parameters chosen by the CDOW at the frequencies requested. All schools begin with the same basic parameters (temperature, Ph, dissolved oxygen, alkalinity, hardness, and metals), but each river is treated uniquely. In other words, these parameters could grow or change for a given river. All the parameters are analyzed using Standard Methods (1989) except for dissolved oxygen, which is analyzed using a Hach kit. Students perform all the analyses for all parameters except metals. Metals samples are shipped to the CDOW lab in Fort Collins.

Where The Network Is Now

As of fall 1991, 47 rivers, 70 schools, and 155 stations are on line. This translates to about 210 trained teachers and students. Approximately 30 CDOW staff have been trained. At the end of the seven year plan, CDOW hopes to have at least 85 rivers, 250 schools, 525 stations, and 750 trained students and teachers. After 1997, the CDOW and ROCWWN will go back to schools which are along smaller rivers, intermittent streams, or by lakes and start the process again with a new set of target waterbodies.

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1 Project WILD is a joint project of the Western Association of Fish and Wildlife Agencies (WAFWA) and the Western Regional Environmental Education Council (WREEC). WAFWA is a group comprised of the directors of the state agencies in 13 western states who are responsible for management of wildlife in their respective states. WREEC is a not-for-profit corporation comprised of representatives from the state departments of education and state resource agencies in 13 western states.

Schools and The State Join Forces To Build A River Watch Network in Colorado (ROCWWN) (continued)

Where The Network Is Going

CDOW project leaders, Barb Horn and Carol Bylsma, are enthusiastic and optimistic. They report,

> *This program is dynamic and in full demand. Most of the items in our 'future directions list' are beginning to form up now. Here are some examples,*
>
> - *We developed one portion of our elementary school river watch program, a "pre-" river-watch activity guide. This guide complements activities elementary teachers would already be performing, using the river as a focus.*
> - *The CDOW is working with the Water Conservation Board to incorporate a "minimum stream flow watch" portion of the ROCWWN duties.*
> - *The CDOW is also working with the EPA on a similar addition using their "wetlands watch" program.*
>
> *We are in the process of diversifying funding as well as sponsorship. This will broaden the application of the computer network as well. The CDOW is also working on documenting the interdisciplinary aspect of ROCWWN. The list is dynamic and grows every day.*

Benefits and Results

Patsy Goodman, State Wildlife Manager for the Habitat Program indicated that the program's benefits and results are infinite. Among these are:

- *First and foremost is the baseline database. The water quality data collected by ROCWWN is accurate, reliable, and consistent.*
- *The structure of ROCWWN develops a community awareness and network.*
- *The communication network is a success. The network provides a method for data transfer, electronic mail and conferences. The subject matter available via conferences is not limited to aquatic biology but extends across all disciplines. In addition the network has a "speakers bureau," consisting of specialists in a variety of disciplines and fields, who answer questions asked by students. For example, Dr. Fish would answer questions concerning fish, Dr. Soil answers geology questions, and so on.*
- *The public relations benefits are endless. In an era of budget and personnel cuts, schools can use all the "free" equipment available. Schools appreciate the one-on-one contact and attention the Network provides.*
- *The inter- and intra-agency cooperation and collaboration is a benefit as well. Decisions concerning Colorado's Rivers are usually not made by one agency alone. The Network provides an excellent opportunity for state and federal agencies to work together with each other and with schools.*
- *Inherently, the Network provides an opportunity to inform and educate the citizens of Colorado about the needs, functions, and values of Colorado's water resources.*
- *While not alone in goals and benefits, the Network is unique relative to other river watch programs. ROCWWN is the only known program in the U.S. which uses a statewide approach. Eventually, every major Colorado river and most of the smaller rivers will be monitored by Network schools.*

[For further information, contact Barb Horn, Colorado Division of Wildlife, 6060 Broadway, Denver, CO 80216. Phone: (303) 219-7388. FAX: (303) 294-0874.)

Notes of Riparian and Forestry Management

Northeastern Area of the U.S. Forest Service Publishes Design Manual on Riparian Forest Buffers

U. S. Forest Service's Northeastern Area office, which deals with state and private forestry, has published a manual (and specification) called *Riparian Forest Buffers*, subtitled *Function and Design for Protection and Enhancement of Water Resources.* (Publication No. NA-PR-07-91)

This attractive and informative document details in a clear and straightforward manner the whys and how-tos of riparian buffers for agricultural and urban lands. Pointing out that

Northeastern Area of the U.S. Forest Service Publishes Design Manual on Riparian Forest Buffers (continued)

"streamside forests are complex ecosystems vital to the protection of our streams and rivers," it explains the nonpoint sources of pollution of America's rivers and streams and emphasizes that "the removal of streamside forests has adversely affected the vitality of our water resources."

Riparian forest buffers function, often simultaneously, as *filters* which remove sediment and sediment-attached pollutants; as *transformers* changing the chemical composition of compounds, (for example, nitrate into nitrogen gas); as *sinks* that store nutrients for an extended period of time; and as a *source* of energy for aquatic life (dissolved carbon compounds and particulate organic detritus).

Perhaps the most valuable contribution the publication makes is its four-page fold-out "Specification for Riparian Forest Buffers." This *A-B-C* treatment of forest buffers is clear and straight-forward. Under the heading of "Design Criteria," it says:

> *Riparian forest buffers will consist of three distinct zones and will be designed to filter surface runoff as sheet flow and downslope subsurface flow which occurs as shallow groundwater. For the purposes of these buffer strips, shallow groundwater is defined as saturated conditions which occur near or within the root zone of trees and other woody vegetation and at relatively shallow depths where bacteria, oxygen, and soil temperature contribute to denitrification. Streamside Forest Buffers will be designed to encourage sheet flow and infiltration and to impede concentrated flow.*

The manual identifies these three riparian zones: Zone 1 begins at the top of the stream bank and occupies a strip of land with a fixed width of 15 feet. Its purpose are to create a stable ecosystem adjacent to the water's edge, provide a soil and water contact area to facilitate nutrient buffering processes, provide shade to moderate and stabilize water temperature. This encourages the production of beneficial algal forms. Zone 1 also contributes necessary detritus and large woody debris to the stream ecosystem.

Zone 2 begins at the edge of Zone 1 and extends upland an additional 60 feet.

The purpose of Zone 2, according to the manual is to ... *provide the necessary contact time and carbon energy source for buffering processes to take place and to provide for long term sequestering of nutrients in the form of forest trees.*

Zone 3 has a minimum width of 20 feet. Additional width may be necessary to accommodate land-shaping and mowing machinery. Ungrazed grassland may serve the purposes of the zone, which is to provide sediment filtering, nutrient uptake and the "space necessary to convert concentrated flow to uniform, shallow, sheet flow through the use of techniques such as grading, and shaping, and devices such as diversions, basins and level lip spreaders," as outlined in the manual.

The specification deals with the selection of vegetation for buffers, maintenance over time, and the total width of the buffer depending on the Soil Capability Class, slope and soil permeability.

The Forest Service has done us all a great favor. This is a fine publication that deserves widespread circulation and use. It packs a tremendous amount of solid information and direction into its twenty page specification. This is certainly a recommended four-star publication. Unfortunately, the report is currently being reprinted but will be available in May. For a copy at that time, write to the address below.

[For more information contact David J. Welsch, Forest Resources Management, Northeastern Area, State and Local Forestry, USDA Forest Service, PO Box 6775, Radnor, PA 19087-4585. Phone: (FTS) 489-4132. FAX (FTS) 489-4200.]

EPA Region X Issues Evaluation of Successful Riparian Restoration Projects — A Review

Characteristics of Successful Riparian Restoration Projects in the Pacific Northwest
Prepared by Sean Connin. 1991. 53 pp.
US EPA Region X Water Division, Nonpoint Sources Section

This guidance document provides a review and evaluation of 13 successful riparian restoration projects in Oregon, Washington and Alaska. It is intended to illustrate how riparian restoration projects can be utilized to achieve the objectives of the EPA Region X Riparian Management Policy. This policy recognizes the inherent ecological functions and values of

EPA Region X Issues Evaluation of Successful Riparian Restoration Projects — A Review (continued)

healthy riparian ecosystems as well as the related benefits of these areas to water quality and to nonpoint source pollution control. The Region X policy is designed to protect, improve and restore these ecologically important and socially valuable areas.

The review was conducted by questionnaire survey, interviews and site visits. Common characteristics of successful projects were identified and recommendations provided for future projects. Some of the key characteristics identified included:

- a watershed approach that recognizes the effects and contributions from surrounding uplands on the project area
- the establishment of well defined goals relevant to the critical problems
- community involvement and interagency cooperation
- project monitoring, both before and after treatment

The recommendations made as a result of the review included the following:

- Demonstration areas should receive priority for restoration funding and implementation.
- Photodocumentation is an effective and often overlooked method of documenting project effectiveness.
- Riparian restoration monitoring should include physical, chemical and biological parameters for assessing improvements in water quality.

The 13 projects reviewed in this document provide a good representation of the types of problems that are frequently encountered in degraded riparian areas. Examples of the types of activities and impacts that necessitate implementation of treatments for riparian restoration include:

- gold mining destroying fish habitat.
- overgrazing leading to bank instability and channel degradation.
- concentrated recreation and grazing use leading to destruction of desirable riparian vegetation.
- intensive timber harvest and associated road building causing accelerated upland and streambank erosion, channel incision, and riparian vegetation degradation.

The design of appropriate treatments for these problems and the documentation of progress with photos and water quality monitoring are discussed for the restoration projects. The review also provides information on one aspect of these projects which may serve as an indirect measure and probable underlying cause of their ultimate success: the project participants. None of these projects was conducted by a single participant; they were all done cooperatively by groups ranging from Indian tribes to power companies, federal land management agencies to students and volunteer groups. There is no substitute for broad-based support for success of a project, and if these examples from Region X are any indication, there is no shortage of agencies, citizen groups and individuals willing to participate in such restoration projects. In some states, (Idaho, for example) riparian restoration societies are being formed to serve as focal points for facilitating this cooperation in undertaking projects of this type. This guidance document will give these groups a head start on adding projects of their own to the list of successful riparian area restorations.

[Copies of Characteristics of Successful Riparian Restoration Projects in the Pacific Northwest can be obtained by calling Renee Nicholas at the Region X Public Information Center (206) 553-4973.]

National Association of State Foresters View Silvicultural Nonpoint Source Controls

EDITOR'S NOTE: The following report has been provided to *News-Notes* by the National Association of State Foresters (NASF). We welcome this contribution and are happy to pass it on to our readers.

State efforts to control silvicultural NPS problems have proven that state-level, nonregulatory approaches to the problem can effectively address water quality concerns associated with forestry. This effort is directed at making forestry, which is recognized as a relatively minor contributor to NPS problems nationally, part of the solution to water quality difficulties.

National Association of State Foresters View Silvicultural Nonpoint Source Controls (continued)

Silvicultural activities are a potential source of nonpoint water pollution; this is widely recognized. What is not pointed out often enough is that proper forest management can prevent silvicultural runoff from impairing water quality. The NASF and the individual state foresters have taken an active role in the development and implementation of NPS Best Management Practices (BMPs) since passage of the Clean Water Act in 1972.

These efforts were summarized in a report entitled, *Implementation of Silvicultural Nonpoint Source Program in the United States.* The report, which NASF published in February of 1991, was compiled from three earlier reports (one each from the northeastern, southern, and western groups of state foresters) by Don Essig of the Montana Department of State Lands.

The report indicates that 40 of the 46 responding state foresters reported involvement of one form or another in their state's NPS assessment projects. Many were represented from the outset through participation on an interagency NPS task force. The vast majority of the states (33) reported a good to excellent working relationship between the state forester and the state water quality agency. Only two states indicated that this relationship needed to improve.

NASF members indicated that funding and staffing constraints are the chief obstacles to the implementation of an effective NPS management program in their states. Adequate funding of the federal Clean Water Act Section 319 program, which would allow the states to conduct technical assistance and landowner/logger education, is needed to make the state implementation of silvicultural NPS control programs effective.

Many states have BMP implementation programs in spite of funding and staffing difficulties. Thirty-five states either had (or planned on having) some form of implementation program by the end of this year. Twenty-nine states had (or planned on having) water quality guidebooks for loggers and private land owners. Many other states indicated that they planned to conduct silvicultural NPS control education and outreach efforts that include posters, displays, video or slide programs, training sessions and workshops, and field tours to show people what BMPs are and what they accomplish.

In short, state foresters got started in nonpoint source control early, the number and variety of state forestry BMP programs are growing, and the programs that exist are showing an impressive compliance record. For instance, three southern states indicated that compliance with state BMP regulation ranged from a low of 76 percent (for streamside management zones) to a high of 98 percent (for site preparation).

Luckily, this commitment is receiving recognition from the conservation community. This summer, Virginia State Forester Jim Garner was commended by the Chesapeake Bay Local Assistance Department for his department's efforts to control silvicultural NPS.

[For more information about NASF, or for a copy of their report, contact Bill Imbergamo at NASF, 444 North Capitol Street, NW, Suite 526, Washington DC, 20001. Phone: (202) 624-5416.]

The Present and Future of The Colorado Riparian Association

EDITOR'S NOTE: Karen Hamilton is a Denver-based aquatic biologist who works on nonpoint source problems with the states in EPA Region VIII. She is also the President-Elect of the Colorado Riparian Association. (That means she becomes president in November 1992.) We've prevailed on Karen to tell us about the Association, how it started, what it is doing, and what it hopes to be doing — for the benefit of readers in other states who have had thoughts of starting up similar citizen riparian organizations.

A President-Elect Looks At Her State Riparian Organization

In 1988, about 50 folks representing a wide range of public agencies and interest groups met to listen to people from the Montana Riparian Association and the Oregon Watershed Improvement Coalition describe the structure and activities of their organizations.

Late in the day, an ad hoc group evaluated what they had heard and brainstormed about what they would like to see develop in Colorado. A task force was appointed and given the charge of further evaluating the options, recommending an organizational format, and creating the goal of the organization.

Several months after the meeting, the task force arrived at a mission statement, goals and by-laws for the Colorado Riparian Association (CRA). The mission statement reads:

The mission of the Colorado Riparian Association is to promote protection and restoration of Colorado's riparian areas and wetlands through better awareness of the values and long-term benefits of good management.

The four goals are:

- *To foster a practical and scientific understanding of riparian areas and wetlands in Colorado.*
- *To promote sound management of riparian areas and wetlands in Colorado through demonstration and education.*
- *To promote communication and coordination among all people interested in riparian areas and wetlands in Colorado.*
- *To ensure that the long-term benefits of riparian areas and wetlands of Colorado are maintained or improved.*

The by-laws established a member-based organization with four elected officers and a seven-person executive board. The officers are a president, a president-elect, a secretary, and a treasurer. The executive board is made up of the past-president, two representatives of the private sector, two representatives of governmental agencies and two representatives of the academic or research sector.

The first annual conference was held in October 1989. During the conference, solicitations were made for officers and executive board candidates. Ballots were sent out to registrants of the conference, and the first slate of officers and board members were elected within three months. They were unofficially active from April until November, when they were officially installed at the second annual meeting.

One of the first things we did as an organization was conduct a field trip on Bill Trampe's property along the East River, a tributary to the Gunnison River near the Crested Butte ski area. It was a very risky proposition for him to extend his hospitality to about 30 agency people and 20 nongovernmental people to review the management practices he uses for his livestock operation. Following the tour, which took most of the morning and which included several stops to discuss what we were seeing, the local Cattlewomen's Association presented a completely homemade barbecue lunch. The trip was far more successful than we thought possible and the best way we could have kicked off the Association. Later that year, we officially presented our first riparian excellence award to Bill Trampe for his efforts to maintain a functional riparian area, and, unofficially, for his leadership in providing the site of the first field trip.

A Year's Activities

The Association emphasizes information and education activities because we think poor communication is the most significant barrier to meeting our goals. These activities included three newsletters in 1990-91, three co-sponsored workshops, the second annual conference, three field trips, a slide-tape program that has been produced and shown in several forums, and a promotional brochure.

The third annual conference took place in Pueblo, November 6-9, 1991. The theme was "Riparian: What Does It Mean To Me?" The conference featured speakers with views from grazing, mining, fisheries, non-game, and water-user interests. The program also included information on management of grazing livestock to protect riparian areas, understanding stream geomorphology to restore stream systems, and restoring riparian areas using beavers and planting dormant trees and shrubs.

We have other projects on the horizon, such as a brochure showing riparian area management successes that will be co-produced with the Bureau of Land Management, Trout Unlimited, Chaffee County Cattlemen's Association, and Canon City Grazing Advisory Board. Finally, the Association has been accepted as a voting member of the Colorado Nonpoint Source Pollution Task Force.

Money and Membership

The organization is based on membership, which at this time requires a $15/year dues. We are pleased with the diversity of our membership, which now numbers at least 150. The present officers come from the Bureau of Land Management, the Environmental Protection Agency, the Colorado Cattlemen's Association, and The Nature Conservancy. The membership comes from a wide range of interests throughout most of Colorado although we do not have

members from extreme eastern Colorado. The membership provides for most of our financial resources.

So far, the annual conference has been a small moneymaker, but more importantly, it has been an attractant for new members. The members receive the newsletter, a reduced registration fee (which also serves as annual dues) at the conference, free or reduced fee field trips which are organized for membership benefit, and the use of materials produced by the Association. They also gain the knowledge that they are supporting activities to promote awareness and wise management of riparian areas.

Other sources of financial contributions are governmental agencies, which support the activities of the people involved, provide postage and materials, and co-sponsor the annual conference.

The Colorado Cattlemen's Association has generously mailed all issues of the newsletter and the Colorado-Wyoming Chapter of the American Fisheries Society co-sponsored the 1991 annual conference. Ducks Unlimited donated a copy of the "Governor's Wetlands Relief Stamp" print for raffles at the 1990 and 1991 conferences. The Society for Range Management, the Wildlife Heritage Foundation, and The Nature Conservancy also provide financial and technical assistance. Finally, the Association has exchanged organizational memberships with the Wildlife Society and expects to assist each other with conferences, field trips, and educational materials. We would like to pursue more membership exchanges. I would like to see, for example, a three-way agreement with the Wildlife Society and the American Fisheries Society to strengthen cooperative action, including educational workshops and statements of resolution. The Association has applied for non-profit status but has not yet received notification of that status.

The Members Make The Organization

As with many organizations, the Association owes the success of its activities to a few people who fit in their contributions with needs of their jobs and personal lives, in addition to those who support the Association with their annual dues. As you might expect, many of these people are governmental people who can get support for the time, office and materials to continue the Association's efforts. I am the editor of the newsletter, and I need to put out a newsletter that appeals to a wide range of people, particularly people not employed by governmental agencies. I would like some ideas from nongovernmental interests. Despite appeals to readers for their views, contributions are few, so the newsletter continues to come exclusively from my perspective as a federal employee.

Until we can recruit more people to contribute, or find other ways to finance our proposed activities, we cannot produce many more products or other accomplishments within any single period. We have been slowly finding more people to take on more work, but a couple of projects are waiting for people to be available. One of these projects is a guide to healthy riparian areas under different types of management. Many more field trips could be put together if we had the people to plan and coordinate them. The Association could bring its slide-tape program and materials to more conferences and symposia with a little more effort to recruit the people to attend these conferences. We would also like to reach out to eastern Colorado through workshops or field trips.

The Association is building momentum, and we have a flood of ideas and enthusiasm. Sometimes it is frustrating to be unable to fully capitalize on the initiative because of time and people limitations. These are, hopefully, just the growing pains of a new organization. The success of many projects often depends on one competent coordinator. Therefore, we will be seeking funding to employ a teacher (either during the summer or for a sabbatical leave period) who can follow through on many of the ideas that are generated and make sure that projects are finished.

Some Issues of Concern

One of our biggest concerns is getting involvement from the private sector. Sometimes it seemed that very few people know what the word 'riparian' means. Private landowners may feel threatened by this unfamiliar word and an organization devoted to it. Most of the active members of the Association are government employees because of their ability to promote the Association in their jobs. However, we feel that the success of the Association hinges on how well we meet the needs of nongovernmental people and demonstrate that the Association is meant to help them, not hurt them.

The Present and Future of The Colorado Riparian Association (continued)

Another issue that has come up (but which we have not addressed) is whether we should encourage the formation of chapters. This question came about because at the same time that the statewide organization was developing, the Northwest Colorado Riparian Task Force was coming together. This small group with a wide range of interests is not membership-based, but its goals are very similar to the Association's. The Task Force has developed a slide-tape program, a brochure patterned after the Montana Riparian Association brochure, and a newsletter using a grant from the Colorado Department of Health through its nonpoint source pollution program. These materials focus on riparian areas and successful management in northwest Colorado.

As a member of the Northwest Colorado Riparian Task Force, I encouraged the group to apply for a §319 nonpoint source grant. I felt that the closer we could focus on the local areas, the more people would relate to them and the more receptive they would be to learning new management practices.

However, there is also a very important role for a statewide membership-based organization. The statewide group can pull together more diverse interests, provide a more encompassing perspective, make a greater impact on policy-makers, and be more attractive to funding sources. I am in favor of chapter formations in order to encourage the benefits of local support under the coordination of a statewide association. The Colorado Riparian Association can then represent the state in regional or even national efforts that promote proper riparian management.

A Concluding Observation

The Colorado Riparian Association is an exciting organization. We have enough support and financial resources to increase our visibility and activities. We are only limited by the number of members providing annual dues and time. For me, it has been a terrific place to contribute to an improvement in the restoration and preservation of functional riparian areas. I especially prize the professional relationships with people from particular organizations that otherwise could never have developed. We do not agree perfectly on all issues, but we do agree on the goals of the Association, and we can talk. I hope that this little bit of progress is an indicator of overall success, and it suggests that the Colorado Riparian Association will someday realize its goals.

[For more information, contact: Karen Hamilton, U.S. EPA, Region VIII (8-WM-WQ),One Denver Place, 999 18th Street, Denver, CO 80202-2413. Phone: (303) 293-1576.]

Notes on Watershed Management

Kids' Posters Illustrate Watershed Protection Calendar in San Diego

Twenty-eight thousand English- and Spanish-speaking residents in San Diego's urban Chollas watershed opened their mailboxes recently to find brightly illustrated 1992 calendars full of tips for preventing nonpoint source pollution.

The bilingual calendars are part of the Chollas Creek Watershed Protection Demonstration Project, coordinated by the Environmental Health Coalition (EHC). Capitalizing on the "domino effect," the Coalition first educated teachers about urban runoff; teachers taught children about it, and finally, the kids themselves put their artistic talents into producing over 200 vivid posters about watershed protection. Twelve drawings were chosen to illustrate the calendar, which was sent to every household and business in the culturally diverse watershed area.

The project's goal is to reduce nonpoint source pollution in Chollas Creek and San Diego Bay. Each page of the calendar provides solid information about actions watershed residents can take to prevent pollution. Suggestions in both Spanish and English range from not littering to instructions on when, where and how participate in local household hazardous waste collection. Residents are urged to be assertive in defense of their water. "Visit businesses in your neighborhood and ask them about their pollution prevention practices," suggests one sidebar. Another provides an 800 phone number for reporting cars with excessive exhaust.

EHC will be monitoring participation in household hazardous waste collections and oil-recycling as measures of the project's success. The last hazardous waste event was poorly

Kids' Posters Illustrate Watershed Protection Calendar in San Diego (continued)

attended, but EHC expects the next one, in June, to be more successful as a result of the watershed outreach project.

The Chollas Creek Watershed Protection Project is funded in part by EPA Region 9, through the California State Water Resources Control Board and by the Nathan Cummings Foundation. It is funded under section 319 as a model for community education projects. Jovita Pajarillo, Region 9 Nonpoint Source Coordinator, called the project "unique" and said that it had high potential for transfer to multicultural areas in other regions.

The calendar is only a single component of a comprehensive water quality improvement plan. Other outreach efforts include a watershed protection guide, a watershed awareness day, and signs throughout the area denoting the watershed boundaries. In addition to the poster contest, teacher training and educational materials tied in with the calendar, a student monitoring program will be developed in the schools.

The project also targets the Chollas business community, where storekeepers receive a window decal if they participate in pollution prevention practices. A final component involves installation or improvement of pollution control structures, especially in redevelopment projects.

The calendar was the brainchild of EHC's Sonya Holmquist. EHC was looking for outreach materials they could mail. The calendar idea took off because "instead of recipients throwing it away, they could put it on the wall and use it," according to Chollas Creek Program Director Laura Hunter. "Nonpoint source pollution is a big subject to digest all at once. This way, they can get a little each month."

While spelling may need a little work and stick figures abound, many of the children's pictures demonstrate an acute understanding of urban runoff sources and effects. Posters depict householders tossing solid waste and hazardous wastes into surface waters while fish, birds and other animals plead, "Don't use chemicals, please!" and "Do you know what you're doing to me and yourself?"

"These pictures show that kids care deeply about their environment and understand their connection to it and responsibility for it," Hunter said. Throughout the calendar, plants, animals, the waterbody itself, are shown as innocent victims of human carelessness. Even the sun, in one drawing, gazes sadly at pond full of dead fish. The children, all in the third through sixth grades, are clearly concerned about tommorrow's environment. One young artist who drew a bay choked with garbage, metal drums and bottles wondered, "Is pollution taking over our future?"

Chief Seattle, whose words are quoted each month in the calendar, must have considered the same thing when he warned,

> *Contaminate your bed, and you will one night suffocate in your own waste...*
>
> *Contamina tu cama, y una noche te sofocarcas en tu propia contamincion...*

[For more information, or to request a calendar (while supplies last), contact Laura Hunter, Environmental Health Coalition, 1717 Kettner Blvd., Suite 100, San Diego, CA 92101]

Agricultural Notes

ASCS Releases Guidelines for Designation of Additional Conservation Priority Areas

U.S. Department of Agriculture's Agricultural Stabilization and Conservation Service (ASCS) on December 30, 1991, issued guidance for designation of additional areas as "Conservation Priority Areas" under the Conservation Reserve Program (CRP).

The Food, Agriculture, Conservation and Trade Act of 1990 designated the watershed areas of the Chesapeake Bay, the Great Lakes region, and Long Island Sound as conservation priority

ASCS Releases Guidelines for Designation of Additional Conservation Priority Areas (continued)

areas for CRP purposes. The Act also allows for designation of additional conservation priority areas, and the guidance provides the procedures for designating such areas. The purpose of such designations is to maximize the water quality and habitat benefits of the implementation of CRP by promoting a significant level of enrollment of lands within such designated watersheds.

The guidance calls for state water quality agencies to develop and submit applications for designation of conservation priority areas within their state. Also, to maximize water quality and habitat benefit, the guidance calls for conservation priority area applications to be limited to "high priority watersheds within designated 319 areas," and for no more than five applications or a total of 100,000 acres per state.

"We are hopeful that designation of additional conservation priority areas will lead to greater targeting of CRP to areas where significant water quality benefits can be achieved," said Dov Weitman, EPA's Nonpoint Source Control Branch Chief. Presently, about 35 million acres of eligible cropland have been enrolled in CRP, according to the ASCS document.

[For more information, contact Jack Webb, Chief, Land Retirement and Water Quality Branch, USDA-ASCS, PO Box 2415, Washington, DC 20013.]

USDA-ASCS Announces Funding for Water Quality Special Projects

On February 13, Secretary of Agriculture Edward Madigan announced the U.S. Department of Agriculture will provide $6.75 million authorized by the 1990 Food, Agriculture, Conservation and Trade Act (often referred to as the 'farm bill') to fund payments to producers who want to implement Water Quality Incentive Practices (WQIP) under USDA's Agricultural Conservation Program (ACP). Agricultural Stabilization and Conservation Service (ASCS) will administer the WQIP program.

"This is a new approach to enhance the nation's water quality," Madigan said. "It will be implemented by establishing WQIPs within existing USDA Water Quality Demonstration Projects, Hydrologic Unit Areas, and 1991 Water Quality Special Projects."

The WQIP provides both technical and financial assistance for producers to change management systems to reduce nonpoint source agricultural pollutants. A complete farm water quality resource management plan will be developed for producers who enroll in the WQIP. "This plan will spell out management changes necessary to enhance water quality," Madigan said. "The plan may provide for various practices, such as integrated crop management, soil testing, field scouting, irrigation water management, waste utilization, range management and conservation cropping systems."

Well-testing of rural household wells and record-keeping on tillage, pesticide, nutrient, insect, weed, and disease conditions present on a field-by-field basis are eligible for WQIP funding. Assisting ASCS with WQIP will be USDA's Soil Conservation Service and Extension Service, local conservation districts, and state water quality agencies. A long-term agreement will be developed with the producer, approved by the county ASCS committee, and signed by the producer. Length of the agreement will generally be three years.

WQIP payments are limited to $3,500 per person per year. Any WQIP payment will be limited by any payments made under the ACP during the same year because WQIP is a part of the ACP. Producers should contact their county ASCS office for further information. The signup period began February 3, 1992.

[For additional information, contact: Mike Linsenbigler, Program Specialist, USDA-ASCS-CEPD, Washington, D.C. 20013. Phone: (202) 690-0224.]

Iowa Corn Producers Cut Nitrogen Use in A Big Way

In 1989 and 1990, Iowa farmers reduced their nitrogen applications by 200 million pounds per year, according to Jerry DeWitt, Iowa State University (ISU) Extension Director for Agriculture. Elsewhere in the Corn Belt, nitrogen fertilizer rates have remained steady at about 140 pounds per acre or have increased, according to the National Agricultural Statistics Service. Average nitrogen per acre in Iowa fell from 145 pounds in 1985 to less than 130 pounds in 1990.

In a December 1991 press conference, the ISU Extension Service and cooperative agencies reported that a decade of focused water quality education programs are making a difference. Water quality educational programs emphasized showing farmers effective ways to use nitrogen fertilizers, other crop nutrients, pesticides and animal manure. They established

demonstrations on farmers' fields, provided them with individual help in refining their practices, and linked farmers to each other so they could exchange information. Agricultural programs in farm management, many created by the 1987 Iowa Groundwater Protection Act, have touched nearly every Iowa county. The programs also spurred university-level research on sustainable agriculture topics and conveyed the results to farmers. One development was the calibration of a soil nitrate test that pinpoints the amount of nitrogen fertilizer actually needed by corn plants.

"With these programs, Iowa farmers have begun looking at nitrogen use in a new light," said DeWitt.

"It was the outreach efforts that made the difference in Iowa farming practices," said George Hallberg of the Iowa Department of Natural Resources (DNR), citing the numerous field days and public meetings held to promote the new practices. Hallberg also noted that intensive marketing and information efforts had extended the research and demonstration results to a larger audience.

Decade of Water Quality Programs Pays Big Dividends

The decade of agricultural water quality programs brought big dividends, according to the state officials. The state spent about $11 million from 1980 to 1990 to educate Iowa farmers on how to use fertilizer more efficiently while maintaining yields and profits. Every dollar spent for education saved farmers eight dollars in fertilizer costs. The nitrogen reductions of 1989 and 1990 saved farmers $80 million.

The success of Iowa's demonstration programs for nitrogen management was confirmed by surveys of farmers' attitudes as well as by their farm management practices, and state and national data on nitrogen use, according to an inter-agency report.

The results of the demonstration and implementation projects were widely distributed through various education and media efforts, field days, self-guided tours, special newsletters, meetings, press releases, and radio and TV spots.

A December 1991 progress review on Iowa's implementation of refined nitrogen management practices reported that over 100 field days with attendance over 5,000 were held in a typical year. Up to 19,000 more people were reached through group meetings and self-guided tours. News releases targeted some 600 local and regional outlets.

Along with ISU Extension, Iowa Department of Agriculture and Land Stewardship, and DNR, others involved with the programs were USDA-Soil Conservation Service, ISU's Leopold Center for Sustainable Agriculture, the Iowa Agricultural and Home Economics Experiment Station, and the Iowa Fertilizer and Chemical Association. Julie Elfving, EPA Region VII Nonpoint Source Coordinator, serves on the advisory council overseeing these programs.

State Extension Agronomist Gerald Miller provides Extension leadership in the water quality education and demonstration activities. Section 319 funding supported the Iowa nitrogen management program. (The Big Spring Basin Demonstration Project, in northeast Iowa, as well as the Model Farm Demonstration Program, were reported in *News-Notes* #3).

More Work to be Done

"We need this momentum to continue because there is still more work to be done," said Iowa Secretary of Agriculture Dale Cochran, warning, however, that federal oil overcharge funds financing the programs will expire in 1992.

Indicating areas where improvements are still needed, Cochran said farmers could do a better job crediting nitrogen from crop rotations and manure applications, as well as gearing fertilizer application to actual crop needs. For example, data supplied from nitrate soil tests sent to the ISU Soil Testing Laboratory in 1989 and 1990 indicate that at least 32 percent of the soils sampled did not need additional nitrogen for optimal yields.

State surveys show that nitrogen use in Iowa could clearly be reduced by greater amounts. Considerable refinements are feasible through use of realistic yield goals and appropriate crediting for rotation and manure benefits. Further development of soil test methods are also needed. For major reductions to take place, however, continued program support will be

Iowa Corn Producers Cut Nitrogen Use in A Big Way (continued)

required, as will major efforts by Iowa agri-business to provide services to farmers that promote efficient nitrogen use.

[For additional information, contact: Gerald Miller, Water Quality Coordinator, 2104 Agronomy Hall, Iowa State University, Ames, IA 50011. Phone: (515) 294-1923. Or contact: George Hallberg, Supervisor, Environmental Geology Section, Iowa Department of Natural Resources, 123 N. Capitol St., Iowa City, IA 52242. Phone: (319) 335-1575.]

Some Nebraska Farmers Face Ban On Fall Fertilizer Application

A plan to reduce nitrate-nitrogen in groundwater has added new restrictions to existing regulations on corn and grain sorghum production in Nebraska's Platte River Valley. The new, tighter regulations were imposed by the Central Platte Natural Resources District January 1.

Central Platte NRD is one of 23 Natural Resource Districts in Nebraska. NRDs are organized according to major river basins, and each is governed by a locally-elected board of directors. NRDs are responsible for soil and water conservation, flood control, erosion control, tree planting and groundwater quality.

NRDs may establish Groundwater Quality Management Areas (GWQMAs) to reduce the impact of agriculture on groundwater quality, and they may impose regulations that address nonpoint source groundwater quality concerns. The Central Platte NRD, the first to use GWQMAs to control agricultural nitrates, has three phases of regulation based on the levels of nitrate-nitrogen in the groundwater.

Phase I is least restrictive and requires farmers using nitrogen fertilizer to be certified. It bans fall nitrogen applications on heavier soils and bans fall and winter applications on sandy soils.

In Phases II and III, the district is trying to improve coordination of fertilizer application to crops' nitrogen needs. Two methods are part of the strategy: one is to apply nitrogen fertilizer in split applications, and the other is to use nitrogen inhibitors when nitrogen fertilizer is applied pre-plant.

Central Platte NRD's Phase II farmers must adhere to Phase I restrictions **and** have soil and water tested for nitrate-nitrogen concentrations. Phase II farmers must attend a class on BMPs, and get board approval to fertilize in late fall or winter. The new restriction allows Phase II farmers to apply nitrogen fertilizer to heavy soils after November 1, but requires them to use an approved nitrogen inhibitor, which slows the conversion of ammonia to nitrate.

Phase III area regulations include some of those for Phases I and II and prohibit application of commercial fertilizers on all soils before March 1 of the year as well. Phase III farmers must split applications of spring fertilizer or apply fertilizer with an approved inhibitor. They are also required to use an inhibitor if they apply pre-plant fertilizer. Besides the fertilizer requirements, Phase II and III require irrigation water applications to be monitored and managed so operators can control nitrate leaching.

These Central Platte NRD regulations apply only to corn and grain sorghum. Other crops are exempt from the requirements, but farmers who use a rotation that includes corn and grain sorghum must be sure that they are in compliance when those crops are grown. Farmers in Phase II and III areas are required to submit annual reports for each well and each corn or grain sorghum field. The reports include the following information:

- Water analysis results
- Deep soils analysis results
- Crop yield goal
- Commercial nitrogen fertilizer recommendation
- Actual fertilizer rate applied
- Amount of water applied
- Actual yield

Central Platte NRD directors are encouraged by the Phase II reports for the first three years of the program (1988-1990 crop years). Water tests indicate that the average level of nitrates did not rise (and actually registered a slight decline) throughout the three-year period.

Some Nebraska Farmers Face Ban On Fall Fertilizer Application (continued)

A separate state program complements the GWQMA program in combatting high groundwater nitrate levels. Nebraska law provides that if NRDs do not resolve groundwater problems, the Nebraska Department of Environmental Control (DEC) is given the authority to come in with its own program, the Special Protection Area Program.

Two Special Protection Areas (SPAs) have been established in Nebraska, and three others are under consideration, according to Marty Link, Program Specialist, Nebraska Department of Environmental Control. Under the program, an NRD is required to develop an action plan to address nonpoint source groundwater contamination. The plan must include an educational plan to make the public aware of the problem and its possible solutions. In addition, at least one of the following must be included in the plan:

- A requirement that water users participate in the educational program
- A requirement that certain best management practices be used
- Any other reasonable requirements necessary to deal with the problem

Both the GWQMA program and the SPA program aim to reduce nonpoint source contamination of ground water from agricultural inputs. Public participation and attitudes have been positive, Link said. She feels that the local NRDs and the state DEC have successful in working together in both programs.

[For additional information, contact: Marty Link, Program Specialist, Department of Environmental Control Groundwater Section, P.O. Box 98922, Lincoln, NE 68509. Phone: (402) 471-4230. Or contact: Milt Moravek, Projects Director, Central Platte Natural Resources District, 215 N. Kaufman Ave., Grand Island, NE 68803. Phone: (308) 381-5825.]

Video Reviews

New Video Challenges Legislators To Take Action on NPS

"Nonpoint source pollution is more than just an eyesore," points out a new video aimed squarely at state and local decision makers. "It contaminates well water and can cause illness in those who drink it—especially children."

Clean Water, Clear Choices: The Challenge of Nonpoint Source Pollution, produced and released recently by the National Association of Conservation Districts, EPA's Nonpoint Source Control Branch and Region 3, describes nonpoint source pollution and sketches its results with dramatic footage of the silted-in and trash-clogged Anacostia River and Delaware's Inland Bays.

The video makes it clear, however, that NPS isn't merely an aesthetic problem; it hits legislators where it hurts: the health of their citizens and economies. A closeup of a "NO CLAMMING" sign in Delaware's Indian Bay and shots of a silted-in marina illustrate damage to local economies. Even closer to home is an interview with a daycare provider whose water is contaminated by nitrates.

After a revealing tour of NPS-wasted resources, the video explores solutions. It shows how structural BMPs in the urban Anacostia watershed effectively filter out contamination and slow streambank erosion. The video's narrator warns, "To save the river, many more BMPs are needed throughout the watershed. But so far, the money to do that just isn't there."

Clean Water, Clear Choices examines nutrient management practices on farms and plainly states the action needed:

> *[BMPs] need to be implemented on a far wider scale to have any serious effect on nonpoint source pollution. And widespread implementation requires a major commitment of people, time and money. So far, that commitment hasn't been made..*
>
> *Yet it must be made, if we're serious about stopping this growing threat to our health, recreational facilities, and local economies.*

New Video Challenges Legislators To Take Action on NPS (continued)

Professionally produced, the video uses music, script and expertly-selected photography to create an absorbing, thought-provoking documentary. Despite the artistic finesse and the nontechnical language, this video is no lightweight. It is a polished vehicle that conveys a serious message: the technology for clean water exists; states and localities make the choice to implement it.

NOTE: NACD will distribute *Clean Water, Clear Choices* through its network of state associations and conservation districts. EPA will provide copies through its regional offices and NPS coordinators in state agencies. In addition to its primary audience, the video is also intended for members of conservation districts, other governmental and private organizations, and the general public. Running 13 minutes, the video is also an appropriate length for public television broadcasts. EPA and NACD have 3/4" tapes available for loan to TV stations. A simple brochure accompanies each copy of the video. It briefly describes nonpoint source pollution and lists state, NACD and EPA contacts for each state.

[For more information, contact: Ed Richards, Nonpoint Source Control Branch (WH-553), U.S. EPA, 401 M St., SW, Washington, DC 20460.]

People Making A Difference

A new video entitled *People Making a Difference* tells the story of the highly successful Big Spring Basin Demonstration Project in northeast Iowa. It all began when area farmers learned their drinking water, which is obtained largely from groundwater, was becoming contaminated with nitrates, bacteria, and the herbicide atrazine. Jerry Spykerman, manager of the Iowa Department of Natural Resources fish hatchery, reported ammonia and nitrates in Big Spring water used for the hatchery. He feared that pesticides were likely to become a greater problem in the future.

Soil Conservation Service agents worked with farmers to determine the best conservation and agricultural chemical practices available for each farming situation while maintaining crop yields, and wrote the long-term agreement contracts with the farmers. Scientists tested soils to determine the optimum amount of fertilizer needed. State and federal cost-share funds were available for construction of terraces and alternate soil erosion control methods.

A demonstration project was set up so other farmers could see for themselves how the project was working and how it might apply to their own farms. With the interest and cooperation of the area's farmers, monitoring started in 1981.

The Big Spring Basin was ideal for this study because more than 90 percent of the groundwater discharge comes out at one point — Big Spring, the largest natural spring in Iowa. The region is 85 percent agricultural with no large towns or industries. The many limestone formations found throughout the area create a subtle karst topography.

According to Julie Elfving, EPA Region VII NPS Program Manager, while water quality improvements can be seen on a small scale on research plots, it will be some time before such changes will be seen on a basin-wide scale. Even so, farmers interviewed in the video seemed pleased to be doing their share to protect the environment, and some reported 50 percent reductions in planting costs because of reduced fertilizer and pesticide use.

EPA Region VII has been a supporter of the Big Spring Project since the early 1980's. Also cooperating in the project were the Iowa Department of Natural Resources, Iowa State University Extension Service, SCS and ASCS, Iowa Department of Agriculture and Land Stewardship, USGS and the University of Iowa Hygienic Lab.

This video was produced using a small ($10,000) grant from EPA, and in-kind contributions from the Iowa State University Extension video production staff. Farmers and local agency representatives will find it of interest as they seek to deal with their own pollution problems.

[How to obtain copies: The video runs 20 minutes and is available free of charge as long as supplies last. Order from EPA Region VII, 726 Minnesota Avenue, Kansas City, KS 66101, or Iowa State University Extension Service, Iowa State University, Ames, IA 50011. It is also available on loan from the Nonpoint Source Program in each EPA Regional Office.]

Every Time It Rains

Protecting water quality is everyone's responsibility. That is the message conveyed by *Every Time it Rains*. This excellent short (15:41) video produced by the Center for Mathematics, Science, and Environmental Education of Western Kentucky University teaches lay people that each person can make a difference and pass along a better environment to future generations.

Low rolls of thunder and a spectacular flash of lightening paint an attention-getting scene as the video begins. Soft guitar music provides a pleasing background as the water cycle is described and the concept of watersheds explained.

Typical Kentucky watersheds are shown on a map, and their topography is described. The pollution problems of each area are identified. In most cases, the types of pollution described are not unique to individual watersheds, but beset many areas of the state. While *Every Time It Rains* features Kentucky watersheds, many parts of the United States are facing similar problems. The video illustrates the various forms of nonpoint source pollution and explains how pollution controls can solve the problems caused by particular land uses.

For example, the Big Sandy Basin featured in the video contains abandoned coal mines. Viewers learn that runoff from the mines is contaminated with sulfur. Such runoff poses a threat to all life downstream. The video shows how trees and groundcover can reduce pollution caused by mining.

Agricultural nonpoint source pollution controls are illustrated by no-till farming, strip cropping, and lagoons controlling runoff from animal feedlots in the Licking River Basin.

In the Lower Cumberland and Tradewater basins, with their large, flat fields of rich soil, agricultural pesticides and fertilizers are heavily used and contribute to nonpoint source pollution. The video explores how farmers in the area are beginning to use cultural methods of pest control. They rotate crops and time planting and harvest according to life cycles of certain pests.

The video does not neglect polluting runoff associated with development, either. It explains how large amounts of soil create sediments in streams as a result of home building; excess pesticides and fertilizers used on lawns find their way into rivers; motor oil and chemicals used to reduce highway ice wash into the watershed; and carelessly discarded trash adds to stream pollution. Viewers are encouraged to use fewer pesticides and fertilizers and to use trash containers for waste disposal.

Another source of groundwater and surface water pollution in Kentucky is associated with the state's unique geology. The video explains that when oil is pumped out of the ground, salt water comes to the surface. The Green River Basin's characteristic limestone erodes naturally, leaving sinkholes and caves that are paths for polluted surface water to find its way into groundwater. The video shows how dyes are used to trace the route.

Every Time It Rains was produced in cooperation with the Kentucky Department of Education, National Park Service-Mammoth Cave National Park, Soil Conservation Service, and the Department of Agriculture of Western Kentucky University. While the video is targeted at the general public, it is also appropriate for upper elementary- and middle school-age children.

[For further information, or to borrow or purchase the video, contact: David Rome, Kentucky Division of Water, Nonpoint Source Section, 18 Reilly Road, Frankfort, KY 40601. Phone: (502) 564-3410.]

A Correction

George Eberling's Phone Number

In Issue #18 (January–February 1992), we ran a story on forestry in the Monocacy River watershed. Unfortunately, we gave the wrong phone number for George Eberling, Monocacy Watershed Forester. The correct phone numbers are: (301) 416-7261 or (301) 791-4010. The mailing address and the FAX number that are listed in the article are correct. Our apologies.

Datebook

This DATEBOOK has been assembled with the cooperation of our readers and the Conservation Technology Information Center, 1220 Potter Dr., Rm. 170, West Lafayette, IN 47906-1334. If there is a meeting or event that you would like placed in the DATEBOOK, contact the *NPS NEWS-NOTES* editors. Due to an irregular printing schedule, notices should be in our hands at least two months in advance to ensure timely publication.

MEETINGS AND EVENTS

1992

March

10 — *National Monitoring and Evaluation Conference and Nonpoint Source Workshop*, Chicago, IL. Contact: Bob Kirschner, Northeastern IL Planning Comm., 400 W. Madison St., Chicago, IL 60606. (312) 454-0400. Registration is $85. Workshop is sponsored by U.S. EPA Region V and Center for Environmental Research Information, Northeastern IL Planning Commission, USDA SCS, CTIC, and Oklahoma Conservation Commission. Sessions include: how to measure the biological impacts of nonpoint source pollution, local progress evaluation towards USDA's Water Quality Initiative, national water quality monitoring guidance, immunoassay methods for pesticides in water. Also, riparian area management and assessment, linking sources and control strategies in urban watersheds, and Coastal Zone Management Program. Note: The Great Lakes Nonpoint Source Workshop on March 10 precedes the conference.

16-17 — *Living With Wetland Policies and Politics: 1992 Nebraska Water Conference*, Lincoln, NE. Contact: Bob Kuzelka, 103 Natural Resources Hall, University of Nebraska, Lincoln, NE 68583-0844. (402) 472-3305. There are 12 different registration options, ranging in cost from $10 to $80. There is also a free 2-hour workshop on wetlands management for landowners. Topics: Hydrology and soil of wetlands; nature of Nebraska wetlands including rainwater basins, sand hills, saline and riparian; Nebraska wetlands as bird and wildlife habitat; economic impacts of Nebraska wetlands on land, farm programs, and land rights; legal justification and regulatory problems of wetlands; etc.

19-21 — *NALMS First Annual Southeast Regional Lake Management Conference: The Benefits of Lake and Reservoir Management*, Marietta, GA. Contact: NALMS, 1 Progress Blvd., Box 27, Alachua, FL 32615. (904) 462-2554. 462-2568. Sessions include: Clean Lakes Program, The Role of the Public in Lake Management, Lake Management and Restoration, Lake and Stream Assessment. There will be field trips to Lake Allatoona and two modern treatment facilities. Environmental ed workshop included.

24-26 — *1992 State/EPA Water Quality Data Assessment Seminar*, Wagoner, OK. Contact: Charlie Howell, Regional Monitoring Coord., (6E-SA), U.S. EPA Region 6, 1445 Ross Ave., Suite 1200, Dallas, TX 75202. (214) 655-2289. Contact Charlie Howell for registration form. Sponsored by U.S. EPA Region 6. Topics will include wet weather monitoring techniques and data analyses, among other topics of interest.

25-26 — *North Dakota Water Quality Symposium*, Bismarck, ND. Contact: Bruce Seelig, Water Quality Specialist, Ag Engineering 115, North Dakota State University, Box 5626, Fargo, ND 58105. (701) 237-8690. The symposium will provide a forum for both professionals and nonprofessionals to exchange research, information and ideas on a range of water quality topics from health to economic development.

25-26 — *Water Quality Standards on Indian Lands*, Denver, CO. Contact: Patti Morris, Office of Science & Technology, U.S. EPA (WH-585), 401 M St., SW, Washington, DC 20460. (202) 260-9830. Sponsored by U.S. EPA. Purpose: To assist Indian Tribes to develop Water Quality Standards.

29-4/2 — *Third National Citizens' Volunteer Water Monitoring Conference*, Annapolis, MD. Contact: Volunteer Monitoring Conf., IWLA, 1401 Wilson Blvd., Level B, Arlington, VA 22209. (703) 528-1818. The conference will provide a hands-on approach to learning by offering over 25 workshops, panel discussion and field trips. Trainers will teach participants how to organize projects, use different monitoring methods, analyze data and work with agencies.The theme of this conference is "Building Partnerships in the Year of Clean Water." It is sponsored by the U.S. EPA, Izaak Walton League of America, Alliance for the Chesapeake Bay and America's Clean Water Foundation.

April

5-8 — *Organizing for the Coast: Coastal Society Annual Conference*, Washington, DC. Contact: Lauriston King, Office of University Research, Texas A&M University, College Station, TX 77843. (409) 845-1811.

12-16 — *Availability of Groundwater Resources*, Raleigh, NC. Contact: Robert C. Borden, Technical Comm. Chair, Dept. of Civil Engineering, North Carolina State Univ, PO Box 7908, Raleigh, NC 27895. (919) 515-7665.

1992

April

13-16 *National Wildlife Criteria Methodologies Meeting,* Charlottesville, VA. Contact: Lisa Grayson, JT&A, 1000 Connecticut Ave., NW, Suite 802, Washington, DC 20036. (202) 833-3380. Make conference registration by 3/6. Make room reservations at Boar's Head Inn in Charlottesville by 3/13 to receive special rate of $79 per day, including meals. Comfortable clothing suggested. EPA has been working with the Fish and Wildlife Service to develop water quality criteria that are protective of wildlife. This EPA-sponsored meeting will offer a forum for presentation, evaluation, and discussion of proposed ways for defining criteria. The meeting will bring together experts from the fields of wildlife toxicology, aquatic toxicology, environmental risk assessment and regulatory water policy. Participants are limited to 40 invitees. Other interested individuals are welcome as observers. Observers will have an opportunity during the meeting to provide input. Participants and observers will be provided with background materials.

13-15 *1992 Virginia Water Resources Conference,* Richmond, VA. Contact: Elizabeth Crumbley, VA Water Resources Research Center, VA Polytechnic Inst. & State U, 617 North Main St., Blacksburg, VA 24060-3397. (703) 231-8038. Topics: water supply management, groundwater and surface water management, land-use management, stormwater regulations, and wetlands regulation and mitigation. Also, wastewater treatment, computer modeling, instream flows, and flood control.

May

6-8 *Enhancing the States' Lake Management Programs: Strengthening State and Local Interactions,* Chicago, IL. Contact: Bob Kirschner, Northeastern IL Planning Comm., Natural Resource Dept., 400 Madison St., Room 200, Chicago, IL 60606. (312) 454-0400. Topics planned include: Building links among state lake associations and environmental agencies, state lake association roles in developing state-sponsored lake programs, integrating state and local lake and watershed protection programs. Also, sediment contamination criteria and their use in lake restoration decision-making, overview of the new wetland delineation procedures, using TMDLs for lake protection and many other topics. Conference is sponsored by the U.S.EPA, Clean Lakes Program, Northeastern Illinois Planning Commission, and the North American Lake Management Society.

26-29 *1st International Conference on Groundwater Ecology,* Tampa, FL. Contact: American Water Resources Assoc., 5410 Grovesnor Lane, #200, Bethesda, MD 20814-2192. (301) 493-8600. Sponsored by U.S. EPA, the American Water Resources Association, and the Ecological Society of America. Many registration options available; register by 3/27 for lowest cost. Call Sheraton Grand Hotel (813) 286-4400 for rooms. Sessions include: EPA's Perspective, Groundwater Ecology Overview, Demonstrating the Ecological Connectivity Between the Channel and Floodplain Aquifers in Gravel-Bed Rivers, Groundwater Faunas at Riverine Sites Receiving Treated Sewage Effluent, etc.

27-29 *Forest Practices and Water Quality Workshop,* Green Bay, WI. Contact: Edward Eckert, Forest Resource Planner, Forest Management Division, MI Dept. of Natural Resources, PO Box 30028, Lansing, MI 48909. (517) 335-3351. Sponsored by the Lake States Forestry Alliance. Purpose: To develop ways of properly addressing the intent of the CWA as directed at timber harvesting and its effects on groundwater and surface water quality in MI, MN, WI. Focuses on costs, monitoring, tech transfer, and compliance in implementation.

28-30 Clinch-Powell River Basins Conference, Harrogate, TN. Contact: Andrew Barrass, Tennessee NPS Program, 150 9th Ave., TERRA Bldg., 5th Floor, Nashville, TN 37243-1534. Phone: (615) 741-7883. Bi-state conference on the protecting the natural resources of the area.

June

15-17 *Remote Sensing for Marine and Coastal Environments,* New Orleans, LA. Contact: Nancy Wallman, ERIM/Marine Environment Conf., PO Box 134001, Ann Arbor, MI 48113-4001. (313) 994-1200. Theme: "Needs and Solutions for Pollution Monitoring, Control and Abatement."

15-17 *Uncovering the Hidden Resource: Groundwater Law, Hydrology, and Policy in the 1990s,* Boulder, CO. Contact: Katherine Taylor, Campus Box 401, Boulder, CO 80309-0401. (303) 492-1288 . Meeting will be held in conjunction with the Rocky Mountain Groundwater Conference and will address both legal and engineering issues.

28-7/2 *National Forum on Water Management Policy,* Washington, DC. Contact: Martin Reuss, HQ, U.S. Army Corps of Engineers, Office of History, Kingman Bldg., Fort Belvoir, VA 22060-5577. (703) 355-3560.

July

23 *12th Milan No-Till Field Day,* Milan, TN. Contact: John Bradley, Superintendent, Milan Experiment Station, 205 Ellington Dr., Milan, TN 38358. (901) 686-7362. The largest event of its kind. In 1991, 6,000 people from 31 states and 16 countries attended. Features tours, demonstrations, research reports, educational booths and equipment displays.

1992

August

2-5 *Water Forum '92: Saving A Threatened Resource,* Baltimore, MD. Contact: ASCE Conference Dept., 345 E. 47 St., New York, NY 10017. (800) 548-ASCE.

9-12 *Resource Management in a Dynamic World: 47th Annual Meeting of the Soil and Water Conservation Society,* Baltimore, MD. Contact: Tony Vrana / Tim Kautza, SWCS, 7515 Northeast Ankeny Rd., Ankeny, IA 50021-9764. (515) 289-2331. Emphasizes the role human resources play in using and managing natural resources. Three sub-themes are: environmental values, economics, and policy.

September

1-3 *3rd National Meeting: Water Quality Standards for the 21st Century,* Las Vegas, NV. Contact: Patti Morris, Office of Science & Technology, U.S. EPA (WH-585), 401 M St., SW, Washington, DC 20460. (202) 260-9830. Theme: Fiscal Year 1994-1996 Water Quality Standards Priorities. Possible topics: nutrient criteria, risk based analysis, wildlife criteria methodology, sediment criteria (applied to permits and NPS), WQS for oceans, estuaries, wetlands.

13-17 *National RCWP Symposium: Ten Years of Controlling Agricultural Nonpoint Pollution: The RCWP Experience,* Orlando, FL. Contact: Lisa Grayson, Terrene Institute, 1000 Connecticut Ave., NW, Suite 802, Washington, DC 20036. (202) 833-3380. Symposium offers the opportunity to present and discuss the outcome of projects related to the 10-year experimental Rural Clean Water Program. Hosted by the South Florida Water Management District with U.S.EPA, ASCS, SCS, and Extension Service.

13-17 *The Year 2000: Will We Be Ready Technically? Socially? Politically? 1992 Annual Meeting of the American Fisheries Society,* Rapid City, SD. Contact: Bud Griswold, National Sea Grant Program, 1335 East-West Highway, Room 5216, Silver Spring, MD 20910. (301) 427-2431. The continued long-term viability of fish and fisheries as we have known them during the 20th century is in question. At the same time, the professional fisheries scientist and manager is faced with a radically increased amount of information. Changing social attitudes and behavior and integration of economic consequences play increasingly important roles in the success or failure of management strategies. The development of increased political will and sensitivity is essential. The rapidly changing composition of what will be tommorrow's workforce will require greater efforts to increase representation of women and minorities in our profession.

20-24 *Surface Water Quality and Ecology: 1992 Annual Water Environment Federation Conference,* New Orleans, LA. Contact: Maureen Novotne, WEF Technical Services, 601 Wythe St., Alexandria, VA 22314-1994. (703) 684-2400.

October

1-2 *3rd Annual Utah Nonpoint Source Water Quality Conference,* Ogden, UT. Contact: Jack Wilbur, Utah Dept. of Agriculture, Environmental Quality Section, 350 N. Redwood Rd., Salt Lake City, UT 84116. (801) 538-7098. Theme: Urban Runoff and Stormwater Management.

17-22 *Interdisciplinary Approaches in Hydrology and Hydrogeology,* Portland, OR. Contact: Helen Close, American Institute of Hydrology, 3416 University Ave., SW, Minneapolis, MN 55414-3328. (612) 379-1030.

December

14-15 *6th National Drainage Symposium,* Nashville, TN. Contact: ASAE, 2950 Niles Rd., St Joseph, MI 49085-9659.

Calls For Papers — Deadlines

1992

May

29 *Symposium on Geographic Information Systems and Water Resources,* March 14-18, 1993, Mobile, AL. Contact: AWRA, 5410 Grosvenor Lane, Suite 220, Bethesda, MD 20814-2192. (301) 493-8600. Abstracts due by May 29, 1992.

June

15 *First International IAWPRC Specialized Conference on Diffuse (Nonpoint Source) Pollution: Sources, Prevention, Impact and Abatement,* September 20-24, 1993, Chicago, IL. Contact: Dr. Vladimir Novotny, IAWPRC Conference, Dept.Civil & Envir.Engineering, Marquette University, 1515 West Wisconsin Ave., Milwaukee, WI 53223. (414) 288-3524. FAX 288-7082. Submit abstracts by June 15, 1992. Topics: pollutant loads and impact of non-urban land use activities, atmospheric deposition and surface water, alternative policy instruments, etc. Call or write for complete list.

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Nonpoint Source NEWS-NOTES is an occasional bulletin dealing with the condition of the environment and the control of nonpoint sources of water pollution. NPS pollution comes from many 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 pollutants and pollutants resulting from human activity, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters. NPS pollution is normally associated with agricultural, silvicultural, mining and urban runoff. Hydrologic modification is a form of NPS pollution which often adversely affects the biological integrity of surface waters.

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