



NPS News-Notes

*The Condition of the Water-Related Environment
The Management and Ecological Restoration of Watersheds
The Control of Nonpoint Sources of Water Pollution*

News of the Coastal NPS Pollution Control Program

*Final Guidance on Coastal Nonpoint Pollution
Issued by EPA and NOAA*

EDITOR'S NOTE: EPA has recently produced the most important single technical document in the history of the nonpoint sources control program: *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, which provides the technical framework for the most comprehensive NPS program ever established by the U.S. Congress, or any other congress. The management measures guidance is highly applicable and very useful in all parts of the country, not just the coastal areas. This issue of *News-Notes* introduces both the management measures and its sister document, *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, produced jointly by EPA and NOAA. Issue #28 (April '93) will feature in-depth articles on what is inside these landmark publications.

Welcome to Coastal NPS Program Notes

The purpose of this regular column, co-written by EPA and NOAA's Office of Ocean and Coastal Resource Management (OCRM), is to provide information on the Coastal Nonpoint Source Pollution Control Program required by section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. It is our hope that this column will provide a forum for exchanging information on issues relating to this new program.

Status

As many of you know, EPA's "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters" and EPA's and NOAA's "Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance" were issued by the two agencies on January 19, 1993. EPA's then Administrator, William Reilly, said of the documents,

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"Today's guidance is the foundation for accelerating efforts by EPA, NOAA, the coastal states and the public to restore and protect the quality of our nation's coastal waters. The guidance provides a road map to help states develop effective coastal nonpoint pollution-control programs." Trudy Coxe, director of OCRM, emphasized the importance of this effort by noting that "improved coastal water quality is important not only for the health of our environment, but for the health of our economy."

Summary of Guidance Documents

EPA's technical guidance, entitled "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters," is a unique, comprehensive compilation of information on the best ways to reduce or prevent nonpoint pollution in coastal waters. The measures apply to the following major sources of nonpoint pollution: agriculture, forestry, urban runoff (including septic tanks), hydromodification, and marinas. Measures range from traditional methods such as erosion control to more comprehensive strategies such as watershed planning to help minimize stormwater control costs. The guidance also describes ways that wetlands and riparian areas can be used to prevent pollution from a variety of sources.

The companion guidance, "Coastal Nonpoint Pollutant Control Program: Program Development and Approval Guidance," describes how states can develop state coastal nonpoint programs to implement the technical guidance measures. It discusses the degree of flexibility states have in interpreting and applying management measures and describes the support and assistance EPA and NOAA will offer states in developing their programs. States will build on existing programs for coastal management and pollution control and have many opportunities to tailor their programs to meet local conditions.

For states to continue receiving full funding under certain NOAA and EPA grant authorities, their coastal nonpoint pollution control programs must be submitted to EPA and NOAA for approval by July 1995. Management measures must then be fully implemented by January 1999.

Next Steps

Now that the guidance documents have been completed, the real work begins. NOAA and EPA staff are here to help assist states and others as they begin the process of implementing and developing the new programs. We'd like your feedback on the types of programmatic and technical assistance you'd find most useful. The types of support we hope to provide include

- workshops for state water quality and coastal agencies and others on the requirements of section 6217,
- a brochure and other outreach efforts to explain the new program to the public, and
- a forum for determining longer-term technical assistance needs.

In addition, readers are reminded that a valuable tool for communication on coastal and other nonpoint source issues is EPA's *NPS Electronic Bulletin Board System*. (Use THE COUPON in the back of this issue to order the Bulletin Board's user manual.)

[The management measures guidance (EPA 840-B-92-002) may be ordered (at no cost) from EPIC, 11029 Kenwood Road, Bldg. 5, Cincinnati, OH 45242. For further information, contact Ann Beier at EPA, (202) 260-7085; or Marcella Jansen at NOAA, (202) 606-4181.]

Notes on the Judiciary

Endangered Species Rules Broadened; Listing Process to be Speeded Up and Ecosystems Approach Added to the Process

Since the passage of the Endangered Species Act (ESA) in 1973, some 750 species have been declared endangered or threatened. It often takes two or three years from the filing of a petition for listing to the final determination. The U.S. Fish and Wildlife Service (FWS) has estimated that almost three dozen species have become extinct during processing periods.

On December 15, 1992, the Department of Interior (DOI) and the FWS agreed to expedite their process for designating endangered and/or threatened species of plants and animals. The federal court legal settlement will enable FWS to clear its large backlog over the next few years.

The settlement covers some 400 species for which the FWS has found substantial evidence to warrant listing and an additional 3,000 species that are believed to be threatened or endangered but for which sufficient information is lacking to make a final determination.

The suit leading to the settlement was brought on May 28, 1992, by the Fund for Animals, Defenders of Wildlife, the Sierra Club Legal Defense Fund and a coalition of other environmental groups. The FWS and DOI admitted no legal liability. The settlement states that the parties consider the agreement to be a "just, fair, adequate and equitable resolution of the claims raised."

Under the settlement, the government must, by September 1996, propose the listing of at least 400 native species, thus securing federal legal protection under the ESA. Final listing action must be taken within one year following a proposal. This will be a great increase over the current rate of listings. Since the act was passed, an average of about 40 species per year have been listed.

Another part of the agreement calls for ecosystem approaches to FWS's process of listing endangered and threatened species, a wholly new approach.

Specifically, the agreement has this to say:

Defendants [i.e., FWS] recognize that a multi-species, ecosystem approach to their listing responsibilities under the Endangered Species Act will assist them in better analyzing the common nature and magnitude of threats facing ecosystems, help them in understanding the relationship among imperilled species in ecosystems, and be more cost-effective than a species-by-species approach to listing responsibilities. Defendants have already applied such a multi-species listing approach for Hawaiian and California plant species in accordance with their obligations under two settlement agreements. (See Conservation Council for Hawaii v. Lujan, Civ. No. 89-953 [D. Hawaii] Settlement Agreement approved May 9, 1990; California Native Plant Society v. Lujan, No. 91-0038 [E.D. Ca.] Settlement Agreement approved August 22, 1991). In addition, defendants have recently performed a number of status surveys that focused on multi-species ecosystem reviews.

In light of this experience, defendants agree to direct each region, where biologically appropriate, to use a multi-species, ecosystem approach to their listing responsibilities under the ESA. This approach will be used (i) in the monitoring of candidate and warranted but precluded species, including status surveys, (ii) in proposing species for listing as endangered and threatened, (iii) in adopting final rules listing species as endangered and threatened, and (iv) in designating critical habitat. In pursuing this multi-species approach to their listing responsibilities, defendants shall consider and rely on, to the maximum extent feasible, the commonality of threats faced by different species in the same ecosystem.

The above-described instructions shall be sent to appropriate personnel in all regional FWS offices within sixty days following the effective date of this Agreement and a copy promptly shall be provided to counsel for plaintiffs.

According to Jasper Carlton, director of the Biodiversity Legal Foundation and one of the plaintiffs in the case, "This settlement will result, in the next few years, in a major increase in the number of species protected under the act. It represents a desperately needed and long overdue commitment by the government to take more seriously its obligation to protect our nation's dwindling biodiversity."

Wayne Pacelle, national director of the Fund for Animals, explained, "The slow pace of placing animals and plants on the endangered list was leading to a fast slide toward extinction for hundreds of species. By now securing a place on the endangered list, these species will gain an array of protections to help them survive into the 21st century."

According to a Washington Post story reporting on the settlement, the agreement was hailed by DOI's then-Assistant Secretary Mike Hayden, whose office oversees the FWS. Hayden said the agreement would encourage the government to take a more comprehensive approach to species protection that could lead to more political support in controversial cases, as well as help persuade Congress to provide the agency enough resources to clear out the backlog.

"It's going to test us to get this done, but it is a reasonable settlement," Hayden said.

[For more information, contact: Wayne Pacelle, The Fund for Animals, 850 Sligo Ave., Suite 300, Silver Spring, MD 20910. Phone: (301) 585-2591; or John Fitzgerald, Defenders of Wildlife. Phone: (202) 657-9510.]

Commentary

Multi-Species Ecosystem Approach Adds a New and Useful Dimension to the Endangered Species Designation Process; Can Complement Watershed Protection Approach

In situations where fishery and wildlife habitat have been seriously impaired and large-scale holistic watershed restoration projects are underway or contemplated, a potentially significant new environmental management tool has been added by the lawsuit settlement reported on in the previous story. Application of the ecosystem technique to the Fish and Wildlife Service's (FWS) process of listing endangered and threatened species is a wholly new approach.

It seems to this editor that the FWS "ecosystem approach" and EPA's Office of Wetlands, Oceans and Watersheds "watershed protection approach" have common roots, complementary and potentially mutually supportive. Both look to a ecosystem-based holistic application to environmental management.

Secondly, there just might be the opportunity to apply the two approaches to the same watershed. It could very well be that certain species are threatened or endangered due to the fact that state designated beneficial uses of the water are not being supported. Possibilities in southern Florida, Idaho, Montana, and various watersheds along the Columbia River basin readily come to mind.

These opportunities would certainly be enhanced in those states where biocriteria and biological indicators have been, or are being, adopted as an integral part of the state's water quality standards, monitoring programs and its watershed protection approach.

In any event, it's good to know about the parallel development of other programs in other parts of the federal establishment and how, with some imagination and communication, they might fit together — with state and local leadership as the essential ingredients.

— Hal Wise, Editor

Notes on Water Quality Management

EPA'S Two-Pronged Approach to Urban Runoff

The 1987 amendments to the Clean Water Act gave the country two tools with which to address urban runoff. The first, section 319, established state nonpoint source assessments and management programs. The other, section 402(p) required EPA to develop National Pollutant Discharge Elimination System (NPDES) permit applications for Phase I stormwater discharges.

NPDES

EPA regulations published in November 1990 described two classes of Phase I sources:

Municipal

- Separate storm sewer systems in incorporated (city) and unincorporated (county) urban areas with populations of 100,000 or more

Industrial, may include:

- Heavy manufacturing facilities with materials exposed to stormwater
- Some light to medium manufacturing facilities
- Priority gas and oil facilities
- Active and inactive mines
- Construction sites disturbing five acres or more
- Landfills or storage or disposal facilities handling industrial or hazardous waste
- Scrap yards and salvage yards
- Runoff from sewage treatment plants

- Selected transportation facilities
- Steam electric power plants
- Large feedlots (subject to NPDES permit requirements prior to Phase I)

EPA will develop Phase II regulations by October 1993. Discharges to be regulated under Phase II might include

- Separate storm sewer systems in areas with populations of less than 100,000.
- Discharges from individual facilities, like light industry and construction sites of less than five acres.

Section 319

Currently, state NPS programs, including new requirements (e.g., of coastal zone management measures), apply to activities not covered by NPDES Phase I stormwater permits. States may use section 319 funds for urban runoff related to these activities. Section 319-funded urban runoff programs tend to focus on pollution prevention through education and technology transfer. Other nonstructural stormwater controls include development and implementation of regulations and local ordinances. Technical assistance programs and BMP implementation for urban runoff not covered by NPDES may also be funded through section 319.

Other Stormwater News: NPDES Part 2 Municipal Separate Storm Sewer Guidance Released

The control of pollution from urban stormwater discharges is critical in maintaining and improving the quality of the nation's waters. As part of its ongoing efforts toward that end, EPA has recently issued a manual which provides detailed guidance on the development of Part 2 permit applications for municipal separate storm sewer systems. It provides technical assistance and support for all municipal systems subject to regulatory requirements under the NPDES program for stormwater point source discharges. The manual also emphasizes the application of pollution prevention measures and implementation of BMPs to reduce pollutant loadings and improve water quality. The document will be revised and expanded periodically to reflect additional guidance, and comments from users will be welcomed.

[To request the guidance manual or other documents, or for more information and updates on regulatory developments, contact the Stormwater Hotline at (703) 821-4823.]

Notes on EPA's Groundwater Ecology Initiative

by John Simons and Steve Ainsworth,
Ground Water Protection Division, U.S. EPA

Background

An earlier edition of *News-Notes* (#19, March 1992) reviewed activities of EPA's Ground Water Protection Division (GWPD) related to groundwater ecology. A quick review of some points from the earlier edition may be in order before describing our continued work. Let's first clarify what we mean by groundwater ecology. We define it broadly to include not only the interaction of microbes and metazoans (many multicellular, macroscopic organisms live in groundwater), but also the impacts of groundwater interaction on surface water ecosystems (both from a quality and quantity perspective).

It is important to remember that groundwater, by its huge volume and because all water continually moves through the hydrologic cycle, has an overwhelming influence on all freshwater systems. This significance can be appreciated when one considers that, excluding glaciers and ice caps, groundwater accounts for over 95 percent of all freshwater available on earth. The remaining 5 percent of water is composed mainly from surface water (lakes, streams, wetlands) and soil moisture. In spite of this, almost all study of freshwater ecology has been of surface water, and little attention has been given to groundwater ecology. Consequently, knowledge of groundwater ecology is limited. Until recently, most attention given groundwater focused on its use as a safe source of drinking water.

It is becoming increasingly evident that we need to understand more about groundwater ecology, not only to protect the drinking water supply that half of the nation depends on, but also to protect critical aquatic ecosystems. These groundwater ecosystems are vital because

they perform functions that greatly affect the quality of ground and surface ecosystems. For example, groundwater ecosystems form the basis of food webs that culminate in rivers and on land. After times of drought, these same food chains allow quick recolonization of rivers. Groundwater organisms also contribute to the water quality of rivers through nutrient uptake. For these reasons, we need to adopt a perspective that makes little distinction between protecting the groundwater ecosystem and protecting groundwater as a source of drinking water. In the real world, ecological degradation will eventually lead, either directly or indirectly, to degradation of human health as well as the economy.

Recommendations from EPA's Science Advisory Board (SAB) and the overall EPA groundwater strategy for the future give impetus to a new emphasis at EPA to attach as much importance to reducing ecological risk as it does to reducing human health risk. The SAB said:

The value of natural ecosystems is not limited to their immediate utility to humans. They have an intrinsic, moral value that must be measured in its own terms and protected for its own sake.

The EPA Groundwater Strategy states:

Groundwater should also be protected to ensure that groundwater that is closely hydrologically connected to surface waters does not interfere with the attainment of surface water quality standards, which is necessary to protect the integrity of associated ecosystems.

First International Conference on Groundwater Ecology

To begin building a framework to protect the groundwater ecosystem, the GWPD co-sponsored the First International Conference on Ground Water Ecology in Tampa, Florida, on April 26-29, 1992. This conference was successful in attracting leading groundwater ecologists from around the world. The conference provided insight into the current state of knowledge of groundwater ecology and the additional knowledge needed to form the scientific basis of our policies to protect groundwater ecosystems. A special effort was made at this conference to have scientists and water resource managers share ideas on managing the vital groundwater resource based on the best possible science.

The conference proceedings contain 38 papers in the following groups: synthesis of groundwater ecology; microbial ecology in groundwater; groundwater food webs; ground and surface water interaction; pollution effects, biomonitoring and toxicity studies; case studies; and conference conclusions.

Groundwater Strategic Plan

The GWPD is currently developing the Ground Water Ecology Strategic Plan. This plan is intended to provide long-term, clear, explicit direction for protecting groundwater for ecological benefits. The GWPD will form a groundwater ecology work group to help develop the plan and to coordinate proposed activities with a wide variety of affected programs — both within and outside EPA — as well as with the international community.

In the first phase of the plan's development, the work group will focus on establishing a firm scientific basis. After the technical foundation is laid, the second phase will develop policy and program considerations. For this shift in emphasis, new work group members will be selected, mostly from EPA's water program offices, from EPA regional offices, and from EPA labs.

The strategic plan will have appendices of supportive technical documentation. While some of these documents have already been developed by GWPD (e.g., methods of estimating groundwater discharge to surface waters), others will be added as needed. One such need is for states to protect groundwater that is closely hydrologically connected to surface water. States are asking for guidance on how to do this. As a result, GWPD will produce a technical assistance document that will describe methods for delineating zones of groundwater/surface water interaction.

We now know that some of these groundwater/surface water zones have high biological diversity and activity. These areas may need special protection to preserve their natural activity, especially when it is beneficial to sensitive surface water ecosystems (e.g., a wetlands supporting an endangered species) or where a critical use of the area requires special vigilance (e.g., wells in the area of interaction that are used as a source of drinking water). States may target these "hot spots" for protection under Comprehensive State Groundwater Protection Programs (CSGPP), nonpoint source programs, wellhead protection, the Watershed Protection Approach, and other similar programs.

Integrating Groundwater Ecology into Related Programs

The Ground Water Ecology Strategic Plan will be implemented primarily through integration with GWPD's programs (e.g., comprehensive state Ground Water Protection Programs, and the Wellhead Protection Program) and other relevant EPA programs such as the Watershed Protection Approach, pesticide management plans, the NPS Program, the new Underground Injection Control Class V regulations, wetlands/estuary programs, RCRA, and CERCLA. GWPD will also explore ways to coordinate groundwater ecological protection with the related activities of such federal agencies as the Department of Agriculture, Geological Survey, and the Fish and Wildlife Service.

GWPD's Ground Water Ecology Workgroup will pursue the integration of the strategic plan in the policies, guidance, and grants of the agency's groundwater-related programs. The workgroup will build on initial attempts at such integration. Initial attempts include the discussion of protecting groundwater for ecological benefits in EPA's national CSGWPP guidance. Additionally, in a discussion of programmatic opportunities for supporting the Watershed Protection Approach, the Office of Water's directors recently directed GWPD to proceed with the development of the technical assistance document on methods for delineating zones of groundwater/surface water interaction.

In addition to pursuing program integration through the Ground Water Ecology Workgroup, GWPD will make full use of existing EPA coordination groups. The Ground Water Regulatory Cluster Workgroup, one of the work groups of EPA's Ground Water Policy Committee, will lead in implementing appropriate regulatory changes in the agency's groundwater-related programs. This workgroup may also play a role in developing legislative proposals for groundwater ecological protection. GWPD may use the Ground Water Policy Committee's other work group, the State Programs Implementation Workgroup, to facilitate implementation of necessary changes in program guidance and grant guidance.

[For more information, contact John Simons, Ground Water Protection Division, (WH-550G) U.S. EPA, 401 M Street, SW, Washington, DC 20460. Phone: (202) 260-7091. Proceedings of the groundwater ecology conference are available from the publisher, the American Water Resources Association, 5410 Grosvenor Lane, Suite 220, Bethesda, MD 20814-2192, at a cost of \$18 plus postage.]

Maskenthine Lake and the Watershed Protection Approach

by Terri Hollingsworth, formerly with EPA's Clean Lakes Program

The Maskenthine Lake Project in rural northeastern Nebraska epitomizes the Watershed Protection Approach in action. By integrating several programs and funding sources, the lake and watershed team are accomplishing their mission of controlling nonpoint source pollution and protecting Maskenthine Lake. Maskenthine Lake is a beautiful 85-acre lake that enjoys considerable use because of its productive fishery and outstanding aesthetic qualities.

A Clean Lakes Program diagnostic/feasibility study at Maskenthine Lake conducted from 1989 to 1992 by the Nebraska Department of Environmental Quality (NDEQ) identified three problems in Maskenthine Lake:

- Atrazine levels exceeding Nebraska Surface Water Quality Standards criterion for the protection of chronic toxicity to aquatic life
- Severe sedimentation
- Moderately high levels of nutrients that stimulate overgrowth of aquatic plants and promote summer algal blooms

The sources of these pollutants are strictly nonpoint and include streambank erosion and runoff from agricultural lands in the watershed.

From the project's beginning, the local project sponsor, the Lower Elkhorn Natural Resource District (LENRD), involved all the Maskenthine Lake stakeholders by holding regular meetings to identify problems and develop solutions. These meetings included lake users, watershed landowners, and representatives from NDEQ, LENRD, Nebraska Game and Parks Commission, the University of Nebraska, and the Soil Conservation Service. The technical and nontechnical partnership educated and informed all participants and created a consensus-building arena for treatment ideas.

Armed with the knowledge of the problems and sources of pollution to Maskenthine Lake, the partners developed a comprehensive approach, integrating several programs and funding sources. EPA Clean Lakes Program funds are being used to stabilize eroding shorelines and

construct a wetland area above the lake to decrease pollutant loading. EPA Nonpoint Source Program funds are being used to develop and implement an information/education program in the watershed and to refine nutrient, sediment, and pesticide loading estimates to the lake. Local LENRD funds meet cost-share requirements and help implement the protection activities.

The EPA Total Maximum Daily Load (TMDL) Swat Team and mini-grant¹ are being used to determine the assimilative capacity of the lake for atrazine, nutrients, and sediment. Loading targets will be established and load allocations for subwatersheds, uplands and stream channels will be evaluated in the TMDL process. The TMDL will be used as the basis for refining the watershed management plan.

The USDA has designated the Maskenthine Lake watershed a Conservation Priority Area. Participation in this program could take some highly erodible land out of row crop production, decreasing the pesticide, sediment, and nutrient loading to the lake.

The Clean Lakes Program diagnostic/feasibility study was instrumental in unifying all of the people with an interest in the lake and its watershed to jointly identify the problems and decide on actions. This team, of which the Clean Lakes Program continues to be a member, is currently working together to protect the lake, its fishery, and the natural beauty of its watershed.

[For more information on the Maskenthine Lake Project, contact Paul Brakhage of the Nebraska Department of Environment Quality at (402) 471-4224.]

Persistent Toxic Substances in Great Lakes Subject of U.S.–Canada Commission Report

The International Joint Commission's Virtual Elimination Task Force (VETF), which was formed in 1990 to recommend a strategy for eliminating persistent toxic substances from the Great Lakes basin ecosystem, will release a draft report in mid-March 1993.

Persistent toxics in the Great Lakes basin were a major target of the International Joint Commission's sixth biennial report released in the spring of last year. The commission said then that efforts to regulate such substances have been neither efficient nor successful.

Surely it is time to ask whether we really want to continue attempts to manage persistent toxic substances after they have been produced or used, or whether we want to begin to eliminate and prevent their existence in the ecosystem in the first place, the biennial report said.

The international panel's own choice was plainly stated in that report:

If a chemical or group of chemicals is persistent, toxic and bioaccumulative, we should immediately begin a process to eliminate it. Since it seems impossible to eliminate discharges of these chemicals through other means, a policy of banning or sunsetting their manufacture, distribution, storage, use and disposal appears to be the only alternative.

The commission cited a number of toxic chemicals it believes should be targeted to curb toxic pollution of the Great Lakes basin. Its report recommended that the United States and Canada

- sunset DDT, dieldrin, toxaphene, mirex, and hexachlorobenzene and seek an international ban on their production, use, storage, and disposal
- sunset PCBs and seek public acceptance of the means to effect their destruction
- alter production processes and feedstock chemicals (chemicals used in manufacturing), in consultation with industry and other affected interests, to prevent the creation of dioxin, furan, and hexachlorobenzene as byproducts
- review the use of and disposal practices for lead and mercury, and sunset their use wherever possible
- develop timetables in consultation with industry and other affected interests to sunset the use of chlorine and chlorine-containing compounds as industrial feedstocks; examine means of reducing or eliminating other uses

¹ A TMDL is a determination of the specific pollution reductions needed to implement established state water quality standards when technology (treatment) requirements are inadequate to achieve standards. The SWAT Team is a group of experts who are experienced in using particular technologies within the TMDL framework, such as remote sensing, geographical information systems, and computer models. The role of the SWAT team is to provide immediate short-term technical support to the regional, state, and local governments that must perform TMDL analyses.

Chlorine use was a major issue among public participants at the biennial meeting of the commission in the fall of 1991. Concern about the compound, the common precursor for the production of chlorinated organic substances, was the theme of many submissions, with the pulp and paper industry a particular target of criticism.

The chemical had its defenders at the meeting as well. People involved in water treatment urged continued chlorination as the only effective means of providing safe drinking water. They contended adverse effects could be prevented. Representatives of the paper and chemical industry contested the scientific validity of some assertions about adverse environmental consequences of chlorine use.

In its biennial report, the commission concluded that "the use of chlorine and its compounds should be avoided in the manufacturing process. The report's recommendation prompted a strong reaction from industrial users. Many water utilities also responded negatively, although the recommendation for sunseting chlorine targeted industrial uses only. However, the chlorine recommendation received widespread support from the environmental community.

In last year's biennial report, the international panel also followed up on its previous recommendations to designate Lake Superior as "a demonstration area where no point source discharge of any persistent toxic substance will be permitted."

The governments of Canada and the U.S., in cooperation with Michigan, Minnesota, Wisconsin, and Ontario, subsequently agreed to take immediate steps to restore and protect the Lake Superior basin through special designations, pollution prevention initiatives, and enhanced regulatory programs.

While an "admirable undertaking," the commission said the apparent objective of the proposed Lake Superior program is "to reduce and manage — rather than to eliminate — the point source discharges of persistent toxic substances."

The commission called upon the Lake Superior states and provinces to "establish a specific date at which no point source release of any persistent toxic substances will be permitted into Lake Superior or its tributaries." Lacking a concrete deadline, the commission said, "We will always be 'on the way' to zero discharge, but will never quite arrive."

The VETF draft recommendations, which are being released for public review and comment, may serve as the basis for advice the commission provides to governments. The task force, formed in 1990, consists of U.S and Canadian stakeholders from diverse environmental and other disciplines.

Comments received by May 10 will be considered in preparing the final virtual elimination report. Public meetings, tentatively scheduled for April in Milwaukee, Toronto, and Detroit, are also planned. A summary of the draft report will be available on the NPS BBS. (See NPS Electronic Bulletin Board News later in this issue of News-Notes for information on how to access the NPS BBS.)

[For more information about the public meetings or for a copy of Virtual Elimination Task Force Draft Report, contact Dr. Marty Bratzel, IJC, PO Box 32869, Detroit, MI 48232-2869. Phone: (313) 226-2170. The IJC 1992 Biennial Report may be obtained by calling the commission at (202) 736-9000 in Washington, DC, or its Detroit number, above.]

[Note: This article was adapted from one by Paul Schuette.]

News from the States and Localities . . . Where the Action Is

West Virginia's NPS Training Center Draws Overwhelming Response

In West Virginia, it is readily apparent that the best solution to reducing nonpoint source pollution is through educating land users in applications of resource management techniques. The state has put this philosophy into action by opening the NPS Resource Management Training Center in February 1992. The Center joined the Point Source Environmental Training Center already in operation at the Cedar Lakes FFA-FHA Conference Center in Ripley, West Virginia.

Administered by the West Virginia State-Soil Conservation Agency (WVSSCA), the official management agency to educate land users and the general public about nonpoint source BMPs, the Nonpoint Source Resource Management Training Center has trained more than 3,000 people in its first year of operation, while the point source program certifies more than 600 wastewater plant operators a year. The center has trained people from Ohio and Kentucky as well as West Virginia.

The Nonpoint Source Training Center originally intended to hold courses at the Ripley location as the Point Source Environmental Training Center does, but the demand was so great that most of the courses now move from location to location across the state, using volunteer professional instructors and corporate donations of equipment and expert personnel time.

The instructional curriculum is scaled to the expertise and requirements of different groups taking the courses. These groups include oil and gas operators, farmers, construction contractors, loggers, landowners and the general public.

Training and Instruction

Numerous local, state, and federal agencies are cooperating in instructing and developing the training courses. Private industry representatives have also significantly contributed through participation in five training advisory committees, which ensure that instruction includes the most appropriate state-of-the-art information and equipment to students in the courses. State and nationally recognized certification programs are being developed for the NPS Resource Management Training Center. In September of this year, the center will start a voluntary certification program for contractors; a program for oil and gas operators also has several mini-certifications starting at that time.

At this time, the Nonpoint Source Training Center charges no fee for the courses. It is supported largely by an EPA environmental education grant and 319 monies, which totaled \$65,000 last year. The state supplies a match to the 319 funds.

A Resource Center

The combined Point Source-NPS Training Center also houses a comprehensive library of water quality training materials available for loan. Reference literature, technical manuals, instructional videotapes, and slide shows are available. Educational materials for elementary and junior high school level instruction can also be borrowed. The resources are updated often, and the collection grows constantly.

The center's computerized referral and database system helps training course participants and the general public locate pertinent instructional materials and suppliers of products used in BMPs.

According to NPS Training Coordinator Ann Chalos, the most popular course currently is a NPDES sediment and erosion control workshop. A nutrient management course scheduled for March 17 is expected to draw between 100 and 200 participants. Most classes are a single day, but an upcoming course training the state's 2,500-person division of highways will comprise two- to three-day workshops for construction inspectors, maintenance managers, highway design staff, and highway managers. Also planned is a two-day training session for the U.S. National Guard, where 60 or so engineers and equipment operators will integrate the BMP course with army training.

The NPS center's courses and workshops cover numerous topics:

Agriculture

- Conservation
- Tillage
- Nutrient Management
- Equipment Calibration
- Integrated Crop Management
- Soil Fertility Management
- Pesticide Management
- Increasing Profits
- Soil Map Interpretation
- Manure Management

Silviculture

- Sediment Control
- Access Road Planning
- Water Diversion
- Haul Road Construction
- Revegetation Technology
- Stream Crossings
- Landowner Education
- Tree Recommendations

Construction

- Erosion Control Planning
- Sediment Control
- Revegetation
- Certification Training
- Soil Map Interpretation
- Storm Water Management
- Highway Management
- Compliance Information

West Virginia's NPS
Training Center
Draws
Overwhelming
Response
(continued)

Resource Extraction

- Regulatory Compliance
- Erosion Control Planning
- Revegetation
- Storm Water Control
- Custom Equipment Classes
- Specialized Courses

Urban Runoff

- Storm Event Modeling
- Water Management Devices
- Hydraulic Engineering
- Specialized Equipment
- Wetland Treatment
- NPDES Permits
- Erosion Control
- Specialized Courses

Other course topics, including hydrologic modification and land disposal of sludge, are being planned.

[For further information, contact: Randy Lefevre, NPS Program Coordinator, WV State Soil Conservation Agency, 1900 Kanawha Boulevard East, State Capitol, Charleston, WV 25305. Phone: (304) 558-2204. Or contact: Ann Chalos, NPS Training Center Coordinator, Cedar Lakes Conference Center, Ripley, WV 25271. Phone: (304) 372-7020.]

Northern Virginia SWCD Launches Urban Forestry-Tree Planting Program

Fairfax County is one of the most rapidly urbanizing counties in the Washington, D.C. metropolitan area. Its boundaries are also the boundaries for the Northern Virginia Soil and Water Conservation District (NVSWCD), which was organized in 1945. The 1950 census reported the county's population at 98,557. By 1990 the census put Fairfax County at 818,584.

Obviously, over the years NVSWCD has had to adapt what it does for Fairfax County's changing population and countryside. Its mission statement describes current activities:

[A] wide range of programs encouraging community participation in conserving and protecting soil, water and related natural resources, with a particular focus on the impact Fairfax County has on the Chesapeake Bay. These programs are supported by local, state and federal assistance, including technical support from the USDA Soil Conservation Service.

Our philosophy of natural resource management is to provide the necessary expertise that assists the community in identifying, discussing and solving local conservation issues. Our community constituents are farmers, homeowners, home owners' associations, environmental groups, developers, teachers, youth, local businesses, elected officials and agencies, civic organizations and the general public.

Recently, NVSWCD has begun an urban forestry campaign to educate residents on the significance of tree cover in the landscape. They have developed a fact sheet — "Trees and Fairfax County." Widely distributed to county householders, the following points are made:

- *In twelve months, one tree inhales 26 pounds of carbon dioxide and exhales enough oxygen to keep a family of four breathing for a year.*
- *Trees reduce summer heat, quiet highway noise, feed the hungry, console aching hearts and allow people to enjoy the sounds of leaves rustling in the wind.*
- *The average rate of global warming over the past 20 years is three times higher than had been predicted by climatologists.*
- *Three well placed trees around a house can cut home air conditioning energy needs by 10-50 percent.*
- *There are an estimated 100 million available tree planting spaces around homes and businesses in United States towns and cities. Planting these trees could reduce atmospheric carbon dioxide emissions from energy production by an estimated 18 million tons per year.*
- *In the last decade, Fairfax County has lost 35 percent of its tree cover.*

Backing up its rhetoric with action, NVSWCD has launched a spring seedling sale. A press release announcing the sale, headlined, "A TREEmendous Seedling Sale," asked:

Want to do your part to help the environment? Plant some seedlings!! The Northern Virginia Soil and Water Conservation District's Spring Seedling Sale can provide you with the seedlings you need. Package A has these 17 bare-rooted seedlings: 4 white pine, 3 Norway

Spruce, 4 White Dogwood, and 3 Chinese Chestnut trees, plus 3 Red Osier Dogwood shrubs. Package A costs \$15. Package B has 10 seedlings (2 of each of the species listed above). You can hold either of these packages in one hand.

The announcement goes on to set forth the details of placing orders and taking delivery and concludes:

For more information on this program or ways you can celebrate Earth Day, Arbor Day or Soil and Water Conservation Week, call the Northern Virginia Soil and Water Conservation District at (703) 324-1460.

The district seems to be keeping up with the times and the needs of its constituents.

[For more information, contact: Sarah S. Wolf, NVSWCD, 12055 Government Center Parkway, Suite 905, Fairfax, VA 22035. Phone: (703) 324-1460. FAX: (703) 324-1421.]

Maryland Park Highlights Stormwater BMPs

Many of the stormwater management practices used in Maryland are showcased in a regional park in Prince George's County, Maryland, scheduled to be dedicated in the spring of 1993. The Fairland Park Stormwater Management Demonstration Project, started in 1986, was designed to provide public and professional education on the importance and necessity of stormwater management, the reduction of nonpoint source pollution, and cleanup of Chesapeake Bay.

Traditional recreational park amenities such as baseball fields, batting cages, tennis courts, an ice-skating rink, and a nature path are all incorporated in the park along with the stormwater management practices.

Urban BMPs demonstrated at Fairland Park include:

- | | | |
|-------------------------------|-----------------------------|----------------------|
| ■ Extended detention wet pond | ■ Infiltration trench | ■ Check dams |
| ■ Shallow marsh | ■ Slotted drain/sand filter | ■ Sediment trap |
| ■ Bio-retention basin | ■ Porous pavement | ■ Silt fence |
| | ■ Dry wells | ■ Oil/grit separator |

Having encountered a few obstacles in constructing some of the BMPs, Ken Pensyl, chief of the state Water Quality Certification Division commented, "Construction of the BMPs demonstrates the full reality of real-world construction problems, but all we are really doing with these BMPs is going back and trying to simulate how Mother Nature performs at her best."

The park's nature path leads visitors by each of the stormwater control practices. Cross-sectional schematic signs describe the physical and biological processes that help reduce nonpoint source pollution. Also located on the site will be an education and training center for hosting large groups. Visitors from Canada, Japan, and Korea as well as the United States have already toured the park.

In addition to showcasing BMPs, Fairland Park demonstrates the effectiveness of local, state, and federal cooperation in solving regional stormwater problems. The Environmental Protection Agency (through its Chesapeake Bay Implementation Grant), the Maryland Department of the Environment (through the state's Stormwater Pollution Control Cost-Share Program), and Prince George's County's Department of Environmental Resources all contributed funding for the venture. The Maryland-National Capitol Park and Planning Commission has provided 67 acres of land and acts as local project manager for the endeavor. The original funding was about \$750,000 in addition to donations of labor, equipment, and technical assistance.

The project is the result of a six-year effort that involved many agencies and individuals. Pensyl stressed that it was the long-term team effort that helped move the project from a dream to a reality that provides education and training in nonpoint source pollution control measures.

[For more information on Fairland Park or to schedule a tour, please contact Ken Pensyl, Maryland Department of the Environment, (410) 631-3563; or Steve Lotspeich, Maryland-National Capitol Park and Planning Commission, (301) 699-2438.]

In Reno County, Kansas, Local Committee Makes a Big Difference

by Judy Seltzer, Reno County Health Department

EDITOR'S NOTE: The following story appeared in the December 1992 issue of *Water Watch*, the newsletter of the Kansas Department of Health and Environment's nonpoint source pollution control program. That issue featured reports from counties participating in the state's Local Environmental Protection Program. We reprint it here because we feel that Reno County's experiences and achievements deserved to be shared. Keep it up, Reno County!

Provide a fresh pot of coffee, donuts, and a monthly agenda on protecting groundwater, and you will find community leaders tackling tough issues and planning strategies for protecting water resources in Reno County.

The Reno County Health Department initiated the Local Environmental Protection Grant Committee three years ago. Committee members include staff from Reno County, and the city of Hutchinson Planning and Zoning and Public Works departments. Other members include the Kansas State University Cooperative Extension Service, USDA Soil Conservation Service, Kansas Department of Wildlife and Parks, two groundwater management districts — Equus Beds and Big Bend, a Lower Ark Basin member, Kansas Department of Health and Environment district officials, private industry, and interested citizens.

Reno County serves as a recharge area for the Equus Beds Aquifer and has high water tables overlaid with sandy soils that allow rapid penetration from surface water to groundwater. Unfortunately, we have experienced becoming a Superfund groundwater contamination site (Obee Road site). This experience has taught us that we must work together . . . now, if we hope to protect our future water supplies.

Our committee has accomplished the following programs:

- Held a successful two-day Household Hazardous Waste Collection Program in 1990.
- Purchased a permanent household hazardous waste collection facility in 1991.
- In late 1991, installed a Geographic Information System (GIS) to develop data collection and mapping of wells, septic systems, and known or suspected contamination sites.
- Contracted in 1990 and 1991 with the US Geological Survey for an in-depth analysis of wells in Reno County regarding their location, depth, type, age, and quality.

Currently, we are working on the following projects:

- Promoting the importance of plugging abandoned water wells.
- Recycling waste motor oils, especially in rural areas where oil is often disposed of in barr ditches (roadside drainage ditches), poured on the ground, or placed in landfills.
- Disposal of septic tank sludge and liquids when land application is not appropriate.
- Participation in the Equus Bed Water Quality Association Abandoned Well Plugging Project.
- Building a cut-away model (4-inches high) of an abandoned well to be used for public displays.
- Revising the Reno County Sanitation Code to require site inspections for domestic wells when property is sold, rented, or leased.
- Expanding septic tank licensure requirements regarding the dumping of sludge and increasing training requirements of operators.

By working together, we are learning from each other as we build unified strategies for groundwater protection. Having a local environmental protection grant committee is helping to protect Reno County's water resources.

[For further information on the Kansas Local Environmental Program, contact Julia Greene or Mindee Reece-Chaudhry at KDHE, Bureau of Environmental Quality, Nonpoint Source Section, Forbes Field, Bldg. 740, Topeka, KS 66620-0001. Phone: (913) 296-5555. For information on the Reno County Local Environmental Protection Program, contact Judy Seltzer, Reno County Health Department, 209 2nd St., Hutchinson, KS 67501. Phone: (316) 694-2900.]

Agriculture Notes

New Certified Crop Adviser Program Proves Popular

Environmental stewardship is the driving force behind a new national voluntary certification program sponsored by the American Society of Agronomy, according to Thomas J. Hall, assistant vice president of the society. The Certified Crop Adviser (CCA) program is aimed at people who provide crop management advice to farmers, agribusiness people, consultants, Soil Conservation Service district conservationists, and Cooperative Extension agents. The program's goal is to improve the quality of advice available to farmers concerning the environment and crop production and to provide a framework for agriculture to develop into a profession like accounting or engineering.

To be certified as a crop adviser, said Hall, an applicant is required to have two years of experience providing crop production advice to farmers, plus a bachelor of science degree in agriculture. Applicants without a degree must have four years of experience. All applicants will be required to pass state and national exams that cover soils and soil fertility, soil and water management, pest management, and cropping systems. The state exam will test the applicants' knowledge of state-specific material such as unique environmental conditions or crop production challenges.

The national exam development is being coordinated by the American Society of Agronomy in consultation with the Educational Testing Service. The Cooperative Extension Service, the Soil Conservation Service, and many universities provided input on the exam's content.

The CCA program will be administered by a state/regional board set up in each state specifically to manage the CCA program for that state. The actual certification authority will originate from this board, which will consist of at least seven members including representatives of the state environmental agency and extension service. The board will also review the credentials of applicants for eligibility and enforce the CCA code of ethics.

The CCA program currently has state/regional boards in North Carolina, Pennsylvania, Illinois, Missouri, Kansas, Nebraska, Montana, Minnesota, Arkansas, and California, according to Hall. Boards are being formed in New York, Georgia, Ohio, Alabama, Mississippi, Texas, Oklahoma, Iowa, Tennessee, Oregon, Washington, and Idaho.

Hall reported that 800 applications were received for the first national examination held on February 5, 1993. Future exams are scheduled for August 6 of this year and the first Friday of February, 1994, in participating states.

[For more information, contact Laurie Karr or Tom Hall, American Society of Agronomy, 677 S. Segoe Rd., Madison, WI 53711. Phone: (608)273-8080.]

National Status Report of Soil, Plant, Animal Waste, and Water Analyses Published

A recently published national report shows the extent to which farmers have used analytical laboratory services for nutrient management in crop production. *Soil, Plant, Animal Waste & Water Analysis Status Report for the United States, 1988-1991*, by the Council on Soil and Plant Analysis, reports that in the survey's last year, 2 million soil samples, 170,000 plant samples, 7,900 animal waste samples, and 41,600 water samples were analyzed for farmers. Sponsored by the USDA Extension Service, the report contains data on samples analyzed by commercial and government laboratories for the four-year period. C. Owen Plank, Extension Service agronomist at the University of Georgia and president of the council, directed the project.

Leading states by number of samples analyzed in 1991 were

Soil samples	Plant samples	Animal waste samples	Water samples
Illinois 420,161	Nebraska 53,760	North Carolina 1,677	California 29,583
North Carolina 238,314	California 47,995	California 1,376	Nebraska 13,935

The number of soil samples analyzed increased 15 percent from 1988 to 1991, while 46 percent more plant samples were analyzed, and animal waste and water samples underwent 53 percent and 54 percent increases, respectively.

For the first time, the survey reported on animal waste and water samples analyzed. The increasing numbers of samples from these two categories could indicate a growing interest in evaluating the effectiveness of environmental and water quality BMPs.

Pointing to the total number of soil samples analyzed, Plank said that those in 1991 (2.7 million) were far below the peak number of 3.8 million in 1966. Such comparisons, and the 1991 ratio of approximately 150 acres of cropland per farm soil sample, illustrate the opportunity to improve nutrient management in both crop production and in the environment through much more intensive use of soil testing, he said.

The Extension Service is distributing copies of this report to state Cooperative Extension Service specialists.

[A limited supply of the Soil, Plant, Animal Waste & Water Analysis Status Report for the United States, 1988-1991 is available (free of charge, one copy per request) from NPS News-Notes, (WH-553), Assessment and Watershed Protection Division, U.S. EPA, 401 M Street, SW, Washington, DC 20460.

For additional information, contact: C. Owen Plank, Council on Soil Testing and Plant Analysis, University of Georgia, Cooperative Extension Service, Athens, GA 30602. Phone: (706) 542-9072. FAX: (706) 542-8845.]

Iowa Requires Nutrient and Pesticide Management for Farm Section 319 Funding

Iowa has developed guidance that establishes a minimum level of nutrient and pesticide management for farms located in the critical treatment area of any projects in which section 319 funds are being used to provide cost share or other financial incentives to farmers, according to Anne Weinberg of EPA's Assessment and Watershed Protection Division. The guidance implements a requirement in the EPA final guidance on the award and management of nonpoint source program implementation grants under section 319(h) of the Clean Water Act issued by the Office of Water, February 15, 1991.

Ubbo Agena of the Iowa Department of Natural Resources explained that the guidance will assist local project sponsors in developing nutrient and pest management programs appropriate to their projects. The guidance should improve the overall quality of these programs. It will provide greater accountability for funds expended on nutrient and pest management activities, since the guidance provides compliance specific standards for projects.

The Iowa guidance establishes three nutrient and pest management options that projects can implement, ranging from a highly intensive Integrated Crop Management program, which considers all aspects of crop production on a field-by-field basis, to a general watershed-wide public information program on nutrient and pesticide management.

The guidance also establishes minimum nutrient and pesticide management requirements for farmers located in the critical area of a project. Project sponsors are responsible for determining the option in their projects, taking into consideration such factors as the degree to which nutrients and pesticides impact the targeted waterbody, the staffing and financial resources of the project, and the objectives, management capabilities, and resources of the area's farmers.

Participating Farmers Required to Keep Records

According to the guidance, participating farmers will be required to keep annual records for each field in the critical project area. (Copies of the handy pocket-size field records book, ICM-1, are available from Iowa local county extension offices or from Extension Publications, Printing Building, Iowa State University, Ames, IA 50011. Cost is \$1 per copy.)

[For further information, contact Ubbo Agena, Iowa Department of Natural Resources, Wallace State Office Building, 900 E. Grand, Des Moines, IA 50319. Phone: (515)281-6402. FAX: (515) 281-8895.]

Notes on Environmental Education

EPA and Alliance for Environmental Education Publish Compendium on Water Environment Educational Materials

Public involvement to control nonpoint sources of water pollution is a relatively new, but integral, item on most state and local agendas. Many state and local governments across the country have found creative ways to reach the different audiences that impact and are impacted by water quality.

EPA's Assessment and Watershed Protection Division collected examples of these tools, which include videos, brochures, handbooks, and calendars. Long-time readers of *NPS News-Notes* may remember the editor's request for such materials in *News-Notes* #4 (March 1990).

Recently, using a grant from EPA, the Alliance for Environmental Education updated this collection and produced both a catalog and a searchable database (available on the *NPS BBS*; see issue #25 for more information). Sharing educational tools this way reduces duplication of efforts while offering a broad array of outreach ideas. The 700 entries in the *Compendium of Educational Materials on the Water Environment* are examples of successful efforts to educate and motivate citizens toward pollution prevention.

The *Compendium* will be periodically updated and republished. The alliance welcomes additions for future editions. Send examples to the Alliance for Environmental Education at its Virginia office. (See below.)

EPA is distributing a limited number of copies to state and regional NPS coordinators. The alliance is distributing copies to its 145 environmental education centers.

[The alliance is making individual copies of the book available for \$9.95 plus \$2.50 shipping and handling (VA residents add \$.45 tax). The Compendium is also available on EcoNet and on disk. Contact the Alliance for Environmental Education, 51 Main St., PO Box 368, The Plains, VA 22171, or phone (703) 253-5812 for more information or to order.]

EPA Employees Bring Water Education To Schoolchildren

by Pat Bonner, EPA Office of Water

EPA employees all over the country are stepping out of their offices and laboratories and into classrooms in an agency-wide environmental education initiative. Through WET WAY — Water Employees Together With America's Youth — EPA people are visiting classrooms to talk about the environment. The EPA volunteers provide children with a link from books to real work that uses mathematics and science technology and principles to solve real world problems.

Launching the project last November 9 in a restored wetland area in Washington, D.C., then-EPA Administrator William K. Reilly spoke about how important environmental education is for the future. He said that some students are making a difference today. "They are cleaning beaches, starting recycling programs in schools, monitoring streams and influencing decision-makers. We in EPA have more than a regulatory role; we also must help more of tomorrow's leaders—today's students—understand their environment. WET WAY is a step in that direction."

After introducing the WET WAY program and its goals, Reilly joined with students from nearly Kenilworth Elementary School as they explored the mud of the ponds, guided by National Park Service rangers.

Partners in the initiative are the National Geographic Society and America's Clean Water Foundation. EPA's Office of Research and Development (ORD) has played a major role by sponsoring the development and field testing of many of the teaching materials in the WET WAY kit that volunteers give to teachers whose classrooms they visit.

The original goal of the WET WAY initiative was for EPA volunteers to visit 1,000 classrooms during November 1992. The WET WAY effort was been extended through January since many schools contacted wanted to participate but could not schedule a volunteer until the next semester. Through January 22, 1993, volunteers reported that they had visited over 1,400 classrooms and nearly 31,000 students and teachers, with reports still coming in.

The message EPA volunteers are sending with this very personal effort is that clean water is important to everyone and every living thing on Earth and that each person can do something to preserve, conserve, and clean up our waters.

[For more information, contact Pat Bonner, WH-556, U.S. EPA, 401 M St., SW, Washington, DC, 20460.]

Reviews

Video Available On Shallow Class V Injection Wells

Repair bay floor drains at businesses servicing internal combustion engines are the focus of a video prepared by the East Dakota Water Development District (EDWDD). These drains, a common type of Class V well and a national priority for closure by EPA Underground Injection Control Program (UIC), can allow brake fluid, transmission fluid, antifreeze, used oil, and other harmful substances to enter groundwater. Class V wells are poorly understood by the public, and the video helps people understand how these wells contribute to water pollution.

According to Jerry Siegel of EDWDD, the 20-minute educational video covers identification and closure of existing wells and the county ordinances outlawing new wells of this type in the Big Sioux Aquifer area of South Dakota. The video outlines the five major classes of underground injection wells, common types of classified wells, and integration of Class V well management with other groundwater protection programs.

Some other common types of Class V wells are agricultural and stormwater drainage wells, septic systems serving businesses or multiple dwellings, and groundwater heat pump return flow wells.

The video is part of a demonstration project supervised by EPA Region 8. The project, one of 25 demonstration projects awarded nationwide by UIC, integrated management of Class V wells with wellhead protection ordinances, local emergency response/hazardous materials plans, and a state assessment of the vulnerability of public water supplies.

EDWDD is located in the heart of the Big Sioux Aquifer area along the eastern edge of South Dakota. This aquifer supplies drinking water to one-third of the state population and is very sensitive to contamination. According to Siegel, significant nitrate contamination of both rural and public water supply wells has been documented.

[The video is available at a cost of \$12, including shipping, by contacting EDWDD, 524 17th Ave., Brookings, SD 57006. Phone: (605) 692-5185. FAX: (605) 692-2017.]

Copies of the project's final report and information on EPA's other Class V or wellhead protection demonstration projects can be secured by contacting Tom Belk, U.S. EPA, (202) 260-7593. FAX: (202) 260-4383.]

Rural Clean Water Symposium Proceedings Available

Lessons learned from the Rural Clean Water Program (RCWP), a long-term experiment in controlling nonpoint source pollution, are recorded in the 400-page proceedings of the National RCWP Symposium, now available. Set up as a 15-year experiment, RCWP was charged with finding ways to prevent and reduce agricultural nonpoint source pollution. A total of 21 projects were in the RCWP.

The 43 papers published in the proceedings address a variety of topics, including water quality and land treatment monitoring, relationship of water quality to land treatment, best

Rural Clean Water
Symposium
Proceedings
Available
(continued)

management practices application and maintenance, project coordination, farmer participation, institutional arrangements, program administration, public education, socioeconomic, technology transfer, lessons learned, and research needs.

The symposium was hosted September 13-17, 1992 by the South Florida Water Management District in cooperation with U.S. EPA and USDA Agricultural Stabilization and Conservation Service, Soil Conservation Service, and Cooperative Extension Service.

[Copies of the proceedings (EPA publication number EPA/625/R-92/006) are available free of charge from U.S.EPA/CERI, Document Distribution (G-72), 26 Martin Luther King Drive, Cincinnati, OH 45268. Phone: (513) 569-7562.]

Forest Service Issues Proceedings of Workshop on Ecosystem Management

On April 27-30, 1992, the Forest Service conducted a workshop, "Taking an Ecological Approach to Management," in Salt Lake City, Utah. This meeting brought together representatives from all nine Forest Service regions, its eight research stations, the National Forest System, state and private forestry interests, and Washington Office Resource Units.

Originally, the meeting was planned to focus on ecological and integrated inventories. The proceedings contains several papers on this subject. The collection's preface describes how the emphasis shifted as plans for the workshop developed:

The planning committee soon realized that more fundamental concerns related to ecosystem management needed to be addressed . . . it became a policy setting workshop defining ecosystem management and laying out the major principles to be addressed in future Forest Service planning, management, and research.

Topics included timely presentations on information management, budget considerations in ecosystem management, mapping methods, remote sensing, and climate change models. The workshop provided examples and "lessons learned" from regions and research stations and led to a series of recommendations for implementing ecosystem management. The recommendations included a timeline for implementation by 1995, establishment of a Forest Service office team to provide direction for implementation, issuance of a policy statement communication from the Forest Service, as well as other communication, planning, inventory, and research efforts.

The policy, which was issued in June 1992 by Forest Service Chief F. Dale Robertson, sets the course for putting the management of the National Forests and Grasslands on an ecological basis. It describes the principles and guidelines viewed as necessary to make ecosystem management successful, including as a special issue the reduction of clearcutting on National Forest system lands.

In addition to the June policy statement, many of the workshop's recommendations are already being carried out, including the establishment of a Washington office team on ecosystem management.

The proceedings document provides discussions of the objectives, principles, and existing approaches for ecosystem management. It is of interest not only to professionals involved in natural resource management but also to individuals with an interest in the management of our public lands.

[There are limited quantities of the proceedings, "Taking An Ecological Approach To Management," available at no cost (single copies only) from Kathy Martinez, U.S. Forest Service, Ecosystem Management Staff, 14th and Independence, SW, PO Box 96090, Washington, DC 20090-6090. FAX: (202) 205-1798. No phone calls, please.]

Revegetation Workbook & Stormwater BMP Manual Developed by Denver Flood District

EDITOR'S NOTE: The following two articles are reprinted here from *Flood Hazard News*, the newsletter published by the Urban Drainage and Flood Control District, whose purpose is to assist local governments in the Denver metropolitan area with multijurisdictional drainage and flood control problems. Established by the state legislature in 1969, the district covers an area of 1,608 square miles and includes Denver, parts of the five surrounding counties, and 29 incorporated cities and towns. There are about 1,600 miles of "major drainageways," which are defined as draining at least 1,000 acres. The present population of the district is approximately 1.8 million people.

Revegetation Workbook

by David Bennetts, P.E., Project Engineer, and
Don Godi, Consultant

In February 1993, the Urban Drainage and Flood Control District will publish *Design Workbook for Establishment of Natural Vegetation*. This workbook will be a condensed version of the guidelines for development and maintenance of natural vegetation that was developed for the District in 1984. It will summarize the data necessary for the design, construction, and maintenance of natural vegetation areas typically found in semi-arid areas similar to the metropolitan Denver area.

This condensed version summarizes four major activity phases required to develop natural vegetation areas: planning/design, construction, establishment, and maintenance. Intended as a ready reference during the design process, this summary will enable the user to make logical design and management decisions based upon site conditions and a sequence of options.

Included in the workbook will be a "Revegetation Matrix" and a corresponding "Project Worksheet". The matrix can be used as a guide to make step-by-step decisions during the design and construction process. The worksheet is a convenient recording form for those decisions. Recording the individual actions of each project on the worksheet ensures a ready reference of critical decisions that can be reviewed at a later date to help determine the success or failure of each individual project.

A major element of the process to obtain the most favorable turf establishment depends upon an understanding of soil types and the selection of the best grass seed mix adapted to that soil type. The revegetation matrix provides the guidance required to complete a project in a satisfactory manner without a highly technical background. Use of the soil checklist, included in the workbook, and the matrix will provide a hands-on approach to define the problems and produce an ideal revegetation solution.

Copies of this workbook will be available in late February 1993 at a cost of \$10 each, including shipping and handling. Contact the district if you are interested in obtaining a copy. (Address at the end of the following article.)

New Manual of Stormwater Best Management Practices

by Ben Urbonas, P.E., Chief, Master Planning Program

After an almost three-year effort, the Urban Drainage and Flood Control District has published *Volume 3 — Best Management Practices of the Urban Storm Drainage Criteria Manual (USDCM)*.

The purpose of this publication is to provide design guidance for local jurisdictions in selecting and designing best management practices (BMPs) for stormwater quality improvement. At this time it contains an introduction to stormwater quality management; a discussion on stormwater quality, its hydrology and pollutant loading; technical criteria for seven structural BMPs; a description of several nonstructural BMPs; and a chapter on erosion control practices during construction.

The format of volume 3 is similar to the original USDCM and was chosen to permit future revisions and additions to be incorporated into the manual as they occur. The BMP manual may be obtained from the district at a cost of \$40 plus \$3.50 for postage. This price includes all additions and revisions that will be issued by the district through 1997, several of which are already being planned.

Revegetation
Workbook &
Stormwater
BMP Manual
Developed by
Denver Flood District
(continued)

In addition to this BMP manual, there are also three recently released publications that address urban stormwater and management of its quality. These are

1. *Stormwater Management* by Martin P. Wanielista and Yousef A. Yousef, published by John Wiley and Sons, 1992. May be ordered through bookstores.
2. *A Current Assessment of Urban Best Management Practices — Techniques for Reducing Non-Point Source Pollution in Coastal Areas* by Thomas Schueler, Peter Kumble and Maureen Heraty, 1992. (See *News-Notes* #22, June-July '92, for a review of this document.)
3. *Stormwater — Best Management Practices Including Detention* by Ben Urbonas and Peter Stahre (2nd Edition), Prentice Hall, 1993. May be ordered through bookstores.

[For further information on the *Revegetation Workbook* or on the *BMP Manual*, contact: Urban Drainage and Flood Control District, 2480 West 26th Ave., # 156-B, Denver, CO 80211. Phone: (303) 455-6277. FAX: (303) 455-7880. *Current Assessment of Urban BMPs* by Schueler can be ordered from: Information Center, Metropolitan Washington Council of Governments, 777 North Capitol Street, NE, Suite 300, Washington DC 20002-4201. Phone: (202) 962-3200. Cost \$30 each. Make checks payable to MWCOG.]

NPS Electronic Bulletin Board (BBS) News

How To Use The NPS Electronic Bulletin Board (BBS)

Nonpoint Source Electronic Bulletin Board System — (NPS BBS). The NPS BBS, through the user's personal computer, provides timely, relevant NPS information; a nationwide forum for open discussion; and the ability to exchange computer text and program files. Special Interest Group Forums (mini-bulletin boards) are dedicated to specific topics and have all the features of the main BBS.

To access the NPS BBS, you will need • a PC or terminal • telecommunications software (such as Crosstalk or ProComm) • a modem (1200, 2400, or 9600 baud) • a phone line.

The NPS BBS phone number is (301) 589-0205.

For a copy of the user's manual, complete *THE COUPON* on page 27 and mail or fax it in.

New Special Interest Group (SIG) Forum Highlights Total Maximum Daily Loads

*TMDL lovers just listen to me
Need a new way to talk 303(d)?*

*The NPS BBS is already real big
Now it's new and improved with our TMDL SIG!*

*Questions, answers, opinions, case studies
Use the new "SIG" to send stuff to your buddies!*

*Networking is easy with a computer and modem
Lots of great files — go ahead and download 'em.*

*From east coast to west, Boston, New York or Denver,
Just have your message ready and send it whenever!*

*So be brave, experiment, use your PC!
Cut down on paper — don't kill a tree!*

—The Watershed Management Section

What is a TMDL???

What is 303(d)???

To find out, tap into the TMDL SIG, a new forum for quick, easy communication among those engaged in water resources management on a watershed/basin scale. The SIG will be used to present and discuss questions about watershed management and policy issues and to make relevant EPA documents more readily available.

Theresa Tuaño of the Watershed Management Section at EPA Headquarters is the new SIG's Technical Monitor (and resident poet!).

Watershed Registry

Links Watershed Project Workers

The NPS BBS is hosting a national registry for watershed project coordinators, managers, engineers, hydrologists, chemists, and biologists as well as educators, planners, and administrators. The registry's purpose is to provide all of you with information about what other watershed teams are working on. We hope you'll use it to share technological, educational, legislative, and financial problems and solutions.

Neighboring watersheds can use the registry to coordinate efforts for maximum effectiveness. Projects in the planning stages can glean ideas and, hopefully, avoid mistakes others have made. Individuals grappling with technical problems can use it to find others who have tackled similar obstacles. Making contact with other watershed project teams allows you to review the methodology and implementation experience of others and solve technical, administrative, and social problems without "reinventing the wheel."

We invite you to join with us in this experiment in collegiality. Registry in the directory is *completely voluntary* and available only online. The form you fill in online sends pertinent information about your project and your area of interest into a database that can be searched online. Each record pertains to an individual watershed project team member, since each member has experience in a different component. Records include name, organization, contact information, project sponsors, size and location of watershed, major problems, and major activities.

The registry is *not* a listing of watershed projects. Rather, it is meant to be a people-to-people guide to who's doing what in watershed protection and restoration. We hope it will be the first of many contacts you make with other watershed teams. We encourage you to use the message function of the BBS to communicate with other registrees (e.g., "Bob—Noticed you are using electricity to keep cattle off streambanks. What are the economics?—Sara"). Phone numbers and addresses are part of each entry so you can make contact the old-fashioned way, too.

Take a few minutes to register. We've tried to keep our questions simple yet aimed at facilitating and expediting the exchange of information.

The Watershed Registry is located in Door 1 of the Watershed Restoration Network Special Interest Group (SIG). The Watershed Registry Database is in Door 2. To get to any of the SIG Forums from the Main Board, type J (for "join"), press <ENTER>. Then from the menu, select the SIG you wish to enter. The Watershed Restoration Network is SIG 5. After you get into the Watershed Restoration Network, type O (to "open a Door"). From there, you can select Door 1 to complete your registry form and Door 2 to peruse the searchable database.

Happy hunting. Pick the brains and the experience of your fellows. We're all in this thing together.

— Hal Wise

News-Notes Back Issues Available Online

We here at *News-Notes* receive a lot of requests for back issues — so many, in fact, that we have run out of copies of several issues. *All* issues of *News-Notes* are available on the BBS in two forms:

- in files to be downloaded to your own computer, and
- in the *News-Notes* Door to be searched by keywords; or by issue number, date, and article number; or by words in article titles or text.

Also in a downloadable file is an index to *News-Notes* articles, arranged by keyword. The index will be updated regularly.

So if you're looking for that one issue you seem to be missing, log on to the BBS and get what you need in an instant.

Announcements

Nutrient Management Conference Set

A nutrient management conference sponsored by the Conservation Technology Information Center in cooperation with the National Association of Conservation Districts, EPA, and SCS is set for April 20-22, 1993, in St. Louis, Missouri. The National Agricultural Nutrient Management Conference is designed to assist local and state program managers in planning and implementing an effective nutrient management program. It focuses on laying the groundwork for nutrient management plans, program and technology issues, and provides examples of management plans.

The conference will include plenary and concurrent sessions, and a nutrient management workshop focusing on the components of successful management plans.

Proceedings of the conference will be published as a special supplement to the *Journal of Soil and Water Conservation* in 1993. For more information, contact CTIC at (317) 494-9555 or FAX (317) 494-5969.

Water Quality Symposium Proceedings Available

Proceedings from the 1992 North Dakota Water Quality Symposium are available. Over 60 oral and poster papers were presented. Session topics included (1) water quality issues from different professional perspectives; (2) factors affecting groundwater quality; (3) factors affecting surface water quality; (4) interbasin biota transfer; (5) water resource protection; and (6) public health issues. Regional participation in the symposium included four neighboring states and three Canadian provinces.

There is a \$10 fee for the 1992 symposium proceedings. Proceedings from the 1988 and 1990 symposia are also available at no cost from Bruce Seelig, Extension Soils, Walster Hall, Box 5758, North Dakota State University, Fargo, ND 58105.

Watershed '93 On The Air Via Satellite!

A national videoteleconference will enable people from across the country to participate in WATERSHED '93, the national conference on watershed management.

The teleconference, *Visions of the Future for Watershed Management: A National Satellite Video Conference*, is scheduled for live broadcast on Wednesday, March 24.

The videoconference will be held on the last day of the WATERSHED '93 conference, held March 21-24 in Alexandria, Virginia (see DATEBOOK section of this issue).

WATERSHED '93 will bring together people who are involved or interested in natural resource use and management, pollution prevention and control, and planning and development for public and private sectors.

The semifinal agenda for the satellite conference includes

PLENARY SESSION: *Visions for the Future*

10:45 – 11 a.m.

Robert Redford, Actor, producer, director; Board Member, Environmental Defense Fund and Natural Resources Defense Council; Founder, Institute for Resource Management, Sundance, Utah [invited]

11 a.m. – 12:30 p.m.

Panel Discussion

Panel members will provide their perspectives on the future direction of watershed management, the roles of various levels of government, and the help they need to carry out their responsibilities. Opportunity for phoned-in questions and comments from downlink sites.

MODERATOR: L. Gregory Low, *Vice President, The Nature Conservancy, Arlington, Virginia*

■ **A Capitol Hill Perspective**

Jimmie Powell, *Professional Staff Member, Senate Committee on Environment and Public Works, Washington, D.C.*

■ **A Federal Agency Perspective**

Robert H. Wayland III, *Director, Office of Wetlands, Oceans, and Watersheds, U.S. Environmental Protection Agency, Washington, D.C.*

■ **A State Perspective**

Edwin H. (Toby) Clark II, Ph.D., *Secretary, Delaware Department of Natural Resources and Environmental Control, Dover, Delaware*

■ **A Local Perspective**

The Honorable Parris N. Glendening, *County Executive, Prince George's County; Chairman, Environmental Policy Committee, Metropolitan Washington Council of Governments, Prince George's County, Maryland*

12:30–3 p.m.

Small Group Discussions at WATERSHED '93 and Local Mini-Conferences

across the country. An opportunity for all participants to express their views on the future of watershed management (not broadcast).

3–4 p.m.

Summary of small group discussions

Questions and comments from live audience and phone-ins from downlink sites.

4–4:30 p.m.

Closing Plenary [TBA]

For more information, or to receive a Downlink Site Coordinators Guide, please call 1-800-726-4853, or fax your request to (202) 296-4071.

For technical information about the broadcast or to find satellite coordinates, please call (202) 690-4153. Satellite coordinates will be available 30 days prior to the broadcast.

Funding Available for Drinking Water Research

Water treatment, distribution systems, monitoring and analysis, management and administration, and health effects are project topics selected for funding by the American Water Works Association (AWWA) in 1993. The AWWA Research Foundation approved \$3.8 million to sponsor research on these topics. Seven hundred thousand dollars was appropriated to fund additional projects selected through the unsolicited project program.

Requests-for-proposals (RFPs) will be available in early March 1993. Researchers may submit proposals in response to RFPs to the Research Foundation through May 3 for projects with budgets up to \$250,000 in AWWA Research Foundation funds. Proposals for RFP projects with AWWA Research Foundation funds of \$250,000 and greater will be accepted through July 15. Several of the projects are EPA Cooperative Projects.

Unsolicited proposal funds are earmarked for innovative research ideas that are not included in this year's selected topics. Submitters of unsolicited proposals determine the project scope and budget but may look to AWWA's solicited projects for general guidelines as to typical project size and budget. Unsolicited project proposals will be accepted through April 1.

For solicited projects, AWWA requires 25 percent of the total project budget to be in-kind contributions and encourages the same policy for unsolicited projects. In-kind contributions may be from several sources (e.g., consulting firms, universities, utilities) and be in the form of labor, laboratory services, cash, etc.

*Funding Available
For Drinking Water
Research
(continued)*

Each solicited project contract will be awarded on a competitive basis using criteria such as responsiveness to the RFP, scientific and technical merit, and qualifications of project personnel. Unsolicited proposals are assessed by a technical review committee, which sends their recommendations to the board of trustees for final proposal selection in June.

[Obtain RFPs by sending requests to: AWWA Research Foundation, RFP Desk, 6666 West Quincy Avenue, Denver, CO 80235; or call (303) 347-6117.]

Biological Criteria Video

The Office of Science and Technology, Office of Water, announces the release of a new video on water quality standards and criteria. The video, "Development of Biological Criteria for Use in Water Quality Standards," provides an overview of the biological criteria that states and tribes are to adopt to meet the objectives of the Clean Water Act. The video is available on loan and may be obtained by contacting the Office of Water Resource Center at (202) 260-7786.

Forest Hydrologist Teaching Position

The Natural Resources Management Department at California Polytechnic University is looking for a part-time lecturer to teach a class in Watershed Protection for a 10-week quarter. Scheduling is flexible; eg., the entire course may be scheduled during the first three to four weeks of the quarter, using evenings and weekends. Intro classes may be added to the teaching load, if desired. Topics to be covered: watershed protection and rehabilitation, erosion, sedimentation, and other water quality aspects of land use, sampling techniques, landslide evaluation, cumulative watershed impacts. Overnight field trips possible. Earliest start date is week of March 29, 1993. Contact Dr. Norman Pillsbury at (805) 756-2702.

Datebook

DATEBOOK has been assembled with the cooperation of our readers. If there is a meeting or event that you would like placed in 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. A more complete listing can be found on the *NPS BBS*.

Meetings and Events

1993

March

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- | | |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2-4 | <i>Symposium on Ecological Restoration</i> , Chicago, IL. Contact: Jodi Sproul, Terrene Institute, 1717 K Street, NW, Suite 801, Washington, DC 20006. (202) 833-8317. Sponsored by the U.S. EPA and the Great Lakes National Program. To focus on restoration examples in the Great Lakes Basin. Policy and technical issues related to ecological restoration, strengths and weaknesses of various restoration programs and techniques, and opportunities for future restoration activities. |
| 5-6 | <i>Transportation Planning for Livable Communities</i> , Austin, TX. Contact: National Trust, Transportation Conferences, 1785 Massachusetts Ave., NW, Washington, DC 20036. (202) 673-4100 or (800) 937-6847. Regional conferences to bring together citizens and transportation professionals. Discussion will focus on the New Intermodal Surface Transportation Efficiency Act (ISTEA). |
| 9 | <i>Children's Groundwater Festival</i> , Grand Island, NE. Contact: NE Groundwater Foundation, Central Community College, Grand Island, NE. (402) 434-2740. Sponsored by the Nebraska Groundwater Foundation. |
| 9-11 | <i>Implementing Integrated Environmental Management</i> , Blacksburg, VA. Contact: John Cairns Jr., Virginia Polytechnic Institute and State University. (703) 231-5538. Registration: \$150. |
| 10-11 | <i>Section 319(h) Nonpoint Source Grant Reporting and Tracking System Users Group Meeting</i> , St. Petersburg, FL. Contact: Don Kunkoski, U.S. EPA, WH-553, 401 M Street, SW, Washington, DC 20460. (202) 260-7103. Group includes EPA Headquarters, regional, and state representatives. The group monitors and oversees the performance of the section 319(h) grant reporting and tracking system. Primary objective is to ensure that GRTS provides accurate and timely information and data to assist EPA Headquarters, regions, and states in their grant management and decision-making. |

1993**March**

- 11-13 *NALMS 2nd Annual Southeastern Lakes Management Conference: Forging Partnerships for Lake and Watershed Management*, Chattanooga, TN. Contact: NALMS, 1 Progress Blvd., Box 27, Alachua, FL 32615-9536. (904) 462-2554. Organized by North American Lake Management Society; cosponsored by U.S. EPA and Tennessee Valley Authority.
- 12-13 *Transportation Planning for Livable Communities*, Boston, MA. See listing for March 5-6, 1993.
- 14-16 *The Next Generation of U.S. Agricultural Conservation Policy*, Kansas City, MO. Contact: SWCS, 7515 Northeast Ankeny Rd., Ankeny, IA 50021-9764. (800) THE SOIL.
- 14-18 *Symposium on Geographic Information Systems and Water Resources*, Mobile, AL. Contact: AWRA, 5410 Grosvenor Lane, Suite 220, Bethesda, MD 20814-2192. (301) 493-8600.
- 15-18 *Riparian Ecosystems in the Humid U.S.: Functions, Values, and Management*, Atlanta, GA. Contact: Nancy Barron, Riparian Ecosystems Conf., U.S. EPA, 345 Courtland St., NE, Atlanta, GA 30365. (404) 347-2126. FAX: (404) 347-3269.
- 17-18 *Nebraska Water Conference*, North Platte, NE. Contact: The Water Center, Environmental Programs, University of Nebraska, 101 NRH, Lincoln, NE 68583-0844. (402) 472-3305. FAX: (402) 472-3574.
- 17-19 *Rural Nonpoint Source Pollution in the Upper Midwest: Exploring Local-Level Initiatives and Effective Partnerships*, La Crosse, WI. Contact: Linda Schroeder, Conf. Manager, Nonpoint Source Conference, 282 77th St., SE, Delano, MN 55328. (612) 972-3908.
- 21-24 *Watershed '93: A National Conference on Watershed Management*, Alexandria, VA. Contact: WATERSHED '93, c/o Terrene Institute, 1000 Connecticut Ave., NW, Ste. 802, Washington, DC 20036. (202) 833-8317. FAX: (202) 466-8554. Sponsored by U.S. Army Corps of Engineers, BLM, EPA, FHA, FWS, USGS, Forest Service, SCS, Council on Environmental Quality, and NOAA in cooperation with 6 national and local agencies and organizations.
- 28-4/1 *National Conference on Aquifer and Wellhead Protection*, Coeur d'Alene, ID. Contact: Robert S. Turner, Coordinator, National Wellhead Conference, North 811 Jefferson, Spokane, WA 99260. (509) 456-3600. (509) 456-6024. FAX: (509) 456-4715.
- 30-4/1 *Water Quality Data Assessment Seminar*, Bandera, TX. Contact: Paul Koska/Henry H. Holman, USEPA, Region 6, Environmental Analysis Section, 1445 Ross Avenue, Suite 1200, Dallas, TX 75202-2733. (214) 655-2289.
- 30-4/2 *National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels*, Chicago, IL. Contact: Bob Kirschner, NE IL Planning Commission, Natural Resources Dept., 400 W. Madison Street, Room 200, Chicago, IL 60606. (312) 454-0400. FAX: (312) 454-0411. Sponsored by U.S. EPA Region 5, USDA SCS, and NOAA. Coordinated by Northeastern Illinois Planning Commission. Topics: urban runoff modelling, water quality monitoring and assessment, wetlands and riparian area protection, wet weather flow management, site plan review and inspection, design/implementation of structural and non-structural controls, coastal NPS programs, watershed priority-setting approaches.

April

- 2-3 *Transportation Planning for Livable Communities*, San Francisco, CA. See listing for March 5-6, 1993.
- 6-8 *Bear River Water Quality Symposium*, Logan, UT. Contact: J. Kent Hortin, Bear River RC & D, 1260 North 200 East, Suite #4, Logan, UT 84321. (801) 753-3871. Cooperative effort of Bear River RC&D, Bear Lake Regional Commission and the Ecosystem Research Institute.
- 4-8 *25th International Symposium on Remote Sensing and Global Environment Change*, Graz, Austria, Contact: Nancy Wallman, ERIM, Box 134001, Ann Arbor, MI 48113-4001. (313) 994-1200. FAX: (313) 994-5123.
- 20-22 *National Agriculture Nutrient Management Conference*, St. Louis, MO. Contact: Lyn Kirschner, CTIC, 1220 Potter Dr., Room 170, West Lafayette, IN 47006-1383. (317) 494-9555.
- 23-24 *Transportation Planning for Livable Communities*, Atlanta, GA. See listing for March 5-6, 1993.
- 30-5/1 *Transportation Planning for Livable Communities*, Winter Park, FL. See listing for March 5-6, 1993.

May

- 5-7 *Enhancing the State's Lakes Management Programs: Strengthening Local Lake and Watershed Protection Efforts*, Chicago, IL. Contact: Bob Kirschner, NE IL Planning Commission, Natural Resources Dept., 400 W. Madison Street, Room 200, Chicago, IL 60606. (312) 454-0400. FAX: (312) 454-0411. Sponsored by U.S. EPA, Region 5, Clean Lakes Program. Coordinated by Northeastern Illinois Planning Commission in cooperation with North American Lake Management Society. Will focus on cooperation among state lake programs, state lake associations, and local lake management. Long-term protective strategies explored.
- 15-21 *2nd USA/CIS Joint Conference on Environmental Hydrology and Hydrogeology*, Arlington, VA. Contact: Helen Klose, American Inst. of Hydrology, 3416 University Ave., SE, Minneapolis, MN 55414-3328. (612) 379-1030.

1993**June**

23-26

Environmental Education 2000: Building a Solid Foundation for the Future, Leesburg, VA. Contact: Alliance for Environmental Education, 51 Main Street, P.O. Box 368, The Plains, VA 22171. (703) 253-5812. FAX: (703) 253-5811. Topics: successful model programs, innovative networking, corporate/industry programs, university research, government programs, and computer use.

July

16-18

1st National Youth Environment Summit: Partners for the Planet Branching Out, Cincinnati, OH. Contact: (800) 473-0263. Hosted by 14 organizations and agencies including EPA, FFA, USDA, and Kids for a Clean Environment.

August

9-13

Prairie Ecosystems: Wetland Ecology, Management and Restoration, Jamestown, ND. Contact: Dr. Ned Euliss, U.S. Fish and Wildlife Service, Northern Prairie Res. Center, RR 1, Box 96C, Jamestown, ND 58401.

14-19

International Symposium on Soil and Plant Analysis, Olympia, WA. Contact: Benton Jones, Jr., 183 Paradise Blvd., Suite 108, Athens, GA 30607. (706) 548-4557.

September

20-24

First International IAWPRC Specialized Conference on Diffuse (Nonpoint Source) Pollution: Sources, Prevention, Impact and Abatement, 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: (414) 288-7082.

28-29

Symposium on Agricultural Nonpoint Sources of Contaminants: A Focus on Herbicides, Lawrence, Kansas. Contact: Larry Ferguson, U.S. EPA, 726 Minnesota Ave., Kansas City, KS 66101. Phone (913) 551-7447. Topics: health and environmental impacts of herbicides, the regulatory implications, and management of herbicides to minimize environmental impacts. Cosponsored by EPA and USGS.

October

2-7

1993 Water Environment Federation Annual Conference, Anaheim, CA. Contact: Maureen Novotne, WEF, Technical & Educational Serv., 601 Wythe St., Alexandria, VA 22314-1994. (703) 684-2400.

4-8

International Symposium on the Ecological Effects of Arctic Airborne Contaminants, Reykjavik, Iceland. Contact: Debra Steward, Technical Resources, Inc., 3202 Tower Oaks Blvd., Suite 200, Rockville, MD 20852.

November

1-3

4th National Pesticide Conference: New Directions in Pesticide Research, Development, Management, and Policy, Richmond, VA. Contact: Dr. Diana Weigmann, VA Polytech, VA Water Resources Res. Center, 617 North Main St., Blacksburg, VA 24060-3397. (703) 231-5624 or 231-6673. Sponsored by the VA Water Resources Research Center, Research Division of VA Polytechnic Institute and 17 cosponsors.

December

11-15

55th Midwest Fish & Wildlife Conference — New Agendas in Fish and Wildlife Management: Approaching the Next Millennium, St. Louis, MO. Contact: Wayne Porath, MO Dept. of Conservation, 1110 S. College Avenue, Columbia, MO 65201. (314) 882-9880.

Calls For Papers — DEADLINES**1993****April**

1

International Symposium on the Ecological Effects of Arctic Airborne Contaminants, October 1-3, 1993, Reykjavik, Iceland. Contact: Debra Steward, Technical Resources, Inc., 3202 Tower Oaks Blvd., Suite 200, Rockville, MD 20852. Sponsored by the U.S. EPA Office of Research and Development and the Iceland Ministry for the Environment. Topics: pathways and distribution of contaminants, human health, arctic ecosystem responses, contaminant relationship to climatic change, and information gaps and research needs.

1

Symposium on Agricultural Nonpoint Sources of Contaminants: A Focus on Herbicides, September 28-29, 1993, Lawrence, Kansas. Topics: health and environmental impacts of herbicides, the regulatory implications, and management of herbicides to minimize environmental impacts. Cosponsored by EPA and USGS. Submit abstracts to Richard A. Herbert, USGS, WRD, 4821 Quail Crest Pl., Lawrence, KS 66049-3839. (913) 832-3505. FAX: (913) 832-3500.

9

Remediating Hazardous Waste and Groundwater Contamination Sites: New Approaches, March 1, 1994, Miami, FL. Contact: Libby Strickland, Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314-1994. (703) 684-2400. FAX: (703) 684-2475.

Nonpoint Source NEWS-NOTES is an occasional bulletin dealing with the condition of the environment, the ecological management of watersheds, 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 groundwater. NPS pollution is normally associated with agricultural, silvicultural, mining, and urban runoff. Hydrologic modification is a form of NPS pollution that often adversely affects the biological integrity of surface waters.

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