

# NWQEP NOTES

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**NC STATE UNIVERSITY**

## PROJECT SPOTLIGHT

### Planning for Success in North Carolina's Watersheds: Watershed Education for Communities and Local Officials (WECO)

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*Mary (not her real name) lives in an urban community near a stream in Coastal North Carolina. She explains, "Every time we get two inches of rain, the basements around here flood. Ten years ago, before the area upstream was developed, flooding was a rare occurrence. Now we're lucky if it rains and we don't experience flooding."*

*Elsewhere on the coastline, Linda and Gary are hauling crab pots onto their boat. Gary points out to the bay and says, "That whole area used to be open for clam and oyster harvesting, but just this past year the State had to close it off because of high counts of bacteria. If things continue the way they're going, pretty soon there won't be any shellfishing areas open in this river."*

*Further inland in a watershed near Charlotte, Joe casually outlines his predicament: "We all know that the value of our land is going to skyrocket when the highway is finished being built. If we hold onto it until then, we can retire quite nicely and provide for our kids and grandkids by selling it. But I hate to see the land taken out of farming...that's our heritage. I want my land to be taken care of properly, for the environment and as an investment for my children."*

Besides their ties to North Carolina's precious water resources, what do Mary, Linda, Gary, and Joe have in common?

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All of them are North Carolina citizens who are actively involved with watershed planning in their communities. Their reasons for participating vary, but they all recognize their ties to natural resources in their communities and are willing to spend some of their free time collaborating with others to address water quality problems in their watershed.

*Watershed Education for Communities and Local Officials* (WECO) is a North Carolina Cooperative Extension Program that is dedicated to gathering watershed stakeholders like Mary, Linda, Gary and Joe together to find collaborative solutions to water quality problems in their watershed. This article provides background information on the watershed planning process that WECO uses and provides brief descriptions of

three watershed projects in North Carolina that WECO is currently undertaking.

### Why Conduct Collaborative Watershed Planning?

In recent years, non-point source pollution has become the focus of water quality management, as point source pollution has become more effectively managed through the U.S. Clean Water Act's National Pollutant Discharge Elimination System (NPDES). The diffuse and diverse nature of non-point source pollutants provides an interesting challenge to protecting water quality. While different parties in a watershed may point fingers of blame at each other, in reality the responsibility may be spread out as diffusely as the pollutant sources themselves.

A *watershed stakeholder* is anyone who can influence, or is influenced by, water quality in the watershed. This can include farmers, local government officials, landowners, developers, foresters, fishermen and women, environmental conservation organizations, state and federal agencies, and others. Involving all watershed stakeholders in watershed management helps to generate workable solutions to water quality problems by obtaining local support from major watershed interests. Since watersheds follow hydrological rather than political boundaries, it may also be necessary to involve multiple jurisdictions depending upon whether boundaries fall within more than one local government or even more than one state. Another important reason for using a collaborative planning process is that it can allow stakeholders to educate each other about their interests, in turn addressing conflicts, strengthening community ties, and building partnerships.

Without the support of local watershed stakeholders, watershed managers may find themselves in an uphill battle to win the support of local governments and communities when they try to implement a plan for protecting water quality. A lack of local ownership of a watershed plan can lead to what the Center for Watershed Protection terms *the dusty shelf syndrome*, in which a carefully developed watershed plan is permanently shelved rather than getting implemented by the community<sup>1</sup>. A community is much more likely to champion a watershed plan in which they have invested their own valuable time and energy.

### The "WECO" Way

WECO, based out of NC State University's Department of Agricultural and Resource Economics, has been honing its methods of watershed planning since its inception in 1996, when NCSU staff first convened a group of stakeholders in the White Oak River watershed supported by a grant from the U.S. Department of Agriculture. Originally based upon the University of Connecticut's *Nonpoint Education for Municipal Officials* (NEMO) model<sup>2</sup>, WECO's main objective is to improve water quality through education of citizens and gov-

## EDITOR'S NOTE

*Stakeholders...collaborative solutions...governments* at all levels are now embracing these concepts as a way to prevent gridlock on implementation of new environmental policy. The idea is to include in the creation of a particular policy the people, or stakeholders, who will be most affected by that policy. If developed carefully and with much thought, a collaborative process can lead to increased buy-in from the community, less resistance, and a greater chance of successfully implementing the new policy or program.

The stakeholder process is gaining popularity with watershed planning, particularly in addressing nonpoint source pollution. This issue of *NWQEP NOTES* features a program at North Carolina State University charged with convening stakeholders in particular watersheds and facilitating 1) the identification of water quality issues, 2) recommendations for addressing those issues, and 3) implementation of recommended solutions. *Watershed Education for Communities and Local Officials* (WECO) presents its watershed planning model as applied to three North Carolina watersheds.

As always, please feel free to contact me regarding your ideas, suggestions, and possible contributions to this newsletter.

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ernment officials who live and work in the watershed. This involves three overarching objectives:

- Delivering technical information and educational material on water quality;
- Empowering local citizens by facilitating collaborative partnerships at the watershed level between communities, local officials and state agencies; and
- Facilitating local stakeholder development of recommendations to improve water quality in their watershed.

Careful preparation is essential to developing a collaborative watershed planning process that will meet the above objectives<sup>3</sup>. Over the years, WECO staff have recognized the importance of the following steps in the watershed planning process for improving chances of success. These steps include:

1. Partnering with interested agencies/organizations
2. Conducting a watershed issue assessment and creating an assessment report to outline the best way to proceed with watershed planning based upon local factors
3. Convening a local watershed planning group consisting of watershed stakeholders
4. Establishing links between the group and local governments
5. Training the group in collaborative problem-solving and team building
6. Identifying water quality issues of concern in the watershed
7. Gathering and sharing information related to issues of concern
8. Collaboratively identifying and developing recommendations for addressing water quality issues
9. Identifying and involving appropriate organizations for funding and implementing recommendations

Currently, WECO is working with citizens and local governments to improve water quality through this watershed planning model in three North Carolina watersheds: the White Oak River watershed at the Coast; a small urbanizing watershed in New Hanover County, also at the Coast; and the Goose Creek watershed near Charlotte, in the central/Piedmont region. See Figure 1 for project locations. Each project is unique with its own inherent challenges and triumphs.

### Project One: The White Oak River Watershed Advisory Board

As WECO's original pilot watershed planning group, the White Oak River Watershed Advisory Board (WORAB) experienced success early in their existence when they developed recommendations for addressing potential impacts of a proposed expansion of a highway causeway spanning the mouth of the White Oak River. As the watershed is located in portions of three counties (Carteret, Onslow and Jones), the board's recommendations needed and received support from all three County Commissioners' Boards. This local support provided the justification needed for state and federal agencies to act upon the WORAB's recommendations for managing water quality in the river. Ultimately, the North Carolina Department of Transportation redesigned the expansion to reduce the potential impacts of stormwater runoff to the river. Also, the Board worked with the US Army Corps of Engineers and the office of U.S. Congressional Representative Walter Jones, Jr. to provide the Congressional Act needed to authorize a flow study in the river.

After their early success, the WORAB moved on to investigate a somewhat trickier water quality problem: the increased closures of shellfish areas in the White Oak River due to elevated counts of fecal coliform bacteria. The Board spent many hours studying and discussing this complex issue that plagues coastlines around the country. Noting the recent high rate of

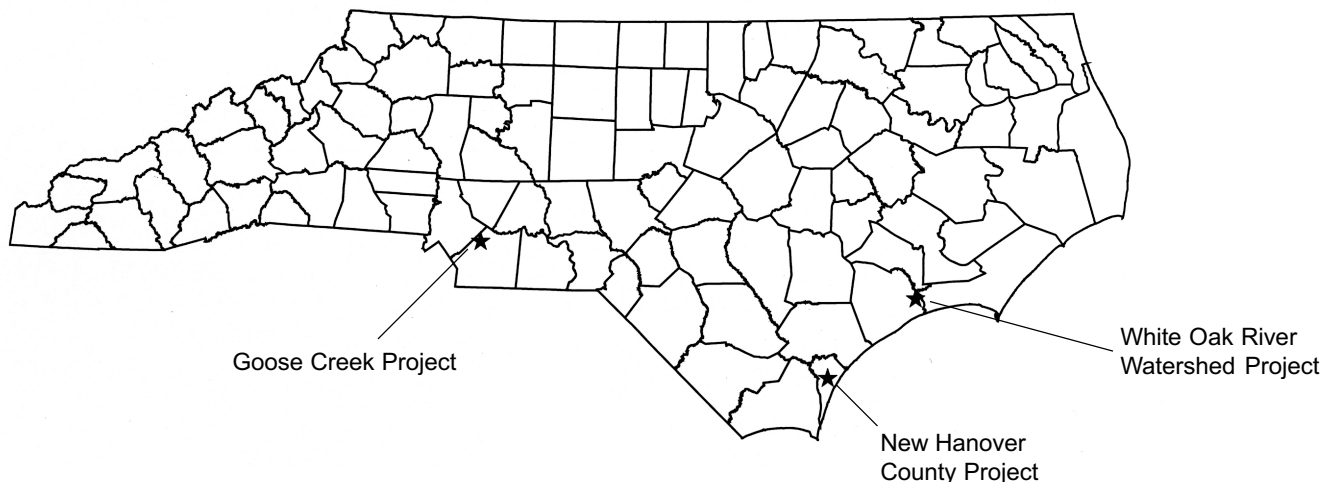


Figure 1: WECO project locations in North Carolina

urbanization in Coastal North Carolina, the Board chose to focus on urban stormwater runoff as a priority contributor to bacterial contamination in the White Oak River. After being presented with an exhaustive list of policy, educational, and engineering tools for addressing stormwater runoff, the Board chose to pursue educational activities and to implement best management practices (BMPs). With the support of WECO staff, a slide presentation for homeowners was developed to highlight actions individuals can take to reduce stormwater runoff from their property. The presentation was delivered to local civic clubs and homeowners associations.

***The White Oak River Watershed Advisory Board Implements their Planning efforts***

The year 2001 marks a year when the White Oak River Watershed Advisory Board will begin to see the fruits of their labor from their lengthy and sometimes painful watershed planning process. In early 2001, the Board shifted their attention to implementing the second part of their recommendations for reducing shellfish area closures in the river. With the support of the Board, WECO partnered with the NCSU College of Design, the Town of Swansboro, the N.C. Shellfish Sanitation Division, and Duke University to obtain an EPA 319 grant to protect and enhance sensitive shellfish waters in two specific areas of the watershed. BMPs and educational signs will be constructed in Swansboro, and a BMP targeting and implementation effort will occur in the Pettiford Creek sub-watershed (see Figure 2). The Board will coordinate with the scientific team to involve and educate the public about the project and help identify locations for BMPs in the watershed. The Board recently scheduled a public meeting for April 2001 to officially kick-off the EPA 319 project to the community. No dust is gathering on this watershed board's planning efforts!



Figure 2: Town of Swansboro waterfront park in the White Oak River watershed, a potential location for BMPs

**Project Two: The New Hanover County Local Watershed Planning Group**

The North Carolina Wetlands Restoration Program (NCWRP), a non-regulatory program charged with wetland and stream restoration in the state, is initiating local watershed planning in small North Carolina watersheds. Goals of this effort are to promote local recommendations and actions to address water quality and quantity issues in a particular watershed. Recommendations also need to identify areas where the NCWRP can undertake stream and wetland restoration projects, in part to meet future compensatory wetland and stream mitigation requirements, and to make compensatory mitigation more ecologically effective.

Recognizing the importance of involving local watershed stakeholders in developing solutions to water quality problems and locating potential restoration projects, the NCWRP contracted with WECO to assist with their pilot local watershed planning effort in New Hanover County. With the assistance of local citizens, the NCWRP chose to work with the community in a watershed that contains a number of streams and tributaries draining to the Northeast Cape Fear River, and is partially located in the city of Wilmington and town of Castle Hayne.

Before convening a stakeholder group, WECO conducted an abbreviated *issue assessment* to identify people who were interested in and concerned about the watershed, identify and assess the issues, and determine if the climate was right for a collaborative discussion among stakeholders. Issues of concern mentioned by stakeholders during the assessment included flooding, development pressures, trash and litter, drinking water and surface water quality, and a need for public education. Overall, a concern about flooding in the area emerged as one of the strongest motivations for people to come together to work on the development of a local watershed plan. Since the NCWRP is intending to provide monetary and technical resources to accomplish specific projects to address the flooding problem and other water quality issues, the potential projects provided a strong incentive for local citizens to participate.

In September 2000, WECO staff convened a diverse group of stakeholders representing the City of Wilmington, New Hanover County, the Castle Hayne Steering Committee, Cape Fear Riverwatch, International Paper, N.C. Department of Transportation, CP&L, local forestry and development interests, UNC-Wilmington, the Sierra Club, and local neighborhood associations. With the assistance of the Natural Resources Leadership Institute, a leadership development program housed at N.C. State University, and the N.C. Division of Environmental Education, the group learned about watersheds and the skills and concepts integral to collaborative problem-solving (see Figure 3).





Figure 3: New Hanover County Watershed Planning Group listening to presentation by NC Wetlands Restoration Program

Since their inception, the New Hanover County Local Watershed Planning Group has heard information about water quality in the area and wetlands mitigation, and has identified main issues of concern they want to investigate. The Group will continue to gather information on issues, share information with each other, and eventually will brainstorm options for resolving the problems in the watershed. The NCWRP has also hired a consultant to conduct a technical watershed assessment that will occur concurrently with the Group's planning efforts. The information gathered through the assessment will play a key role in the Group's discussion and deliberations.

As the planning process unfolds, WECO and NCWRP will be faced with the challenge of helping the Group to address water quality problems in the watershed while also finding ways to alleviate some of the problems associated with flooding in the area. Addressing the flooding concerns will be an important component to the watershed planning effort, as this problem routinely plagues citizens who live in flood-prone areas. The Group will develop the plan over the next one to two years, at which point the NCWRP and WECO will help the Group implement the watershed plan.

### Project Three: The Goose Creek Watershed Advisory Committee

The Goose Creek watershed, which originates in Mecklenburg County and mostly resides in Union County, is home to one of four known remaining populations of the enigmatic Carolina heelsplitter, a mussel listed as a Federal endangered species. Goose Creek (see Figure 4) also falls short of meeting North Carolina's water quality standards. As a part of the North Carolina Wildlife Resources Commission's (NCWRC) efforts to prevent the extinction and to increase the population of the heelsplitter, they received a grant from the N.C. Clean Water Management Trust Fund to involve the community in developing a watershed plan to protect and improve

water quality in the Goose Creek watershed. The NCWRC contracted with WECO to act as a neutral party in the convening and facilitation of a watershed stakeholder group that will develop a watershed management plan.

During the summer of 2000, WECO, partnering with the Union County Cooperative Extension Service, conducted an extensive issue assessment in the Goose Creek watershed area, interviewing 30 stakeholders. The resulting *Goose Creek Watershed Issue Assessment Report* outlined the concerns voiced by citizens, current efforts to address water quality problems in the watershed, and recommendations for how to structure a watershed committee. Issues related to Union County's rapid growth were on the minds of a broad cross-section of stakeholders, such as the need for high quality drinking water and a desire to preserve open space. Sentiment for the Carolina heelsplitter was mostly expressed as curiosity about the extremely rare mussel's natural history.



Figure 4: Goose Creek in central North Carolina

Although growth in the area is eminent with the projected completion of a Charlotte bypass (see Figure 5) and proposed sewer and water infrastructure expansions, most of the watershed remains rural. A widespread sense of urgency to protect the watershed's natural resources does not exist yet, but citizens who foresee the oncoming growth that is spilling over into Union County from Charlotte-Mecklenburg are beginning to take notice. Municipalities are at odds with each other and the county for how they want to plan their land uses, and communities are eager to incorporate so they can control their own land use planning. With so much activity occurring in the watershed and being initiated by different organizations, it was imperative to include all willing local governments located in the watershed in the watershed planning effort.

After holding a public meeting in November 2000 to announce the Goose Creek watershed project to the community, in December, WECO convened a small group of people representing the local governments of Stallings, Mint Hill, Mecklenburg and Union counties, landowners, farmers, the Catawba Land Conservancy, developers, the North Carolina

Wildlife Federation, the NC Wildlife Resources Commission, Citizens for the Preservation of Fairview, and Citizens for Northern Union County. This group formed the Goose Creek Watershed Advisory Committee and is charged with making recommendations to local governments, state agencies, and other appropriate organizations to protect and improve water quality and wildlife habitat in the Goose Creek watershed.



Figure 5: Construction of I-485 Bypass in Goose Creek watershed

The Advisory Committee recognized at their first meeting that they were ahead of the curve in the planning process, in that they are protecting water quality before the watershed becomes fully developed. However, their challenge will be to get the public interested and involved in the watershed planning process without having a perceived crisis to spur them to action. WECO will assist the committee with educating and involving the community as the planning process proceeds throughout the next year.

## Summary

The three watershed projects being undertaken by WECO provide examples of diverse watershed planning efforts occurring in North Carolina. Collaborative watershed planning is gaining momentum as a method to involve watershed stakeholders in developing a plan that will not languish on a shelf, but rather will yield actions to improve and protect water quality locally while meeting watershed stakeholders' needs.

## For More Information

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<sup>1</sup> *Rapid Watershed Planning Handbook: A Comprehensive Guide for Managing Urban Watersheds*. 1998. Center for Watershed Protection. Ellicott City, MD.

<sup>2</sup> Nonpoint Source Education for Municipal Officials (NEMO) web site: <http://www.canr.uconn.edu/ces/nemo/index.html>

<sup>3</sup> For more information on how to involve stakeholders, see Klimek, S.H., Smutko, L.S., Perrin, C.A., and L.E. Danielson. 2001. *Involving Watershed Stakeholders in the Management of Nonpoint Source Pollution*. Presented at the *Integrated Decision-Making for Watershed Management Symposium: Processes and Tools*, January 7-9, 2001 in Chevy Chase, Maryland

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## INFORMATION

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### EPA Proposes New Controls to Reduce Water Pollution from Large Livestock Operations

EPA is proposing strict new controls to protect public health and the environment from one of the nation's leading causes of water pollution — animal wastes from large, industrial feedlot operations. The new requirements would apply to as many as 39,000 concentrated animal feeding operations (CAFOs) across the country. EPA's proposal includes revisions to the definition of a CAFO, limits to land application of animal waste, and new technology requirements and effluent limits for discharges. For more information, visit <http://www.epa.gov/owm/afo.htm>.

### New Report Explains Benefits of Daylighting Buried Streams

Rocky Mountain Institute has recently published *Daylighting: New Life for Buried Streams*. The report shows how communities across the U.S. and abroad are discovering the benefits that result from bringing streams out from culverts and other underground channels to enhance public spaces, improve water quality, and expand stream channel capacity.

The term "daylighting" describes projects that deliberately restore to the open air some or all of the flow of a previously covered river, creek, or stormwater drainage. Daylighting projects liberate waterways that were buried in culverts or pipes, covered by decks, or otherwise removed from view.

The report documents 18 projects that have daylighted over 14,000 feet of waterways in the U.S. and lists another 23 projects in various stages of consideration. The case studies include the background, actions, results, economics and challenges and lessons from each project. The report intends to show that daylighting projects are exciting and doable, and

that they require an appropriate site, excellent design, and extensive community involvement.

*Daylighting: New Life for Buried Streams* is available on-line in PDF format on RMI's website, [www.rmi.org](http://www.rmi.org). The report may be ordered for \$12.00, plus shipping and handling, from RMI's online bookstore, or by contacting RMI's publications department at 1-800-333-5903.

## Who Will Pay for Environmental Improvements in the 21st Century?

*Who Will Pay for Environmental Improvements in the 21st Century?* is a resource guide, compiled by staff of the National Agricultural Library, Agricultural Research Service, U.S. Department of Agriculture.

This bibliography was assembled for distribution at the symposium *Who Will Pay for On-Farm Environmental Improvements in the 21st Century?* held April 12, 2000 at NAL in Beltsville, Maryland.

Information sources in this guide focus on policies and programs related to agriculture and the environment. Also included are items that examine how these broad policies interface with production factors and issues of environmental stewardship to influence farm-level decisions.

The guide has two sections: The first contains literature citations selected from AGRICOLA—NAL's database of agricultural literature. Citations cover United States agriculture during the past five years. To find additional citations, search AGRICOLA. The second section contains annotated links to selected World Wide Web sites relevant to the topic.

The resource guide can be found on-line at <http://www.nal.usda.gov/wqic/ResourceGuide.html>



## WEB RESOURCES

### National Water Quality Inventory

The National Water Quality Inventory: 1998 Report to Congress, is available in PDF format at the following EPA website: <http://www.epa.gov/305b/98report/index.html>

### New Stormwater Website

The Center for Watershed Protection has just launched a new website: [www.stormwatercenter.net](http://www.stormwatercenter.net)

The Stormwater Manager's Resource Center (SMRC) is designed specifically for stormwater practitioners, local government officials and others that need technical assistance on stormwater management issues. The SMRC web site is made possible through a grant from the Environmental Protection Agency, Office of Water, Office of Wastewater Management. The SMRC site is managed and published by the Center for Watershed Protection, Inc., a 501(c)3 organization located in Ellicott City, Maryland.

## Recreational Water Quality in North Carolina

North Carolina Sea Grant, in collaboration with NC State University, NC Cooperative Extension, NC Department of Environment and Natural Resources, and NC Department of Health and Human Services, announces a new web-based publication on recreational water quality and human health in North Carolina.

This on-line fact sheet, entitled "Recreational water quality: a fact sheet for coastal vacationers and water-dependent businesses," answers frequently asked questions about recreational water quality and offers a glossary of terms, and web site addresses that provide additional information. It focuses on the three main areas of water quality that relate to recreational water contact and human health: microbial pathogens, harmful algae, and toxic contaminants. It is designed to help vacationers and recreational business officials make informed decisions relative to the risks associated with recreational water exposure in their local areas.

The fact sheet can be accessed at the following URL: <http://www.ncsu.edu/seagrant/extension/waterquality/Rech20FactSheet.html>

## EPA Recommends Nonpoint Source Documents

The U.S. Environmental Protection Agency recently compiled a list of what it considers to be the best nonpoint source materials available for both professionals and the public. EPA intends to continuously update this listing as appropriate. The list can be viewed at <http://www.epa.gov/owow/nps/bestnpsdocs.html>

## State-Enforceable NPS Mechanisms

The Environmental Law Institute recently completed the third in a series of studies on State-Enforceable NPS mechanisms, entitled *Putting the Pieces Together: State Nonpoint*

Source *Enforceable Mechanisms in Context* (June 2000). Unlike the two earlier ELI studies, *Enforceable State Mechanisms for the Control of Nonpoint Source Water Pollution* (1997) and *Almanac of Enforceable State Laws to Control Nonpoint Source Water Pollution* (1998), which surveyed the authorities existing in each state, the new 168-page volume is a set of 8 case studies designed to "assess how enforceable mechanisms are used in practice."

The eight selected states are GA, ME, MD, OH, OR, TX, VA, and WI. A watershed approach was used to assess how particular enforceable mechanisms were integrated to help deliver and implement programs in one or more watersheds in each state.

ELI has put the document in PDF format on its website: [www.eli.org/bookstore/rristatenonpointsourceenfmec00.htm](http://www.eli.org/bookstore/rristatenonpointsourceenfmec00.htm)

There is also a link to the above URL from EPA's Nonpoint Source website: [www.epa.gov.owow/nps/pubs.html](http://www.epa.gov.owow/nps/pubs.html). The EPA site includes the earlier two documents as well.

## Environmental Support for Local Governments

Visit [www.lgean.org](http://www.lgean.org), the Local Government Environmental Network (LGEAN), a "first-stop shop" that provides environmental management, planning, and regulatory information for local government elected and appointed officials, managers and staff.

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## MEETINGS

### Call For Papers

#### 9th National Nonpoint Source Monitoring Workshop

August 27-30, 2001

Hyatt Regency, Indianapolis, IN

<http://www.ctic.purdue.edu/CTIC/NPSCall.html>

**About the Conference:** This workshop will bring together land managers and water quality specialists to share information on the effectiveness of best management practices in improving water quality, effective monitoring techniques, and statistical analysis of watershed data. The workshop will focus on the successes of Section 319 National Monitoring Program projects and other innovative projects from throughout the U.S. The agenda will include three days of workshop sessions/presentations and a one-day field trip. Two half-day workshops will focus on monitoring program evaluation and GIS. Presentations will be 20 minutes, followed by 10 minutes for discussion. Poster presentations are also encouraged. Presenters will submit a paper due the date of the conference for publication by US EPA-ORD.

**Instructions for Submission of Abstracts:** Deadline for submission of abstracts is **March 1, 2001**.

**Session Topics:** Presentations should focus on one of the following session topics:

- Detecting change in water quality from agricultural BMP implementation
- Modeling application of NPS pollution
- Agricultural nonpoint source pollution TMDLs
- Volunteer monitoring in 319 projects
- Innovative monitoring in agricultural landscape
- Programs and approaches for animal operations and nutrient management

**Format:** Abstracts are limited to 1 page, single spaced (or 300 words). Submission of abstracts via e-mail or website is encouraged. Preferred format is MS Word or Text file.

**Review & Notification:** Authors will be notified of receipt of their abstract. The workshop program committee will review abstracts. Accepted abstracts will be published in the workshop program. Authors will be notified by April 16, 2001 regarding the status of their abstract. Publication specifications will then be sent to authors presenting papers.

**Submit Abstract to:** Email: [ctic@ctic.purdue.edu](mailto:ctic@ctic.purdue.edu); Mail disk: Nonpoint Source Workshop, 1220 Potter Drive, Suite 170, West Lafayette, IN 47906; Phone (765) 494-9555; Fax (765) 494-5969

If you have questions, contact Tammy Taylor at [taylor@ctic.purdue.edu](mailto:taylor@ctic.purdue.edu). Indicate your affiliation, session topic selected, and whether presentation will be oral or poster. Include phone, fax, and email with your mailing address.



**Addressing Animal Production/Environmental Issues: An International Symposium: October 3-5, Research Triangle Park, NC.** Contact Dr. Leonard S. Bull, Program Chairperson, Associate Director, Animal and Poultry Waste Management Center, Box 7608, North Carolina State University, Raleigh, NC 27695-7608. Tel: 919-515-6836; Fax: 919-513-1762; email: Leonard\_bull@ncsu.edu; web site: www.cals.ncsu.edu/waste.mgt/.

This Symposium will provide a forum for exchange of information and ideas related to animal production systems and environmental issues on a global basis. It is intended to bring together animal production industry leaders, research and extension scientists from the academic arena, and government officials involved in environmental policies and regulations for those industries.

The Symposium will involve four sections as follows:

- Research and Extension Efforts on Manure and Animal Byproduct Management—this section will be developed around the efforts of the National Center for Manure and Animal Waste Management, and the “white papers” that are being developed by members of that Center;
- Perspectives from the Southeastern United States—this section will cover research conducted in the Southeastern United States on animal waste management. Topics will include, but not be limited to policy and regulations, current management, pathogens, air and groundwater issues, human health, and nutrients;
- General Topics on Animal By-Product Management—this section will include papers on a variety of topics including, but not limited to: food borne pathogens in waste, ground and surface water contamination, conversion of animal by-products to energy, lagoon management (including closeouts), the development of value-added products from animal by-products, new housing techniques, and other relevant topics which are submitted;
- Industry Application and Perspectives—this section will be developed by the food-animal industry organizations.

**Abstracts are due February 15, 2001.**

## Meeting Announcements — 2001

### MARCH

**Agriculture and the Environment: State & Federal Water Initiatives: Mar 5-7, Iowa State Univ, Ames, IA.** Web site: [http://extension.agron.iastate.edu/aged/water\\_quality/MainWQ/wqm.htm](http://extension.agron.iastate.edu/aged/water_quality/MainWQ/wqm.htm)

**9<sup>th</sup> Nat'l Symposium on Individual and Small Community Sewerage Systems: Mar 12-14, Fort Worth, TX.** Contact American Society of Agricultural Engineers at Tel: 616-429-0300; Fax: 616-429-3852; email: mcknight@asae.org

**Dairy Manure Systems: Equipment and Technology Selection: Mar 20-22, Rochester, NY.** Tel: 607-255-7654; Fax: 607-254-8770; email: nraes@cornell.edu; web site: www.nraes.org.

**American Backflow Prevention Association Region IV 3rd Biennial Conf: Mar 22-24, Corpus Christi, TX.** Contact Robbie Allen at Tel: 512-239-3142; email: roballen@tnrcc.state.tx.us; web site: www.abpa.org.gw

### APRIL

**14<sup>th</sup> Annual National Conf, Enhancing the States' Lake Management Programs: Integrating Nonpoint Source Watershed Mgmt with Lake Mgmt & Protection: Apr 17-20, Chicago, IL.** Contact Bob Kirschner, Conf. Coordinator, Chicago Botanic Garden, 1000 Lake Cook Rd., Glencoe, IL 60022. Tel: 847-835-637, Fax: 847-835-1635; email: bkirschn@chicagobotanic.org

**4<sup>th</sup> National Mitigation Banking Conf: Apr 18-20, Ft. Lauderdale, FL.** Web site: <http://www.terrene.org>, Tel: 800-726-5253.

**Water Quality Monitoring and Modeling: Apr 30-May 2, San Antonio, TX.** Contact Michael J. Kowalski, American Water Resources Association, 4 West Federal Street, P.O. Box 1626, Middleburg, VA 20118-1626. Tel: 540-687-8390; Fax: 540-687-8395; email: mike@awra.org; web site: www.awra.org.

### MAY

**2<sup>nd</sup> National Conf, Nonpoint Source Pollution Information & Education Programs: May 15-17, Glencoe, IL.** Contact Bob Kirschner, Conf Coordinator, Chicago Botanic Garden, 1000 Lake Cook Rd., Glencoe, IL 60022. Tel: 847-835-6837, Fax: 847-835-1635; e-mail: bkirschn@chicagobotanic.org.

### JUNE

**5<sup>th</sup> International Conference on Diffuse Pollution: June 10-15, Milwaukee, WI.** Contact Vladimir Novotny, Institute for Urban Environmental Risk Management, Marquette University, Milwaukee, WI, 53201-1881. Tel: 414-288-3524; Fax: 414-288-7521; email: environment@marquette.edu; web site: [www.mu.edu/environment/iwa-page.htm](http://www.mu.edu/environment/iwa-page.htm).

### JULY

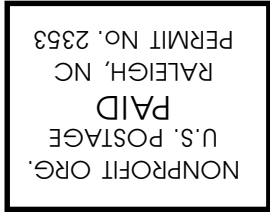
**2001 ASAE Annual International Mtg: Jul 29-Aug 1, 2001, Sacramento, CA.** Web site: <http://asae.org/meetings/am2001/form.html>.

### OCTOBER

**Addressing Animal Production/Environmental Issues: An International Symposium: October 3-5, Research Triangle Park, NC.** Contact Dr. Leonard S. Bull, Program Chairperson, Associate Director, Animal and Poultry Waste Management Center, Box 7608, North Carolina State University, Raleigh, NC 27695-7608. Tel: 919-515-6836; Fax: 919-513-1762; email: Leonard\_bull@ncsu.edu; web site: www.cals.ncsu.edu/waste.mgt/.

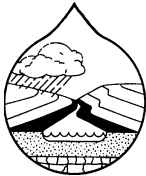
**WEFTEC 2001. Water Environment Federation 74<sup>th</sup> Annual Conference & Exposition: Oct 13-17, 2001, Atlanta, GA.** Call 1-800-666-0206. If outside the US and Canada, call 1-703-684-2471 or send an email to [confinfo@wef.org](mailto:confinfo@wef.org). Web site: www.wef.org.





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