

Nonpoint Source



EPA

News-Notes

An Introductory Comment...

The Chesapeake Bay Program Nonpoint Source Evaluation

A fifteen-member NPS Evaluation Panel, initially convened eight months ago by EPA's Administrator William K. Reilly, has prepared its report of findings and recommendations focusing on current efforts to control nonpoint sources of water pollution in the Chesapeake Bay as Bay governments seek to meet their year 2000 goal of a 40 percent reduction in nutrients entering the Bay's mainstem. The 40 percent reduction goal was set by the Chesapeake Bay Executive Council as it adopted the 1987 Chesapeake Bay Agreement.

Inclement weather forced the cancellation of the planned January 8, 1991, presentation of the report to the Council. The report evaluates the nonpoint source control programs of the State and local jurisdictions in the Chesapeake Bay watershed. Despite the weather, the report was delivered by mail to each member of the Executive Council, the policy body that directs the Chesapeake Bay Program. The Council, formed by the 1987 Chesapeake Bay Agreement, now includes Maryland Governor William Donald Schaefer, Virginia Governor Douglas Wilder, Pennsylvania Governor Robert Casey, District of Columbia Mayor Sharon Pratt Dixon, and Chesapeake Bay Commission Chairman Kenneth Cole (representing the legislatures), in addition to Administrator Reilly.

Administrator Reilly wrote to each member of the Evaluation Panel to express his disappointment at not being able to meet with them. In his comments, Reilly said,

I was anxious to hear your panel's report and assure you that we are poised to give the report every consideration in the coming year. The cleanup of the Bay will not be possible without the most effective nonpoint source controls that we can devise, and this report provides one of the most thoughtful catalogues of ideas I have seen. In fact, I will make it available to EPA's Office of Water with my strong recommendation that they consider using the recommendations that it contains.

The significance of this report cannot be overstated. Seldom, if ever, has a mature, on-going, multi-jurisdictional nonpoint source control program received such close inspection by such

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An Introductory
Comment
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an intellectually tough-minded panel whose only motivation has to be a desire for the total success of the overall undertaking and a healthy and productive ecosystem in the Chesapeake Bay.

We have, therefore, devoted the larger part of this issue of *NPS News-Notes* to a report on this evaluation. Most of our readers are involved with local or State NPS control programs that are in their first year, going on two, as contrasted with the Chesapeake Bay Program's ten years of problem definition and NPS control efforts. We think that the questions raised by the Panel's Report and the answers given can, without too much imagination, be adapted to just about any nonpoint source, nutrient management, problem-solving situation faced by our readers anywhere in the country.

We apologize for the length of this report and promise to return to our more regular format the next time this nonpoint source bulletin is prepared.

Notes on The Chesapeake Bay

Chesapeake Bay Nonpoint Source Evaluation Panel Submits Final Report and Recommendations on Bay Program's Likelihood to Achieve 40% Reduction in Bay Nutrient Loading

A Few Key Ideas

This article reports to *NPS News-Notes* readers the principal findings and recommendations of the Nonpoint Source Evaluation Panel, which has closely examined the Chesapeake Bay Program's nonpoint source control efforts. The Panel's examination has taken place after ten years of problem identification and pollution control efforts in the multi-State Chesapeake Bay watershed. Its purpose is to provide direction for mid-course program corrections. The Panel's letter of transmittal to their report said,

...we are not persuaded that the present array of programs, if implemented as presently designed and at the current resource levels, is sufficient to guarantee success. Achievement of the 40% nutrient reduction goal will demand, we believe, greater effort in a number of areas. We want to leave you with several key ideas:

- *The efficiency of nonpoint pollution control efforts needs to be improved through targeting and through better management of resources, so that maximum pollution reduction is achieved per unit of program resources expended.*
- *A wider, more complex array of tools and techniques to achieve pollution reduction needs to be aggressively employed by program managers.*
- *Nutrient management to achieve a net reduction of nitrogen and phosphorus migrating into the atmosphere, surface water and groundwater needs to be the principle which drives program and funding efforts.*

Nowhere before in the literature has the subject of watershed-wide, nonpoint pollution control been dealt with as comprehensively—in a real-life, ongoing, multi-State, political context—as it has here in this report. This brief synopsis of the Panel's report cannot hope to capture the thoughtful thoroughness to be found in the reading of the full report itself.

[For copies of the Nonpoint Source Evaluation Report contact: Alliance for the Chesapeake Bay, 6600 York Road, Baltimore, MD 21212.]

The Panel and Its Charge

In March 1990, the Administrator of the U.S. Environmental Protection Agency (EPA), acting on behalf of the Executive Council of the Chesapeake Bay Program, convened this Panel to assess the effectiveness of current efforts to reduce nonpoint source loadings of nutrients entering the Bay system. Our task was to provide an independent assessment of the likelihood that the current array of programs is sufficient to achieve the Baywide 40 percent nutrient reduction goal established by the 1987 Chesapeake Bay Agreement.¹

With these words the NPS Evaluation Panel introduced its final report, culminating eight months of work during which they reviewed programs related to agriculture, forestry, and urban nonpoint source pollution. The focus was on evaluating the effectiveness of programs that encourage voluntary adoption of measures for controlling nutrient loadings from nonpoint sources. These efforts were examined within the context of the full spectrum of regulatory and nonregulatory options. Their report indicates that they considered the basic nature of the nutrient enrichment problem, the contribution of various point and nonpoint sources, including some presently considered to be beyond the control of the States in the Bay program, and likely trends in the relative contribution of these sources. Further, the Panel examined, reviewed, and assessed

- How nonpoint source programs are designed
- Program budgets
- Research efforts

The Report's introduction concluded that

[o]verall, we are impressed with the progress being...made within the Chesapeake Bay Basin in identifying and reducing nonpoint sources of nutrients. The Chesapeake Bay Program is, we believe, an unprecedented and unparalleled achievement. The multi-State, multi-agency attack on nonpoint sources of pollution has raised the level of public awareness of the problem, substantially reduced nutrient losses from the land, pushed the frontiers of science and engineering, and become a model for the Nation. The professionalism, expertise and dedication of program administrators and staff have brought nonpoint pollution from an obscure problem into the mainstream of environmental policy.

Findings

Programs Not Sufficient

...[W]e are not convinced that nonpoint source control programs, as currently designed and implemented, are sufficient to ensure meeting the year 2000 goal.

With that, the Panel said,

we believe that current programs must be improved and supplemented...[T]his will require...the allocation of additional resources to nonpoint source control, as well as re-allocation of current resources.

[T]he costs should be shared by government and the private sector.

A number of reasons were given for its conclusion that current programs are inadequate:

- The rates of voluntary adoption of nonpoint source control measures are too slow to ensure

¹ Members of the Nonpoint Source Evaluation Panel are Frances H. Flanigan, Chairperson, Alliance for the Chesapeake Bay, Inc., Baltimore, MD; Dr. John C. Barber, U.S. Forest Service, (Ret), Warsaw, VA; Dr. Sandra S. Batie, VPI and SU, Dept. of Agricultural Economics, Blacksburg, VA; Mel Davis, Soil Conservation Service (Ret), Mechanicsburg, PA; Dr. Peter L. deFur, Environmental Defense Fund, Richmond, VA; David Dickson, Izaak Walton League of America, Arlington, VA; Mark Fuchs, Delaware-Maryland Agribusiness Assoc., Ridgely, MD; Patrick Gardner, Chesapeake Bay Foundation, Annapolis, MD; Gerald Heistand, Lancaster Conservation District, Lancaster, PA; John Keeling, American Farm Bureau Federation, Washington, DC; Mary Nightlinger, League of Women Voters, Fairfax, VA; John Redmon, DC Department of Consumer and Regulatory Affairs (Ret), Washington, DC; Rosemary Roswell, Maryland Department of Agriculture, Annapolis, MD; Jeff Schmidt, Sierra Club, Harrisburg, PA; Senator Noah W. Wenger, Chesapeake Bay Commission, Harrisburg, PA.

meeting the goal. Farmers participate in small numbers in the major Federal agricultural program designed to promote conservation. No data has been found indicating perceptible water quality improvements resulting from increased conservation efforts.

- Current estimates of nutrient load reductions are probably too optimistic. Estimates of the effectiveness of some structural BMPs in reducing nutrient loads appear to be inflated.
- Continuing rapid urbanization of the drainage basin means the nonpoint source problem is intensifying and changing in character.

Information Needs

A further important finding was listed:

In reviewing available information, it was found [that]...it is presently impossible to accurately account for nutrients entering, moving through and leaving the Bay system. This is a great handicap to management efforts.

The Panel then indicated that it

believes that a mass balance approach should be developed for nutrient management. The mass balance system would require developing statistical data bases for all sources of nutrients including, for example, animal wastes, chemical fertilizers, municipal sludges and atmospheric deposition and for products that use nutrients, such as crops harvested, processed wastes transported outside of the basin, losses to ground and surface water and volatilization to the atmosphere. We believe that this approach should be a long range goal.

Planning, Program Design, and Implementation Needs

In reviewing current nonpoint source control efforts, the panel found that

...there is no systematic planning framework that captures all aspects of the nutrient management problem, including the wide range of nutrient sources and the variety of regulatory and nonregulatory mechanisms for controlling loadings...We found no evidence that the disparate parts of nonpoint control strategies are well coordinated. The jurisdictions, individually and collectively, must establish means of initiating and maintaining stronger functional relationships among program components.

The design or implementation of current programs should be modified to increase program efficiency as follows:

- *Control measures must be more sharply focused on the major sources of nutrient loadings.*
- *Increased emphasis should be placed on nutrient management, within a mass balance framework that takes in the full range of nutrient sources and pathways.*
- *The jurisdictions should be particularly aggressive in dealing with the problem of animal wastes, and should supplement voluntary programs with regulatory requirements.*
- *The partners in the nutrient reduction strategy must do a better job in developing and managing the information that is necessary to guide their programs toward success.*

Finally, with respect to the implementation tools available to reduce nonpoint source nutrient loads, the Panel concluded that all approaches must be exploited, including

- *Regulatory requirements; requirements with public funding and/or technical assistance supplied; partial public funding as cost share; voluntary adoption by landowners without financial assistance and technical assistance; quasi-regulatory where important benefits are withheld if conservation measures are not adopted....None [of these approaches] alone is capable of obtaining the water quality goals of the Chesapeake Bay Program.*

- *The States should continually assess their programs to ensure that they incorporate the most cost-effective mix of education, technical assistance, financial assistance, research and demonstration projects, and regulation. Incentives that encourage voluntary adoption of nonpoint source measures at relatively low cost to government should be encouraged. In addition, we envision more active participation by the private sector, especially in the area of education and outreach within the agricultural community.*

The Recommendations

1. Targeting Programs

- *The Panel recommends that the jurisdictions continue to refine their identification of specific geographic areas and activities that are the most important contributors of nutrients to the Bay system and develop and improve targeting strategies accordingly. Identification of individual farms, forestry acreage, and development sites for priority action is essential.*

In short, deliberately and consciously point actions directly at the biggest problems and the greatest payoffs.

- *We recommend that the States adopt a tiered targeting structure, with levels of program support directly related to established priorities, based on explicit cost-effectiveness considerations.*

This means spending available funding and financial support in *targeted* areas to achieve the most nutrient reduction per dollar spent. Targeting systems need to incorporate cost-effectiveness considerations to help guide programs. Targeting evaluation must be followed up with timely program modifications that reflect management lessons learned.

2. Program Design: Voluntary vs. Regulatory

- *The Panel recommends that the States and the federal government augment voluntary programs with increased use of regulatory authority for the reduction of nutrient loadings. To minimize financial burdens, regulatory requirements should be accompanied by technical and, where appropriate, financial assistance. The development of any regulatory requirements should include ample opportunity for public participation.*
- *The Panel recommends that the wide spectrum of programs and policies that fall between voluntary and regulatory be fully utilized.*

Enforce the use of mandatory requirements against reluctant cooperators who are “part of the problem,” particularly in areas of animal waste and nutrient management planning. Also, maximize program approaches that lie between mandatory and voluntary. Promote cooperation with technical and financial help. Aggressively seek cooperation and understanding to motivate farmers to participate in water quality and nutrient management. Open the debate to everyone. Let all know what’s going on and why.

3. Nutrient Management

- *The Panel recommends that the term Best Management System, which would go beyond traditional soil loss concepts, be adopted by Chesapeake Bay jurisdictions and Federal agencies. Use of this term will show common support of a comprehensive nutrient reduction strategy. It should also improve communication which has been confused by the varying uses of the established term “BMP.”*

The mission is nutrient reduction to the Bay. Old familiar practices originally aimed at preventing soil erosion should not necessarily be adopted unless they, demonstrably, reduce the flow of nutrients. New terminology will help to rethink and sharpen the use of old practices for new mission effectiveness.

- *The Panel recommends that nutrient management plans be required and implemented for lands that are targeted as sources of nutrient loading to the Bay.*

Nutrient management plans should be required on all lands targeted as primary nutrient sources draining into the Bay. Funding decisions should result from such targeted, conscious planning.

4. Animal Wastes

- *We recommend that the Bay States be more aggressive in ensuring the effective management of animal wastes. Specifically, we recommend that the States target animal operations according to the impact they may have on the resource. Larger or more intensive operations should be a priority. Further, we recommend that the States set mandatory animal unit thresholds above which they will require farmers to develop and implement best management systems for animal facilities. Farms in close proximity to surface water or vulnerable groundwater, as well as operations that are planning to expand, should be specially targeted for program participation.*

The Clean Water Act, and EPA regulations, provide Federal authority for the regulation of significant animal feeding concentrations (1,000 head or more, of feeder cattle, for example) by treating them as “point sources” and requiring a discharge permit. However, this provision of the Act has had limited use. States have, additionally, their own “State law” authority to regulate by permit.

These authorities should receive much broader use. Threshold levels triggering regulation should be lowered. Permit conditions should include a requirement for preparing and implementing nutrient management programs.

5. Land Use, Growth, and Urbanization

- *We recommend that the States, universities, and local and regional agencies greatly increase their efforts to devise land use management systems that accommodate growth in patterns that minimize environmental damage and can be affordably served, devise methods to better distribute costs and profits of development, and promote understanding and acceptance of these policies.*
- *We also recommend that States provide authority to localities to implement plans that guide growth while protecting environmentally sensitive areas. Local planning needs to occur within the framework of statewide growth management programs.*
- *We recommend that the Bay jurisdictions continue to increase their emphasis on controlling urban sources of nutrients, such as stormwater discharges, runoff from paved areas and construction sites, suburban lawns, and the nutrient-enriched groundwater sometimes associated with concentrated septic tanks. The States should closely oversee local programs that include inspection, maintenance, and monitoring efforts.*
- *We recommend that the Bay jurisdictions intensify their efforts to protect those land uses and land cover types that provide positive water quality benefits. In particular, we recommend that additional efforts be made to encourage the maintenance of forests, wetlands, and agricultural lands, most of which are held in private ownership.*

Presently, the urbanized 10 percent of the Chesapeake Bay basin land generates nutrient loadings comparable to the 50 percent in cropland.

It is anticipated that basin population will increase by 20 percent over the next 30 years. A recent Maryland study showed that between 1970 and 1980, the increase in developed acreage was twice the rate of population growth.

Future growth must be channeled into density centers, usually preexisting, where it can be served by more efficient transportation modes and other public facilities and where it will occupy a smaller footprint on the natural land surface. Concentrated development has both environmental and fiscal benefits.

Growth management strategies must include policies for forest conservation, wetlands protection, and farmland preservation as an integral part of water quality and nonpoint source nutrient runoff management.

6. Education and Outreach

- *We recommend that enhanced educational effort be given high priority as a means of achieving nutrient reduction goals. Specifically, we recommend that the Bay States refocus and restructure the educational components of their programs to more effectively market nonpoint source control to targeted audiences. Specific goals and measures of ultimate success in terms of both the rate of adoption of nonpoint source control practices and ultimate improvements in water quality must be established and adhered to.*
- *We recommend that Federal agencies and the Bay States take advantage of private sector expertise and establish public/private partnerships to further common education objectives. We recommend that the Bay States undertake a special initiative to offer more extensive training to representatives of industry, the academic community, and environmental groups so that they can effectively promote good nutrient management practices.*

The few studies available strongly indicate that education and outreach programs offer a very high payoff per unit of investment. Effective, targeted, persuasive education and outreach is vital to changing the behavior of many individuals who collectively contribute to nonpoint source pollution.

The nonpoint source pollution issue involves a wide array of individuals, groups, and organizations, including but not limited to homeowners, farmers, loggers, developers, and landowners. Educational and outreach components of nonpoint source programs must be designed for varied but specific audiences.

Program managers should set marketing goals. Public image, peer group (or user group) influence, and social responsibility should all be used in structuring approaches for encouraging participation.

Public interest, citizen, and civic groups; trade associations; farmers' organizations; students, schools, and universities; local governments; and a host of other groups and organizations can provide a rich resource upon which to build key components of nonpoint source education and outreach programs.

7. Inadequately Addressed Nutrient Sources

- *We recommend that the Bay States and the federal government undertake more aggressive efforts to address nutrient loadings associated with atmospheric deposition, groundwater, septic systems, and shoreline and streambank erosion, and that these sources be included in the nutrient reduction strategy.*

States are currently concentrating on known sources that are considered "controllable" to achieve the 40 percent nutrient reduction goal. A number of other sources, some known, some suspected, were initially excluded from control strategies and water quality models supporting the nutrient reduction effort. Some of these sources, particularly the atmosphere, ground water, and septic systems are associated with significant loadings. By specifically addressing them, participants in the nutrient reduction strategy will increase their chances of reducing nutrient loads sufficient to achieve desired water quality improvements.

8. Information and Research Needs

- *We recommend that a greater effort be made by all participants in the Bay program to ensure that information requested and gathered be planned to strengthen and guide policy and program decision, and that the Bay States cooperate in developing a more consistent information management framework.*
- *We recommend that the Bay Program fund research studies and monitoring programs to generate the data, information, and knowledge needed to refine and perfect nutrient management efforts.*

As nutrient reduction program activities become more advanced and refined, current monitoring programs should be evaluated to determine the adequacy of data to support nonpoint source policymaking efforts and to assess program effectiveness.

9. Program Administration

- *We recommend that program managers clearly identify their annual action plans for accomplishing nutrient reduction goals. Specific measurable objectives need to be identified and progress in meeting those objectives evaluated regularly. The results of program evaluations should be documented and made available to the general public.*
- *We recommend that EPA require and the Bay jurisdictions use compatible reporting formats and data management systems for nonpoint source monitoring and modeling data and information.*

For example, States should track whether progress is made in correcting the high priority problems identified through targeting efforts.

Compatible reporting formats would help provide a more coherent picture of conditions within the basin and would allow more meaningful comparisons of progress and approaches being implemented in each jurisdiction.

- *We recommend that each Bay State establish a centralized accounting system for funding and labor resources allocated to nonpoint source control programs.*

This is a matter of sound practice in the management of cost-share funds and reporting and resolution of fiscal and administrative issues in a complex and multi-faceted program. Program success is dependent on the establishment of an effective program management framework.

A New Approach to Nutrient Control

- *The Panel recommends that the Bay jurisdictions and the federal agencies develop a mass balance accounting system, where nutrient loadings are balanced by the nutrients removed from the system plus those which are introduced and stored.*

This mass balance approach would involve collecting statistics on each of the principal components of nitrogen and phosphorus sources and uses. Sources would include animal waste, commercial fertilizers, and municipal sludge. Uses would include crops harvested and waste composted, incinerated, or transported outside the watershed. This approach is based on the idea that a 40 percent reduction in nutrients must be reflected in significant relative changes in these sources or uses. Either the sources must decline or the uses must increase by a combined total of 40 percent if we are to meet our nutrient goal.

Conclusion

The Panel's report concludes with these observations:

- *This Panel has reached consensus on this report through free and open discussion, and examination of the information available to it. We commend the States, federal and local agencies, and the private organizations, businesses and citizens for their recognition of the importance of nonpoint source pollution, and their efforts to deal with those problems. Our intent is to provide constructive recommendations and suggestions that, when implemented, will increase the accomplishments of the Chesapeake Bay Program and move the Bay region closer to the goal of a healthy and productive ecosystem.*

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

National Governors' Association Hosts Workshop on States' Control of Agricultural Nonpoint Source Pollution

A one-day workshop on State programs and policies addressing agricultural nonpoint source pollution was held in Washington, DC, during November, sponsored by the National Governors' Association (NGA) in cooperation with the Center for Agricultural and Rural Development at Iowa State University.

Opening speakers from EPA discussed the national NPS control program as called for by Section 319 of the Clean Water Act (CWA). Dov Weitman, Chief of the Nonpoint Source Control Branch, stressed the importance of targeting priority watersheds. He also discussed livestock and nutrient management as the major NPS problems of the immediate and short-term future.

Steve Dressing and Ann Beier, also from the NPS Branch, presented the database that is being constructed to summarize State assessment reports and management programs. Assessment report information provided by the States clearly showed agriculture to be the greatest nonpoint source pollution problem in the U.S. Management report information similarly indicated agriculture to be the focus of the largest share of State management programs.

Sherry Wise of the Center for Agricultural and Rural Development presented the results of the Center's statistical analysis of EPA's management program database.

Several State nonpoint source coordinators discussed programs and issues of concern to their States. [NPS *News-Notes* has reported in more detail on several of these programs on the dates indicated.]

- Victor Funk, Pennsylvania Department of Environmental Resources, discussed Pennsylvania's program for controlling livestock and nutrient runoff. [*News-Notes*, February, 1990, #3]
- Beth McGee, North Carolina Division of Environmental Management, presented North Carolina's new experimental watershed program for NPS control through nutrient trading with point source treatment plant operators in the Tar-Pamlico Basin. [*News-Notes*, August, 1990, #7]
- Betty Gagnon, Missouri Department of Natural Resources, talked about animal wastes in her State, which is experiencing a large rate of growth in the poultry industry. Composting of dead poultry solves some of these problems. [*News-Notes*, October, 1990, #8]
- Ken Kern, Kansas State Conservation Commission, discussed the Kansas State Water Plan Fund, which provides dedicated sources of funding for various water planning activities, including NPS control. For example, conservation districts are to prepare local NPS Pollution Management Plans on a watershed basis. Local plans will support the State's NPS Management Program prepared under the provisions of CWA Section 319 by the Kansas Department of Health and Environment. The State Water Plan Fund also provides funds for grants to County Health Departments by the Kansas Department of Health and Environment for the preparation of Local NPS Management Plans. The Local NPS Management Plans initiated by Conservation Districts are being developed as a part of these Local Environmental Protection Plans. County health departments and conservation districts are encouraged to coordinate the development of their respective plans. [*News-Notes*, August, 1990, #7]
- Steve Bauer, Idaho Division of Environmental Quality, emphasized the importance of Federal consistency with State NPS Management Programs in western States, where livestock producers graze public and well as private lands. Programs to restore riparian areas were also discussed.

Two speakers discussed State legislative initiatives:

- Gerald Winegard of the Maryland Senate mentioned several programs including the Green Shores program which encourages tree planting, a nutrient management law which requires farmers to develop plans to control nutrient runoff to be eligible for certain agricultural cost-share program benefits, and the Chesapeake Bay Program goal to reduce nutrient runoff to the Bay by 40 percent by the year 2000.
- Former Iowa State Representative Paul Johnson was on hand to discuss various Iowa initiatives including the Groundwater Protection Act, which taxes nitrogen and increases fees on pesticides to fund research on sustainable agriculture. He also explained the Resources Enhancement and Protection Act which addresses agricultural cost-share programs, as well as an initiative to limit pesticide use in vulnerable areas.

Carol Hedges of NGA concluded the program by discussing Federal initiatives in upcoming Congressional sessions. [See *News-Notes*, December [#9] for a discussion of actions taken in the closing days of the 101st Congress.]

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Mississippi Using Constructed Wetlands for Cleaning Wastewater from Concentrated Feeding Operations

Here's what's happening on several fronts in Mississippi where constructed wetlands are being used and tested for nonpoint source management purposes.

Missy Purvis, Soil Conservation Field Specialist with Mississippi's Soil and Water Conservation Commission (MSWCC) observes that

Naturally occurring wetlands perform a tremendous water quality function by filtering pollutants from surface water. The settling out of sediments occurs as water passes through wetlands as does absorption of nutrients by the vegetation. People in Mississippi are now taking advantage of these functions by constructing wetlands systems on strategic sites. From municipal wastewater treatment systems, to recirculation of surface water and biological filtration for animal feeding operations, aquaculture and other nonpoint sources of water pollution, constructed wetlands have improved water quality..

- The Tennessee Valley Authority, with support from Section 319 of the Clean Water Act and funding through the Mississippi Department of Environmental Quality's Office of Pollution Control (MDEQ/OPC), has developed a constructed wetland on a Mississippi Agriculture and Forestry Experiment Station (MAFES) swine demonstration facility in Pontotoc, Mississippi. A wetland has been constructed in this ongoing educational facility to upgrade the effluent discharge from the waste lagoon.
- EPA's Gulf of Mexico Program has joined with several cooperating agencies and individuals, and MDEQ, to evaluate the effectiveness of constructed wetlands in cleaning wastewater that runs off from a dairy farm in east central Mississippi and a catfish farm in southern Mississippi.

The dairy is part of the MAFES operations in Newton County, Mississippi. This dairy, which milks nearly 165 Holstein cows, has a two-stage lagoon system for handling its runoff and wash water. The first stage is handled anaerobically (non-aerated) while the second stage is operated aerobically (oxygen added by aeration). There was concern that water discharged from the second stage still contained excess nutrients, organics, suspended solids, and Biological Oxygen Demand (BOD), so help was sought from the Agricultural Engineering Division of Mississippi State University and from the Soil Conservation Service (SCS) working through Newton County Soil and Water Conservation District.

Mississippi Wetlands
(Continued)

As a result of their findings, a wetland was designed, constructed, and vegetated as a joint effort between the cooperating agencies. The construction and planting were completed in 1989. Some of the plant species used were supplied by SCS's Plant Materials Program.

The Nutrient Enrichment Subcommittee of the Gulf of Mexico Program joined in the effort to evaluate the water quality improvements which are being effected by the constructed wetland.

It is clearly evident that constructed wetland technology is helping alleviate the problems at the MAFES in Newton, and may be a technology applicable to many other similar sites in Mississippi.

- Mr. Truman Roberts, a catfish producer in Purvis, Mississippi, had a problem. He has limited water available for a product that must swim in abundant clean water or perish in its own waste.

The catfish industry plays an extremely important role in the economy of Mississippi. Catfish ponds can become severely overenriched with nutrients and organics to the point where oxygen depletion problems are daily concerns. This problem intensifies on hot, overcast, summer days.

Mr. Roberts conferred with Dr. Billy Wolverton (now retired) of the National Aeronautics and Space Administration. (NASA pioneered the use of constructed wetlands.) Wolverton designed, and with the cooperation of SCS and the University of Southern Mississippi, constructed a wetland system along Robert's four-acre catfish pond. The wetland plants filter excess organics and nutrients to relieve the oxygen depletion and flavor problems which are common in commercial catfish production ponds. The system, filled with gravel then planted with torpedo grass, maiden cane, giant smartweed, and water hyacinth, removes ammonia and phosphorus from the pond water. The water is released from the pond and circulated through the wetland in approximately a 36-hour cycle. The nutrients are removed from the water as it passes through the wetland and is then pumped back into the pond. The spray produced as the water is pumped in the pond works as an aerator which is essential in the aquaculture industry.

The system seems to have several advantages:

- It removes the nutrients from the water so that it may be pumped back into the pond, therefore reducing the amount of fresh water needed for production activities.
- It works as an aerator.
- It eliminates the overflow of the nutrient-enriched water which would otherwise ultimately wind up in the local water supply.

This two-year project has been made possible through the cooperation of EPA, the Department of Environmental Quality, and the Mississippi Soil and Water Conservation Commission. They have furnished time, monies, and personnel to make sure this project is a success.

The Nutrient Enrichment Subcommittee of the Gulf of Mexico Program is cooperating with Mr. Roberts and with the State Nonpoint Source Management Program (Section 319) Agency (MDEQ/OPC) and with the University of Southern Mississippi to document the benefits of this system.

New ponds are being constructed on Mr. Roberts' farm with the help of MSWCC, the Office of Pollution Control, and EPA through its Section 319 program. MSWCC plans to use the information generated from these demonstration projects in the Mississippi Delta where it may be most applicable.

[For more information contact: Missy Purvis, MS Soil and Water Conservation Commission, P.O. Box 23005, Jackson, MS 39225. Phone: (601) 359-1281; or Robert Seyfarth, MS Department of Environmental Quality, Office of Pollution Control, P.O. Box 10385, Jackson, MS 39289. Phone: (601) 961-5171; or Kenneth R. Blan, EPA Gulf of Mexico Program, Stennis Space Center, MS 39529. Phone: (601) 688-1514.]

Maryland State Highway Administration Develops Sediment Control Initiatives to Regulate Construction

Maryland's State Highway Administration (SHA) has developed an Action Plan to manage and control erosion and sediment runoff in its construction activities as part of the Governor's program to clean up and preserve the Chesapeake Bay.

Of the Plan's six initiatives, two are aimed directly at SHA contractors, while four are internal management measures. The contractor-related measures are as follows.

Higher/More Consistent Grades on Quality Assurance Inspections of Contractors' Work

A grade of "C" indicates minimal compliance with sediment control requirements. The stated goal is

to bring all projects to the point where a grade of "B" is normal and a grade of "A" is occasional.

If a "C" grade is given to a project, the contractor will be given one week, maximum, to correct deficiencies. At the end of the week the project will be re-inspected, if deficiencies are not corrected the project will be given a "D" rating and grading related operations will be shut down until the project is brought into a condition that merits a "B" rating. Further failure to correct will cause total project shut-down.

A "B" rating is given when all required controls are installed and functioning as intended, and where there is no evidence of sediment having left the project during the last storm, and controls seem adequate to handle a normal storm event. Contractor responds quickly to requests for corrective actions.

Contractor Incentives/Disincentives for Erosion and Sediment Control

This initiative seeks to

provide a non-monetary award for those firms which exhibit initiative in the area of sediment control and to place additional monetary penalties for non-compliance. Additional penalties could be levied in connection with similar penalties deemed appropriate by Maryland Department of the Environment (MDE). [Editor's Note: MDE administers the State's NPS Management Program.]

The Action Plan calls for penalties for non-compliance with MDE requirements and awards for contractor excellence. "Essentially, we want to create a 'Maryland with Pride' atmosphere within the highway contracting community."

Procedures are provided for computing a daily penalty for non-compliance, or \$1,000 per day, whichever is greater. The penalty is to be doubled if a rating of "F" is given.

Of the remaining four internal management initiatives, two are concerned with site-specific, construction activity-related stream conditions.

Develop Baseline Data for Watersheds

The overall goal for this initiative is

[t]o develop as much baseline data as possible for perennial streams crossed or impacted by SHA construction projects.

Prior to construction, SHA will secure or develop data on the following: water quality, soundings and cross sections, living resources, photolog stream, existing shoreline conditions, other construction activities in the watershed, and any other historic data on the waterway.

When the data is developed it is forwarded to MDE and the Water Resources Administration (WRA) (if Waterway Construction Permits or wetlands are involved) for their records.

Baseline data is to provide information necessary for SHA and its contractors to meet the requirements of the State's resource agencies.

The Action Plan document provides that proposed baseline data plans

may be modified or expanded where species sensitivity, agency needs or other constraints dictate more intensive efforts. The Maryland Department of the Environment, as the state's water quality agency, [should be consulted in regard to proposed modifications].

Additional Controls for Sensitive Watersheds

This initiative aims to

provide controls over and above current MDE regulations in those watersheds within the state that are considered to be of significant environmental importance. These watersheds would include, but not be limited to, waterways containing rare or endangered aquatic life and/or plant species, waterways of high recreational value, waterways providing livelihood for watermen, all intermittent or perennial streams within the critical areas, or waterways designated as sensitive by the resource agencies.

This goal is self explanatory. It provides for the development of a procedure that will give SHA the ability to upgrade the level of erosion and sediment control measures in sensitive watersheds.

The final two "internal" initiatives provide SHA with tools in dealing with environmental concerns and the public, while carrying out its environmental management responsibilities.

Mitigation of SHA Impacts

The goal here is "[t]o mitigate impacts to any waterway caused as a result of SHA construction."

As the document states:

Because of unusual storm events and in spite of our best efforts, including additional controls, there are times when sediment runoff will enter a waterway. In these cases, SHA has committed itself to correct or mitigate these impacts to the satisfaction of the resource agencies.

Sediment Patrol

This final initiative aims to

re-emphasize SHA's effort to have responsible inspectors on major project sites prior to and during threatening storm events to monitor the controls and initiate reasonable and prudent efforts to correct problems.

The inspectors are to wear specially marked rain gear "that easily identifies each of them as a member of SHA's Sediment Patrol." Vehicles are also to be marked with recognizable magnetic signs.

The Action Plan document states that

[t]he mandatory wearing of the rain gear and driving a marked vehicle will show the public that SHA and the contractor are making a concerted effort to control our projects during these storm events.

Conclusion

Maryland's State Highway Administration has crafted here an innovative, well-rounded, and thoughtful Action Plan for erosion and sediment control in highway construction. Obviously, it has been developed through ongoing dialogue between the State's water quality and other resource agencies and SHA. It is equally obvious that this type of coordination is built into the initiatives and will continue in the best interest of the conduct of both agencies' missions.

[For further information contact: Ed Stein, Maryland State Highway Administration, 707 N. Calvert Street, Baltimore, MD 21202. Phone: (301) 333-1568; or Dianne E. Kline, Maryland Department of the Environment, 2500 Broening Highway, Baltimore, MD 21224. Phone: (301) 631-3551.]

California Approves \$20 Million SRF Loan for Fresno Area Stormwater Management

The California State Water Resources Control Board has approved a \$20,136,450 State Revolving Fund (SRF) loan for the Fresno Metropolitan Flood Control District to implement nonpoint source control measures within its service area of central Fresno County.

The measures are contained within the District's Storm Drainage and Flood Control Master Plan (Plan). They consist of a Stormwater Quality Management Project at a cost of \$18,294,950 and a Stormwater Quality Management Program at \$1,841,500. The SRF loan will finance about 25 percent of the cost of implementing the Plan. The balance of \$62 million in costs will be financed directly by local revenues.

The Plan is consistent with the Interim Best Management Plan for Water Quality and the Water Resources Management Plan, both prepared for the Fresno area under sections 208 and 205(j) of the Clean Water Act. The Plan also implements the recommendations of the U.S. Environmental Protection Agency's Nationwide Urban Runoff Program (NURP) which completed a study of the Fresno area in 1984. The District's stormwater program will also implement the management, monitoring, and regulatory programs mandated by the recently issued stormwater regulations.

The proposed measures are intended to protect local streams, the San Joaquin River, and the regional ground-water basin through construction of facilities and implementation of source control measures which will reduce runoff borne contaminants from regional urban and agricultural land uses. The primary design strategy of the Plan is to retain all runoff from within the District, effecting its conservation and recharge into the ground water aquifer. The system is designed to filter out sediment-bound pollutants while meeting long term water supply needs. It is based upon the District's extensive stormwater quality research under the NURP study and an interest in protecting ground-water quality as a primary source of drinking water.

The project consists of the construction of 16 stormwater retention/detention facilities in the high growth perimeter of the Fresno/Clovis metropolitan area, along with 7 stormwater quality control basins along the San Joaquin River. The SRF will permit the District to purchase the 23 basin sites and to fund the immediate construction of the 7 basins near the San Joaquin River.

The Fresno/Clovis area has experienced a 61 percent increase in population within the last ten years, the largest increase of any large city in the nation. Although stormwater facility construction costs are repaid by developers, the rate of growth has accelerated to the point of out-distancing the District's funding advance capabilities through its general fund. Construction of several thousand acres of residential development in areas directly tributary to the San Joaquin River will result in contaminated runoff inflows unless acquisition and construction of planned stormwater quality control facilities can be accomplished in a timely manner. The SRF loan will provide the District with an opportunity to purchase appropriate facility sites while they are still available and before land prices escalate due to extensive development.

This loan was the result of active promotion of the SRF for NPS activities by the State Water Resources Control Board. Over 4,000 applications were mailed out to flood control districts, water supply agencies, resource conservation districts and municipalities. Additional applications have been received from several municipalities and irrigation districts. These are in the process of evaluation.

[For more information contact: Sid Taylor, California State Water Resources Control Board, P.O. Box 100, Sacramento, CA 95001. Phone: (916) 324-7084.]

Report on State Actions Dealing with Unwanted Agricultural Chemicals

Kentucky Governor Wilkinson's Task Force on Agriculture requested EPA Region IV assistance and advice for a State initiative to help Kentucky farmers properly dispose of banned pesticides and herbicides, unknown chemical substances, and empty chemical containers. The Task Force is considering a State-sponsored collection and disposal event. Since several pesticides amnesty/household hazardous materials collection days have been conducted across the country, it was felt that a compilation of experience and words of advice and caution would be beneficial. EPA contracted with the Tennessee Valley Authority to canvas appropriate agencies in other States to inventory their experiences. In a phone survey, contact was made with representatives of all 50 States and the results are now available in a bound report. The report covers a range of topics such as costs, sponsors, permits, manifests, disposal, etc.

If you would like a copy, contact either:

Charles Sweatt, EPA Liaison, Tennessee Valley Authority, NFE 2L-M, Muscle Shoals, AL 35660.
Phone: (205) 386-2614; or

M. E. Gilmore, Project Manager, Tennessee Valley Authority, NFE-1F-M, Muscle Shoals, AL 35660.
Phone: (205) 386-2164.

Pennsylvania Develops Good Neighbors Package — Water Resource Protection Education

To help local governments better understand the significant role they play in water resource protection and nonpoint source management, Pennsylvania's Chesapeake Bay Education Office has developed an educational package titled *Good Neighbors*.

Using the Chesapeake Bay as an example, the *Good Neighbors* package encourages Pennsylvania local governments to be sensitive to the needs of downstream neighborhoods by seeking new and innovative ways to resolve growth management conflicts.

The Pennsylvania Chesapeake Bay Education Office is a cooperative project between the State's Department of Environmental Resources and related State and Federal agencies and organizations.

On January 3, 1991, the *Good Neighbors* package was presented to the Pennsylvania Association of Conservation Districts' (PACD) Executive Council Executive Meeting in Grantville, PA. Conservation District representatives from the State's 66 districts attended the presentation.

The *Good Neighbors* program is an educational package containing an audio-visual production, a newspaper publication, and two tabletop exhibits, all designed for municipal officials, planners, and developers who are involved with making growth management decisions.

The audio-visual production presents many of the issues and responsibilities local governments face as they direct community growth and enforce regulations which may impact water resources. It highlights ways that local governments can plan for new growth in a responsible, environmentally sensitive, and practical manner. The presentation also

- Suggests available resources that are equipped to assist local governments with their tasks
- Highlights some Pennsylvania local success stories

Conservation Districts' staff are encouraged to use the *Good Neighbors* educational package when working with local governments who are interested in learning how to balance environmental protection with new growth and development. Currently, several Pennsylvania Conservation Districts attend and participate in annual township meetings throughout the Commonwealth. The

Pennsylvania Good
Neighbors
(Continued)

Good Neighbors package will be used as a tool to enhance district presentations. These presentations typically emphasize the types of services conservation district staff can provide to local governments.

Additionally, the Bay Education Office will be making presentations to and working with other State offices, including the Governor's Office and the Departments of Community Affairs and Environmental Regulation, and also organizations of local governments and officials, to make the *Good Neighbors* known and used.

[For more information, or to borrow the *Good Neighbors* package, contact: The Bay Education Office, 225 Pine Street, Harrisburg, PA 17101. Phone: (717) 236-1006.]

Minnesota Pollution Control Agency Realigns and Expands its Nonpoint Source Control Functions

The Minnesota Pollution Control Agency's (MPCA) Water Quality Division has taken on a new look after a division-wide reorganization last fall. The reorganization reflects several changes in the direction of water quality programs over the past few years, says Tim Scherkenbach, Division Director.

The new organization is designed to help MPCA clientele more easily identify staff they should be talking to on various issues, and to help the Agency develop more effective partnerships with local units of government. "Our first goal in serving the public should be to help people clearly understand what we expect and why," said Scherkenbach.

The revised division structure includes a new Nonpoint Source Section, which will house the Agency's Clean Water Partnership and Clean Lakes programs, as well as the feedlot and on-site septic system programs. Staff in the Nonpoint Source Section will also provide assistance to counties as they follow up on local water planning initiatives and local pollution control programs.

Says Scherkenbach: "Nonpoint source is no longer a developing program; it's up and running. A separate section will allow us to bring together the various elements of the program for a more effective, coordinated effort."

The newly established Nonpoint Source Section consists of four major "Units" with a total of 37 professionals.

The Units and their principle assigned activities and responsibilities are:

SECTION CHIEF—2 positions

PROGRAM UNIT—8 positions

Feedlot Team

- Permits
- Inspections and Enforcement
- Education and Outreach
- Program Development
- Program Training

On-Site

- Training and Certification
- Other On-Site Related Activities

TECHNICAL SUPPORT UNIT —11 positions

Hydrology Team

- Nitrogen Study, Anoka Sand Plains Project
- Assist Counties with Surface/Ground Water Studies
- 205j3 - Water Quality Data Use Training

Wetland Restoration Assistance
Monitoring Guidance and Assistance
Watershed/WQ Data Evaluation Guidance & Assistance
Field Equipment Management

Engineering Team

BMP Development and Training
BMP Assistance to Projects
Computer Modeling Assistance/Training
319 Stormwater Activities

Minnesota River Team

Coordination of Minnesota River, Including:
Assessment Project— Water Quality and Land Use Assessments,
Implementation Plan Development

WATERSHED UNIT —9 positions

Lakes Team

River and Ground Water Team

Clean Water Partnership, Clean Lakes Program, and 319 Watershed Projects -
Assistance/Review/Approval of Project Work Plans, Monitoring plans, reports.
Non-Grant Outreach and Assistance—LAP
NPS Special Studies—Ecoregions, NPS Potential, Lake Criteria
Lake Assessment
Lake/NPS Complaints

PLANNING AND OUTREACH UNIT —7 positions

Administrative Team

Clean Water Partnership, Clean Lakes Program, and
319, 205(j)3 Grants and Payments
319 and Clean Lakes Program Match
Contracts
Financial Components of Applications
On-Site Grants
MN River Implementation Project

Planning Team

319 Assessment and Management Program
Narrative Components of Applications
NPS Planning
Memorandum of Understanding/Coordination
w/Other Agencies
Comprehensive Local Water Planning
509 (Metro) Water Planning
NPS Information/Education
Project/Team Tracking System
EPA NPS Reports

[For more information contact: Wayne Anderson, Acting Nonpoint Source Section Chief, MPCA, 520 Lafayette Road, St. Paul, MN 55155. Phone: (612) 296-7323.]

Notes on NPS Technology

Rural Clean Water Report Evaluates Improvement in Water Quality from Agricultural Best Management Practices

Ten years experience with the Rural Clean Water Program (RCWP) is detailed in EPA's recent report *RCWP: Lessons Learned from a Voluntary Nonpoint Source Control Experiment* [EPA 440/4-90-012].

RCWP began in 1980. Twenty-two projects, representing a wide range of agricultural pollution problems and impaired uses from around the country, provide the basis for this report. As NPS *News-Notes* observed in our brief review (December [#9]):

[The report]...describes how the RCWP has worked so far and synthesizes its successes and failures into lessons that can help State and local managers put together their own management programs for controlling agricultural nonpoint source pollution.

The program is administered by the U.S. Department of Agriculture's Agricultural Stabilization and Conservation Service (ASCS) in consultation with the U.S. Environmental Protection Agency. Several other USDA agencies make contributions in various ways.¹ National, State, and local RCWP coordinating committees make the major decisions affecting the program.

RCWP has three primary objectives:

1. To improve water quality and beneficial uses in the most cost-effective manner possible, consistent with the production of food and fiber
2. To help rural landowners and farmers practice nonpoint source pollution control
3. To develop and test programs, policies, and procedures designed to control agricultural nonpoint source pollution

Three major principles or assumptions governed this experimental program and were tested throughout:

1. Best management practices (BMPs) improve water quality.
2. A voluntary program with cost-sharing incentive can improve water quality.
3. Federal, State, and local agencies can cooperate to implement a water quality program effectively.

In answering the question *Best Management Practices: How Effective for Water Quality?* the report said that "BMPs, when properly implemented, have improved water quality in some of the RCWP projects." A key and basic observation is then made:

It is important to note that, although several of the findings listed here may seem to be statements of the obvious, there is little documentation in the scientific literature to support this intuitive knowledge with respect to watersheds. For example, it is difficult to find scientific publications that demonstrate the relationship between stream quality and nutrient management. The findings reported here, because they are backed by adequate water quality data and sound statistical analyses, begin to fill the voids in our understanding of how BMPs affects water quality in watersheds.

The RCWP BMPs are intended to both improve and/or preserve water quality and sustain producer profits by improving or maintaining the efficiency and conservation aspects of farming. Voluntary

¹ Other USDA agencies that participate in RCWP activities contribute in various ways: *Soil Conservation Service* (SCS) coordinates technical assistance, *Economic Research Service* (ERS) assists in the economic evaluation of BMPs and project impacts, *Extension Service* (ES) coordinates educational programs, *Forest Service* (FS) has technical responsibility for forestry, and *Farmers Home Administration* (FmHS) coordinates its programs with the RCWP.

approaches to agricultural nonpoint source programs will not succeed unless BMPs meet both the water quality and profitability objectives.

The report makes it clear that water quality and land treatment monitoring must be designed into and be integral to each such project—they “cannot be an afterthought.”

In summary, here are the report’s principle findings. (Due to space restrictions, limitations and qualifications associated with each of the findings cannot be detailed here. Read the the report itself for that additional, very important information. The report backs up each of these findings by citing specific project experience. The report also provides a complete listing of some eighteen agricultural BMPs. See below for report ordering information.)

HOW EFFECTIVE ARE BMPs FOR WATER QUALITY?

- Animal waste management dramatically improves water quality.
- Keeping animals out of streams improves water quality.
- Irrigation water management, sedimentation basins, and conservation tillage reduce sediment and phosphorus.
- Nitrate and pesticides may be carried to ground water by macropores even in relatively impermeable soils.
- Terracing, designed to reduce sediment losses in surface runoff, may adversely affect ground-water quality.
- Other findings:
 - Nutrient and pesticide management can be critical to the long-term success of both the producer and those who are addressing water quality problems.
 - Water management and some form of conservation tillage system are usually needed to address sedimentation problems.

VOLUNTARY + COST-SHARING: DOES IT WORK?

- Cost-sharing helps, but cannot guarantee participation.
- Regulatory authority can be an incentive in voluntary programs.
- Technical assistance and education are key to successful voluntary programs.
- Voluntary projects have a down side—targeting is difficult.
- Problem ownership and favorable publicity can boost participation. Citizens—and farmers—need to understand that their actions contribute to the problem: all share the responsibility.

FEDERAL, STATE, AND LOCAL AGENCIES: CAN THEY GET THE JOB DONE?

The Report states: “The simple answer is ‘yes’ . . .but not without local ownership of the project.”

The importance of local support for the project cannot be overstated. If landowners are not willing to participate, all of the interagency coordination will be for naught....A consistent sales pitch, a good price, and reliable and effective service are required to sell voluntary implementation.

Most important, however, is the one-on-one contact between project personnel and farmers, particularly those who operate targeted properties. On-site discussions between project personnel and operators can do more to encourage participation than any other tactic. Cost-sharing and technical assistance provide incentive, but people make the project work.

Conclusion

This is a very important report for all of those who are engaged in or planning an agricultural water-quality-improvement undertaking, no matter what the scale might be, large or small. It is full of the “little tricks of the trade” and technical know-how that can only be learned over time and by comparing notes and experiences with others. At the same time, the report is written at the farmers’ level, at a human scale. It is brief, readable, and full of wisdom.

[For a copy of the report contact: NPS Information Exchange, (WH-553), U.S. EPA, 401 M St., SW, Washington, DC 20460 and ask for the RCWP Report. Or use THE COUPON, found on page 21.]

The Establishment of TMDLs For Point and Nonpoint Sources Will Be the Subject of an EPA Region IV Workshop

EPA Region IV (Atlanta) has set February 25 through 28 for the conduct of a workshop on the total maximum daily load (TMDL) process.

TMDLs are a requirement of the Clean Water Act (CWA) for those State waters that have not met State water quality standards through the application of technology-based pollution controls. Such waters are classified as water quality limited. States are then required, on a priority-ranking basis, to implement additional control measures sufficient to achieve State standards. For this “water-quality-based” step, the State must first determine the amount of pollutants the water body can safely assimilate while still meeting State standards. This step calls for the State to establish a TMDL for the waters in question, and then to allocate this total permissible load between point sources and nonpoint sources. (For a more complete discussion of the TMDL process see the October [#8] issue of *News-Notes*.)

The workshop is designed to cover the processes involved in identifying the impaired water body, identifying the sources of impairment, establishing water quality standards and goals, allocating point and nonpoint source pollutant loads, implementing controls, assessing water quality changes, and taking enforcement actions where necessary.

The course announcement indicates that

TMDLs are to be based on available data thereby overcoming the perception that additional study and planning is an excuse for inaction by the responsible water quality agency. During this workshop the TMDL process will be described, the tools for implementing the process will be discussed, and attendees will have the opportunity to establish their own TMDLs for example watersheds.

Additional agenda items include such training considerations as

- Water quality monitoring to define problems and evaluate controls
- The use of riparian areas for water quality protection
- Habitat evaluation and field exercise
- North Carolina’s basin approach that integrates monitoring, the permit program (NPDES), and nonpoint source pollution

The workshop will be held at the Tennessee Valley Authority’s Engineering Laboratory in Norris, TN, with participation being limited to selected State staff from Region IV and invited EPA and TVA staff. The eight southeastern States that comprise Region IV are: Mississippi, Alabama, Florida, Georgia, Tennessee, Kentucky, South Carolina, and North Carolina.

[For more information about the workshop contact: Drew Miller, Beverly Ethridge, or Jim Greenfield at U.S. EPA, Region IV, 345 Courtland Street, Atlanta, GA 90365. Phone: Miller and Ethridge, (404) 347-1040. Greenfield (404) 347-2126.]

The Coupon

Nonpoint Source Information Exchange Coupon
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#10

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Write your story, ask your question, or make your suggestion here:
Attach additional pages if necessary.

IMPORTANT NOTE: Due to an unfortunate mixup in our mailing operations, the December *News-Notes* [#9] was NOT MAILED to some readers. If you did not receive #9, use this COUPON. We will see to it that you get a copy of #9 post-haste! and that future copies will be mailed as and when published.

I didn't get my copy of Issue #9. Please send one to me.

- Send me a copy of: *Rural Clean Water Program: Lessons Learned from a Voluntary Nonpoint Source Control Experiment*
- Please add my name to the mailing list to receive *News-Notes*.

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Datebook

This DATEBOOK has been assembled with the cooperation of our readers; and *Conservation Impact*, the newsletter of the Conservation Technology Information Center, 1220 Potter Drive, Room 170, West Lafayette, IN 47906-1334. If you have a date you want placed in the DATEBOOK contact the editors of *NPS News-Notes*.

1991

Meetings and Events

February

6 - 7

Interagency Progress and Perspectives on the President's Water Quality Initiative, Holiday Inn Crowne Plaza, Arlington, VA. Sponsored by USDA, USGS, and EPA. Conference will explain the goals, programs, and activities in achieving the objective of a healthy agricultural sector and uncontaminated ground water. To register or for more information contact: Renee Morris at (301) 495-0387.

10 - 13

ASIWPCA Midwinter Meeting for 1991, Washington, DC. Sponsored by the Association of State and Interstate Water Pollution Control Administrators. Focus will be on the Clean Water Act Reauthorization. Invited for discussion: representatives from EPA, Congress, and environmental groups. For registration materials and additional information contact: ASIWPCA, 444 North Capitol Street, NW, Washington, DC 20001. Phone: (202) 624-7782.

20 - 23

International Erosion Control Association: 22nd Annual Conference, Orlando, FL. Conference will cover effective control methods and how they relate to improved environmental quality. For more information contact: Ben Northcutt, Executive Director, International Erosion Control Association, P.O. Box 4904, 1485 S. Lincoln, Steamboat Springs, CO 80477. Phone: (303) 879-3010. FAX: (303) 879-8563.

24 - 28

Surface and Ground Water Quality: Pollution, Prevention, Remediation, and the Great Lakes (AWRA Symposium), Cleveland, OH. Topics include wetlands management, agricultural impacts on water quality, basinwide water quality management, behavior and mobility of water contaminants, and data acquisition/management. For more information contact: Aaron Jennings, Dept. of Civil Engineering, University of Toledo, 2801 W. Bancroft St., Toledo, OH 43606. Phone: (419) 537-2476.

25 - 27

Science '91 Symposium: Science in the Nation's Estuaries, Sarasota, FL. Sponsored by EPA and NOAA. Topics include research on nonpoint source controls, ecological risk assessment, coastal ecosystem and water quality monitoring, measurements to assess improvements, and science as a tool in estuary management. For more information contact: Tom Armitage, OMEP (WH-556F), U.S. EPA, 401 M Street, SW, Washington, DC 20460. Phone: (202) 475-7378.

March

7 - 8

Saving the Land that Feeds America: Conservation in the Nineties, Washington, DC. Contact: Conference Coordinator, American Farmland Trust, 1920 N Street, NW, Suite 400, Washington, DC 20036. Phone: (202) 659-5170.

18 - 21

Fifth Federal Interagency Sedimentation Conference, The Riviera Hotel, Las Vegas, NV. Subjects include sedimentation as a NPS pollutant, reservoir and stream modeling, transportation and deposition, yield and sources, aquatic ecology, sampling and analysis, and trend assessment. For further information contact: G. Douglas Glysson, USGS, 417 National Center, Reston, VA 22092. Phone: (703) 648-5019.

19 - 20

Georgia Water Resource Conference, Athens GA. For more information contact: Institute of Natural Resources, Ecology Building, Rm. 13, University of Georgia, Athens, GA 30601. Phone: (404) 542-1555.

Datebook (Continued)

March

20 - 21

NONPOINT SOURCE POLLUTION: The Unfinished Agenda For the Protection of Our Water Quality, Tacoma Sheraton Hotel, Tacoma, WA. Sponsored by the Alaska, Hawaii, Idaho, Oregon, and Washington Water Research Institutes and the Water and Energy Research Institute of the Western Pacific [Guam]; U.S. EPA; U.S. Geological Survey; and Washington State Conservation Commission. For more information contact: William Funk or Diane Weber, State of Washington Water Research Center, Washington State University, Pullman, WA 99164-3002. Phone: (509) 335-5531. FAX: (509) 335-1590.

21

Pennsylvania Chesapeake Bay County Meeting. General presentations will be shared among 28 county conservation districts and cooperating agencies. For information contact: Russ Wagner, DER, Bureau of Soil and Water (Harrisburg, PA). Phone: (717) 540-5080.

April

9 - 11

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

17 - 18

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

24 - 27

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

May

15 - 17

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

28 - 31

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

June

10 - 12

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

19 - 22

History of Agriculture and the Environment: A Symposium, National Archives Building, Washington, DC. The symposium will be interdisciplinary in nature and will cover the topic of

June

the history of agriculture and the environment as broadly conceived. Sponsors: Agricultural History Society, the American Society for Environmental History, and the agencies of the U.S. Department of Agriculture. For program information contact: Douglas Helms, National Historian, Soil Conservation Service, P.O. Box 2890, Washington, DC 20013. Phone: (202) 447-3766.

July

8 - 12

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

September

17 - 19

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

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

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