

Commissions begin work on Coastal Habitat Protection Plans

For the first time ever, the N.C. Environmental Management Commission (EMC), the N.C. Coastal Resources Commission (CRC), and the N.C. Marine Fisheries Commission (MFC) met together June 1 in Raleigh for what was billed as a "Habitat Summit." The three environmental rulemaking bodies met to begin the process of developing Coastal Habitat Protection Plans required by the Fisheries Reform Act of 1997.

The law requires the three commissions to jointly develop and approve plans for protecting wetlands, spawning areas, threatened/endangered species habitat, primary and secondary nursery areas, shellfish beds, submerged aquatic vegetation and Outstanding Resource Waters. All Coastal Habitat Protection Plans are to be completed by July 1, 2003, and must be reviewed every five years.

The plans

Preston Pate, Director of the Division of Marine Fisheries and head of the interagency team already at work on a framework for producing the plans, described for the commissioners requirements for the plans and responsibilities of each commission.

The plans must:

- describe and classify biological systems in the habitats;

- evaluate the function, value to coastal fisheries, status and trends of the habitats;
- identify existing and potential threats to the habitats and the impact on coastal fishing; and
- recommend actions to protect and restore habitats.

According to Pate, the interagency team working on plan framework and the

Department of Environment and Natural Resources (DENR) Scientific Advisory Council recommend that the organizational framework for plan development be based on ecological communities as defined by three salinity regimes which encompass N.C. waters important to enhancement of coastal fisheries. The proposed salinity ranges are 0-5 ppt (headwaters), 5-15 ppt and >15 ppt. Each salinity regime plan will include analysis and discussion of the contribut-

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Director's Forum

Kenneth H. Reckhow, Director, Water Resources Research Institute

When is scientific knowledge sufficient for environmental decision making?

In my first Director's Forum two years ago, I answered the question posed in the title by saying: *There is almost always enough scientific knowledge to make an informed decision.*

This answer may seem perplexing since scientists tend to talk about uncertainty and focus on gaps in understanding when discussing the state of scientific knowledge concerning an issue of public interest. However, that perspective among scientists is central to scientific inquiry. Good scientists strive to expand knowledge, and to do that effectively, they need to know the limits of current understanding.

Still, it is not surprising for the public and for decision makers to interpret that quest for better understanding as a declaration that the scientific basis for decision is inadequate. This interpretation is generally incorrect.

Decisions about issues as complex as the management of eutrophication in the Neuse River are never made with perfect knowledge. This state of affairs is not unique to environmental management. On a regular basis, we make personal decisions without perfect knowledge. These decisions concern issues ranging from buying a house, to selecting a job, or choosing a mate. Sometimes the effort we take for decision making clearly relates to the consequences of the decision; sometimes the effort is simply dictated by the available time. If we had more information on the choices at hand, we would expect to be more confident in the decision, although the actual choice may not change with additional information. To scientists, the same approach makes sense in dealing with complex environmental systems.

Consider the analogy with the Neuse River. In January 1996, a group of

scientists met in Raleigh, and based on the information at hand they urged consideration of a 30% reduction in nitrogen loading. That assessment was based on the collective judgment of those scientists. There was no coordinated, comprehensive study and no predictive

model. Instead, there was a sense of urgency from decision makers that action was needed, so limits on time dictated that a judgmental assessment was a sufficient basis for decision.

Now, two years later, the Water Resources Research Institute is involved

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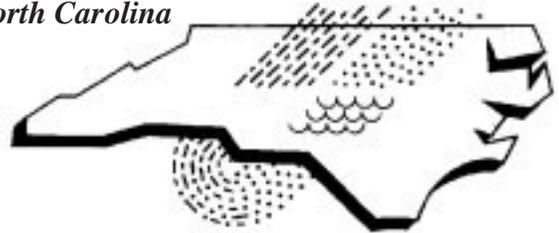
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in the multiyear Neuse Modeling and Monitoring project (ModMon) that is providing the scientific basis for a more rigorous assessment of the impact of proposed Neuse River management strategies. The key element of ModMon is to be a linked watershed-estuary model that will be used to address questions of concern about the impacts of management options. That comprehensive model will provide us with an improved state-of-the-science assessment to guide decision making on the Neuse.

Even with the additional monitoring and research, the final ModMon assessment will not be absolutely precise, as scientific uncertainties will remain. Beyond that, North Carolina and the Neuse watershed will continue to grow and develop, which means that land use will change, technology will improve, and water quality may be affected. With wise decisions based in part on the ModMon study, these changes can be guided in a manner that is compatible with desired water quality.

Will completion of the ModMon project "close the book" on scientific study of the Neuse? No, but it will provide the best scientific assessment at the time of project completion. After ModMon, scientists may call for still more research, arguing that decisions need further refinement. While there may be merit to that argument, we must recognize that this perspective reflects the basic scientific focus on advancing scientific understanding, rather than an appeal for inaction.

As scientists, we can describe the benefits of additional scientific research, but we are rarely in an elected or appointed position that grants us the power to prioritize research over other public needs. Ultimately, decisions to fund research are the responsibility of well-educated citizens and their elected officials.

It is our responsibility as scientists to inform the public of the role of scientific investigation in environmental management, and thus provide citizens with the basis for wise decisions.

Coastal Habitat Protection Plans *continued*

ing water basins or watersheds, thereby fitting into the N.C. Division of Water Quality's basinwide planning initiative.

The adoption process

An Inter-commission Review Committee (IRC), consisting of two members from each commission, will review plans drafted by the interagency Coastal Habitat Protection Plan Development Team. To solicit broad public comment on draft plans, the IRC will hold public hearings on draft plans, and the IRC may request that particular issues/concerns raised by the public be evaluated prior to submittal of plans to the three commissions.

Plans will then be presented to standing committees of each of the three responsible commissions. The Water Quality Committee of the Environmental Management Commission will review the plans before they are presented to the

EMC. If any commission opposes a provision of a plan, then a conference committee will be established to work out disagreements. Plans will include only the provisions on which the three commissions agree.

Once plans have been agreed upon, each commission must adopt rules necessary to implement plans. Thereafter, each commission must make sure that any action it takes is consistent with the plans.

For additional information on development of Coastal Habitat Protection Plans contact the N.C. Division of Marine Fisheries at (919) 726-7021. An overview of the Fisheries Reform Act, including requirements for Coastal Habitat Protection Plans are on the Division of Marine Fisheries website at <http://www.ncdmf.net/reform/reform.htm>.

The Neuse River has a homepage.



<http://www2.ncsu.edu/ncsu/CIL/WRRI/neuse.html>

WRRI has initiated a comprehensive web site for information on the Neuse River. Currently the site includes:

- links to all known Internet sites related to the Neuse,
- links to research documents (or summaries) related to the Neuse, and
- links to or information about agencies and groups concerned with Neuse River management.

Links will be added to the site as other sources of information on the Internet become available. Additional research documents will be summarized and made available on the site. And, updates on management actions will be provided.

Check out the Neuse River Homepage, and let us have your suggestions. Email Jeri_Gray@ncsu.edu.

July action of the N.C. Environmental Management Commission

At its regular meeting in on July 9, the North Carolina Environmental Management Commission took the following action:

- Approved a Project Cooperation Agreement with the U.S. Army Corps of Engineers for the **Wilmington Harbor Deepening Project**. Wilmington Harbor will be deepened from 38 feet to 42 feet to allow large modern container ships access to the State Port and other port facilities at Wilmington. The project will provide a significant economic advantage to businesses in North Carolina which import or export either raw materials or finished products. The N.C. Division of Water Resources is coordinating the agreement with the Corps.
- Delegated to the Director of the Division of Water Quality (DWQ) the authority to process **Special Agreements with owners of animal operations** who failed to obtain and implement a Certified Animal Waste Management Plan by Dec 31, 1997. These special agreements will provide owners who signed up for assistance with their local Soil and Water Conservation Districts by Sept 1, 1996, and made a good faith effort to meet the Dec 31, 1997, deadline an extra year to comply with the animal waste regulations. Two hundred and thirty-three (233) facilities have requested Special Agreements.
- Adopted a temporary rule to define **"innovative swine waste systems."** The Clean Water Responsibility Act provides that during the two-year moratorium on waste permits for new or expanding swine operations, permits may be granted for operations that employ an "innovative" waste management system that does not

employ an anaerobic lagoon. The temporary rule adopted provides that an animal waste management system may be considered for an exception under this provision of the law if:

1. *the system is installed on state or federally owned property, does not employ an anaerobic lagoon, and is a research or demonstration project; or*
2. *the system is substantially different from systems, other than pilot scale, currently in use in North Carolina on swine operations with 250 or more swine; and*
3. *it appears that the system will provide the Department a viable alternative to the continued use of the existing form of anaerobic wastewater lagoons prevalent in North Carolina as the treatment system for swine waste, or it appears that the system will substantially advance the Department's knowledge with regard to significant improvements that can be made to animal waste management on swine farms; and*
4. *the system does not employ an anaerobic lagoon.*

The temporary rule also provides that *Other processes, such as anoxic zones and anaerobic zones for nutrient removal or anaerobic digesters for the further treatment of residual solids, that do not include an anaerobic lagoon, would not prevent consideration for an exception under the rule, provided the applicant can document beneficial aspects of the treatment with respect to ammonia volatilization, water quality, and odor reduction.*

- Approved the **Broad River Basinwide Water Quality Management Plan**. Approval of the plan marked the completion of the first round of basinwide water quality plans for all of North Carolina's 17 river basins, and provided an occasion for reflection on the accomplishment. According to Division of Water Quality Director Preston Howard, only South Carolina has implemented the basinwide approach as quickly as North Carolina. Most other states, according to Howard, are just starting to develop basinwide planning. Commissioner Jim Melvin said, "We get so much criticism for what we don't do, we need to pat ourselves on the back for this."
- Approved the second annual status report on **Implementation of the Tar-Pamlico Nutrient Reduction Plan for Nonpoint Sources of Pollution** and plans to initiate rulemaking to put into place mandatory nonpoint source controls in the Tar-Pamlico Basin. According to Rich Gannon with DWQ, modeling indicates that nearly 100% of the cropland in the Tar-Pamlico Basin must be treated with BMPs in order for agriculture to accomplish its nitrogen reduction goal. However, Gannon said, estimates are that only about 13% of the land has been treated, and at that rate only about 20% will have been treated by the year 2000 when nutrient-reduction goals are to have been met. Moreover, said Gannon, there has been little progress on reducing the impacts of urban stormwater. Because progress toward goals has been slow, development of mandatory nonpoint source controls will begin in September, when the EMC will be asked to approve publication in the *N.C. Register* of an advance notice of

rulemaking. Following notice of rulemaking, meetings will be arranged with stakeholder groups to begin rule development. It is expected text of proposed rules would be brought to the EMC for approval in April 1999 and that, following public hearings, rules would be approved in August of 1999 and, following consideration by the General Assembly, would become effective in August of 2000. Additional information concerning implementation of non-cost-shared agricultural BMPs and nutrient reductions attributable to them as well as contribution to nitrogen loads from swine lagoon ammonia emissions is expected to become available during development of rules. For information on the Tar-Pamlico Nutrient Reduction Plan for Nonpoint Sources of Pollution and plans for rulemaking, contact Rich Gannon with DWQ at (919) 733-5083 Ext 356.

- Took no action on the **Use Restoration Waters (URW) supplemental classification rules** for restoring impaired waters that were taken to public hearing in 1997. The commission's failure to adopt the proposed rules means that the rules will not be implemented. Under the proposed rules, a broad URW classification would have been established, and an individual management strategy would have been developed—and taken through rulemaking—for each river segment or waterbody classified URW. Beth McGee of DWQ told commissioners that public hearings revealed no support among environmental groups, business, or other stakeholders for the strategy. McGee said DWQ staff rethought the approach and decided that with 400 impaired river segments in the state—which must be addressed under a recent EPA initiative to speed up adoption of total maximum daily loads (TMDLs) for impaired streams—an approach requiring individual rulemaking for each

segment was unrealistic. Instead staff is recommending a new approach to meet the goal of restoring waters within the timeline laid out by EPA.

Under the new concept, communities with jurisdiction in areas with impaired waters could develop and implement a restoration strategy with technical assistance from DWQ and possible funding assistance through various sources. Where communities did not choose to take responsibility for restoring impaired waterbodies, the state would apply certain broad restoration requirements. These requirements, perhaps regional in character, would be established by rulemaking and would include enforceable nonpoint source controls. In response to commissioners who questioned the need for URW rules, staff explained that additional rulemaking is necessary to establish mandatory controls over nonpoint sources of pollution, which are often the major causes of water quality degradation.

In support of new rulemaking, Commissioner Charles Peterson said, "Impaired waters in this state only increase. Not one area of impaired waters has been cleaned up in the last 15 years. If we don't start restoring these resources, EPA will force us to with TMDLs and other strategies that we don't like."

Supporting the new approach, Peterson said, "Nonpoint source work requires a lot of 'people' time. The State will never have enough resources to do all this work. The State must catalyze local communities to become involved."

Development of the new URW strategy and rules will begin with stakeholder meetings. For information contact Beth McGee with DWQ at (919) 733-5083 Ext 575.

- Approved holding a public hearing on **reclassification for water supply of several segments of the Deep River** which will become part of the Randleman Reservoir when it is

impounded. Part of the public hearing, scheduled for September 1, 1998, will be a discussion of options for managing nutrients (phosphorous is the nutrient of concern) in the proposed reservoir. Because eutrophication and algae blooms are expected to be a problem in the Randleman Reservoir, DWQ staff had suggested the possibility of also classifying the reservoir Nutrient Sensitive Waters and instituting an NSW strategy in the drainage area. However, Boyd DeVane of DWQ said that—because an NSW classification would also require limiting nitrogen in the Randleman watershed—staff is proposing instead that the EMC classify the Randleman drainage a Critical Water Supply Watershed and institute a nutrient management plan designed to limit phosphorous and control chlorophyll a concentrations. For information on the nutrient reduction strategies being considered for Randleman Reservoir and the public hearing on reclassification of Deep River segments for water supply, contact Boyd DeVane with DWQ at (919) 733-5083 Ext 559.

- Approved requests for **variances from the Neuse River Riparian Area Protection Rule** for expansion of Neomonde Deli and Market in Raleigh and a gravity sewer line for the Town of Holly Springs in Wake County.
- Tabled, effectively denying, a **Request for a Declaratory Ruling on the benzene protocol for determining fugitive emissions from asphalt plants**. The request was filed by Citizens Against Pollution, the Blue Ridge Environmental Defense League and the Conservation Council of North Carolina. Commissioner Robert Epting, who moved to table the request, said that while the groups had legitimate concerns, the concerns need to be addressed in another forum before they were brought to the EMC. Air Quality Committee Chairman

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Marion Deerhake said that if her committee agreed, they would hear the groups' concerns and consider how they might be addressed.

- Approved holding public hearings on amendments to **Air Quality Transportation Conformity Rules, Exclusionary Rules, Ambient Air Quality Standard Rules, and Incinerator Rules**. For information, contact Tom Allen with the Division of Air Quality at (919) 733-1489 or check the division's web site at: <http://www.ehnr.state.nc.us/EHNR/AQ/>.

Water Quality Committee

At the EMC's Water Quality Committee on July 8, commissioners heard reports on many of the items discussed above. In addition, the committee reviewed Basinwide Wetlands and Riparian Restoration Plans for the Cape Fear, Catawba, White Oak, French Broad and Lumber River basins. Interim Basinwide Wetlands and Riparian Restoration Plans for the Neuse, Tar-Pamlico and Yadkin-PeeDee basins have also been completed. (See article in the next column.)

The Water Quality committee also approved sending the draft updated Neuse Basinwide Water Quality Management Plan to public meetings. The Neuse plan was the first basinwide plan to be completed and is now due for updating under DWQ's five-year basinwide review schedule. Updating of basinwide water quality plans coincides with reissuance of wastewater discharge permits.

Air Quality Issues

Air Quality Committee Chairman Marion Deerhake said that her committee expects in September to hear a report and recommendations from NCSU researchers studying possible controls for odors from swine operations.

Air Quality Division Director Alan Klimek announced that the week of July 13 would see the beginning of a radio public information campaign to inform

people about open burning regulations. Under statewide Air Quality rules, most open burning is prohibited without a permit. Some kinds of open burning that are allowed without a permit are campfires, ceremonial fires, and fires to burn light yard waste, such as leaves, under strictly controlled conditions.

Except for three local programs—Western North Carolina Regional Air Pollution Control Agency, the Forsyth County Environmental Affairs Department, and the Mecklenburg County Department of Environmental Affairs—open burning regulations are implemented by regional offices of the Department of Environment and Natural Resources.

For additional information on open burning regulations contact the Division of Air Quality at (919) 733-3340 or check out the open burning rules at the division's web site: <http://www.ehnr.state.nc.us/EHNR/AQ/>.

N.C. Wetlands Restoration Program seeks to increase wetland and riparian area acres &

The N.C. Wetlands Restoration Program was established by the N.C. General Assembly in 1996 to restore wetlands, streams, and nonwetland riparian areas throughout the state. To accomplish the goals of the program, restoration plans targeting areas in greatest need of restoration are being developed for each river basin in the state. With the use of water quality data from basinwide water quality plans, information on areas of ecological significance from the N.C. Natural Heritage Program, and GIS mapping and analysis tools, priority subbasins have been identified within each river basin. A number of plans have now been completed. For information on availability of plans, contact Bonnie Mullen with the N.C. Wetlands Restoration Program at (919) 733-7015.

State announces new Pfiesteria policy

In June, State Health Director Dennis McBride announced a new policy for closing waters during Pfiesteria fish kills. Formerly, the state only advised the public to stay away from dead, dying, and sick fish and did not actually close waters.

"We don't have absolute scientific knowledge that Pfiesteria causes human health effects, said McBride. "But we do have substantial case reports. We need to err on the side of caution and keep people away from potential harm."

Under the new policy, Department of Environment and Natural Resources staff will be responsible for monitoring waterways and investigating potential problems. If they find a possible Pfiesteria fish kill, they will advise McBride of conditions and he will determine if a closure order is necessary.

The new policy will recommend closure in the following situations:

- an ongoing significant fish kill is confirmed and the affected fish have Pfiesteria-like sores;
- a significant number of fish are acting erratically and no other explanation for the behavior is apparent;
- a significant number of fish are acting erratically and at least 20% of one species exhibit fresh sores.

Notices of closures will be given to area media. A listing of closures can be accessed by dialing 1-888-823-6915.

Where appropriate, Marine Fisheries and the Wildlife Resources Commission will patrol the area to prevent fishermen and the public from entering.

The closure will be lifted when there is no ongoing fish kill and less than 20% of the fish have fresh sores.

—DHHS news release

**Jan 1, 1999, is still deadline for 'grandfathering'
Some deadlines under well contractors
certification program to be extended**

In 1997, the N.C. General Assembly passed HB 251 requiring that persons who perform well construction activities must be certified. The act established the Well Contractors Certification Commission (WCCC) and charged the commission with developing and adopting requirements and procedures for obtaining and maintaining certification.

Under the original legislation, the WCCC was to have requirements for a certification program in place by January 1, 1999, and all those who wish to perform well construction activities were supposed to submit an application for certification by January 1, 1999. However, a delay in appointing the commission made it necessary to revise deadlines for certification. A bill now pending in the General Assembly and expected to pass will extend the deadlines for establishing certification requirements and filing applications for certification by examination to January 1, 2000.

However, the act provides for "grandfathering"—that is certification without examination —of certain currently registered well contractors, and the deadline for applying to be grandfathered is still January 1, 1999. In order to be eligible to be certified without examination, a person must have been actively and continuously engaged in well contractor activity since July 1, 1992, and must have been continuously registered (or be an employee of a company continuously registered) with the Department of Environment and Natural Resources as required by law.

To be certified under the grandfathering provision, an eligible person must submit an application, on a form to be developed by the WCCC, and pay an annual fee to be established by the WCCC. Persons certified under the grandfathering provision must maintain certification according to requirements to be established by the WCCC.

Members of the WCCC have now been appointed (see box) and have met several times. According to Bob Cheek with the Division of Water Quality's Groundwater Section, the commission's first order of business has been to establish a framework for the well certification program and to develop the application form for certification without examination. Cheek said that as soon as the application form is available, all currently registered well contractors will be mailed information about how to apply for certification without examination. Applications should be filed before January 1, 1999.

**North Carolina
Well Contractors
Certification Commission**

Chairman	Co-Chair
Greg Bright	Kenny Steel
Wake County Division of Environmental Services	Cleveland
Raleigh	

Commission's attorney
Frank Crawley
N.C. Attorney General's Office, Raleigh

Peter Beebe	Gene Everett
Lillington	Dobson
Wilson Martin	Elmer Newman
Statesville	Elkin

Dale Todd
Wilmington

Staff support for the WCCC is provided by the Groundwater Section of the Division of Water Quality. Questions may be directed to Section Chief Arthur Mouberry (919-715-6170; Arthur_Mouberry@mail.ehnr.state.nc.us) or Bob Cheek (919-715-6160; Bob_Cheek@mail.ehnr.state.nc.us). Mailing address: Groundwater Section, N.C. Division of Water Quality, P.O. Box 29578, Raleigh, NC 27626.

People

Viney P. Aneja, a research professor in NCSU's Department of Marine, Earth and Atmospheric Sciences, has received the 1998 Frank A. Chambers Award from the Air & Waste Management Association. Dr. Aneja is currently conducting a study, funded by the N.C. Division of Air Quality through WRR I, to assess the contribution of animal operations to atmospheric nitrogen loadings.

Donna Moffitt, formerly assistant director for nonpoint source programs with the N.C. Division of Soil and Water Conservation, became Director of the Division of Coastal Management on June 22. She replaces **Roger Schecter**, who has accepted a consulting position with the National Ocean Service, part of the National Oceanic and Atmospheric Administration.

Dr. **John Costlow**, Duke University professor emeritus, has received North Carolina's most prestigious citizen's award, "The Order of the Long Leaf Pine," for his outstanding service and commitment to the environmental community and the state.

Dr. **Michael K. Orbach** has been named Director of the Duke University Marine Laboratory, replacing **Joseph S. Ramus**, who retired after 10 years in the position.

L.W. Locke of Enfield, a former member of the N.C. House of Representatives and a member of the N.C. Environmental Management Commission, died suddenly May 22.

Lisa Martin, who formerly handled Water Supply Watershed Protection ordinance review and approval for the N.C. Division of Water Quality, has been named Executive Director of the Upper Neuse River Basin Association.

Don Safrin, formerly Assistant Chief of the Point Source Branch with the N.C. Division of Water Quality, has joined Odell & Associates in Brunswick County.

In June the N.C. Division of Water Quality announced **Kerr "Tommy" Stevens** as its new deputy director and **Coleen H. Sullins** as chief of the Water Quality Section, both of whom have served in acting capacities since February.

Clean Water Management Trust Fund approves 10 additional water quality protection projects

The Trustees of the Clean Water Management Trust Fund (CWMTF) announced in April tentative approval of funding for 10 new water quality protection projects. Most of the newly approved projects will assist communities in financing repairs and improvements to wastewater treatment systems. In approving the projects, CWMTF virtually concluded its review of applications in the second funding cycle. CWMTF has now approved 82 projects to protect water quality across North Carolina for a total of approximately \$62 million.

The Trustees tentatively committed \$1.6 million to the Town of Swansboro to remove a significant portion of its wastewater discharge from coastal waters and to move it onto land application. The Trustees also approved grants to the following five communities in order to assist in financing repairs to their failing waste treatment systems:

- Mount Gilead, \$498,000;
- Gibson, \$286,500;
- Wagram, \$400,000;
- Hildebran, \$136,000; and
- Village of Flat Rock, \$551,695.

National water quality survey released

In May, the U. S. EPA released its *1996 National Water Quality Inventory*, a biennial survey of the nation's water quality. The report is based on data collected by states, tribes and other jurisdictions during 1994 and 1995. Jurisdictions surveyed water quality conditions in 53% of the 1.3 million miles of perennial rivers and streams.

Overall, 64% of the surveyed river and stream miles fully support all uses set by management authorities, such as fishing and swimming. Water quality is good but threatened in 8% of these river miles. The remaining 36% are in fair or poor condition. Some form of pollution or habitat degradation prevents these

Two well-designed proposals to establish revolving loan funds for the repair or elimination of straight piping and failing septic tanks were also approved. The Western Piedmont Council of Governments was awarded \$450,000 for work in Alexander, Burke, Caldwell and Catawba Counties, and Madison County was awarded \$750,000 to fund a similar program.

A project from the Pamlico-Tar River Foundation, the NC Nature Conservancy and others was approved at \$793,000. The project for land acquisition and related efforts is designed to protect and preserve the relatively unpolluted waters in the upper Tar River watershed.

A comprehensive project aimed at controlling sedimentation in the upper Broad River was funded at \$581,000. Sediment is widely considered to be the most serious and pervasive threat to water quality in the state, but it is also very difficult to combat effectively. — *CWMTF news release*

ivers and streams from fully supporting healthy aquatic communities or human activity. Aquatic life use is the most frequently impaired individual use. Siltation is the most widespread pollutant impacting surveyed rivers and streams. Agriculture is the most widespread source, on a national basis, of pollutants impairing surveyed rivers and streams.

A 12-page summary titled *Report Brochure: National Water Quality Inventory 1996 Report to Congress* as well as a longer summary and selected chapters of the report are available on the Internet at <http://www.epa.gov/305b/>.

EPA will develop regional water quality nutrient targets

In a notice published June 25 in the *Federal Register* (63 FR 34648-34650 available at <http://www.epa.gov/fedrgstr/EPA-WATER/1998/June/Day-25/w16941.htm>), the U.S. Environmental Protection Agency announced that it intends to develop regional targets for nutrients in water.

In its "National Strategy for the Development of Regional Nutrient Criteria," the agency describes the approach it is taking to develop scientific information relating to nutrient over-enrichment of the nation's surface waters and to working with states to assure that their water equality standards reflect this nutrient information. Major elements of the strategy include:

- Use of regional and waterbody-type approach for development of nutrient water quality criteria.
- Development of technical guidance documents that will serve as "user manuals" for assessing trophic state and developing nutrient criteria specific to a regional and waterbody-type. These guidance documents will establish nutrient water quality criteria in the form of numerical regional target ranges and will provide a basis for a range of pollution control activities including NPDES permits and total maximum daily loads (TMDLs).
- Establishment of an EPA National Nutrient Team with Regional Nutrient Coordinators to develop regional databases and to promote State and Tribal involvement. It is expected that each regional coordinator will form a team including State and Tribal representatives and other federal and local representatives to develop

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1.6 gpf toilets flush with success

Over the last year or so, newspaper columnists, headline writers, and cartoonists have had a field day with the controversy over low-flush toilets. Press reports, including a high-profile story by syndicated columnist Dave Barry, have maligned the fixtures, and standards requiring plumbing manufacturers to produce 1.6 gallon per flush (gpf) toilets, have been targeted in Congress for elimination by Representative Joseph Knollenberg of Michigan.

However, a study recently released by the American Council for an Energy-Efficient Economy could put an end to the bad puns as well as Rep. Knollenberg's H.R. 859.

The study shows that cities both large and small are successfully promoting water conservation, with programs that include water-frugal toilets, faucets and showerheads and that, despite anecdotal suggestions that consumers widely reject the efficient toilets, the vast majority of the people who own the 1.6-gallon units are satisfied with them.

The report, called *Saving Water, Saving Dollars*, was funded by the Plumbing Manufacturers Institute, the California Urban Water Conservation Council and the Water Conservation Coalition of Puget Sound. It shows that nationwide, efficient plumbing fixtures

could help postpone or reduce some portion of water-related infrastructure costs projected to total over \$200 billion over the next 20 years. Twelve cities are profiled in case studies: Albuquerque, NM; Asheville, NC; Houston, TX; Iowa City, IA; Los Angeles, CA; Nashville, TN; New York, NY; Phoenix, AZ; San Diego, CA; Santa Monica, CA; Seattle, WA; and Tampa, FL.

In New York City, for example, efficient plumbing fixtures helped bring average daily water consumption in 1997 down below 1.2 billion gallons from a high of 1.45 billion in 1988. New York was one of 17 states that had a 1.6 gpf law in place before a federal statute was enacted in 1992. Nationwide, 1.6 gpf toilets will be saving residential customers 2 billion gallons daily by 2010.

One major result of cities' conservation efforts may be to postpone or avoid billions of dollars in water and wastewater infrastructure costs in the next two decades.

"Water conservation makes sense even in the wettest American cities, because the biggest costs connected with water are the pipelines and treatment facilities that are needed to bring clean drinking water in and to carry wastewater out. Saving water means saving private and public dollars, and that's why

cities from Seattle to Tampa are actively and successfully promoting efficient plumbing fixtures," said Edward Osann, an analyst on natural resource issues who co-authored the report.

Americans now spend about \$50 billion each year on residential water and sewer bills, and an additional \$16 billion on the cost of energy to heat domestic hot water, according to the report. In 1997, the Environmental Protection Agency told Congress that over the next 20 years, national investment needs for safe drinking water and for cleaning up wastewater will total \$280 billion. About \$200 billion of this is for facilities and equipment where the volume of water or wastewater flow can affect their required size and cost, according to the report.

"With its fiscal and environmental benefits, both current and projected, water conservation makes good sense for communities of all sizes, physical characteristics, and geographic locations. The experiences of the cities highlighted in this report amply demonstrate that making efficient use of water is a public policy that is widely shared and national in scope," said Osann.

Saving Water, Saving Dollars; 69 pages is available for \$20.00 postpaid from ACEEE Publications, 1001 Connecticut Avenue, N.W., #801, Washington D.C. Phone: (202) 429-0063. Fax: (202) 429-0913. E-mail: ace3pubs@ix.netcom.com.

The American Council for an Energy-Efficient Economy is an independent, nonprofit research group dedicated to advancing energy efficiency as a means of environmental protection and economic development. For more information about ACEEE and its programs and publications, visit ACEEE's home page on the World Wide Web: <http://aceee.org>.

To aid homeowners in selecting low-flush toilets, WRRR some years ago prepared a list of low-flush toilets rated well by Consumer Reports and by participants in surveys conducted in New York and Los Angeles. This list is still available. Call WRRR at (919) 515-2815 or email us at water_resources@ncsu.edu.

EPA to develop nutrient targets *continued*

nutrient databases and nutrient target ranges.

- Monitoring and evaluation of the effectiveness of nutrient management programs as they are implemented.

EPA will take public comment on its National Strategy for the Development of Regional Nutrient Criteria until August 24, 1998. The document and a fact sheet may be ordered through the EPA web site (<http://www.epa.gov/ncepihom/orderpub.html>) or by calling

the National Center for Environmental Publication and Information at 1-800-490-9198. For additional information contact: Robert Cantilli, Health and Ecological Criteria Division, EPA Office of Water, at (202) 260-5546.

In March DuPont Fayetteville Works announced that DuPont was donating about 422 acres of land along the Cape Fear and a creek leading into the river to the N.C. Coastal Land Trust. The donation includes bottom land hardwood forest and older growth pine and hardwood.

Digest

Cherry Hospital Dam removal. In May, the State of North Carolina began removing a small earthen-steel dam on the Little River near Goldsboro to improve spawning opportunities for fish that migrate up inland waters. Removal of the Cherry Hospital dam will open 21 miles of the Little River and 33 miles of tributaries to fish species that migrate from the ocean, including American shad, striped bass, short-nosed sturgeon, Atlantic sturgeon, hickory shad and alewife. This is the second N.C. dam to be marked for removal for environmental purposes. In December 1997, Carolina Power & Light Company agreed to let the state dismantle the Quaker Neck Dam on the Neuse River to improve fish migration. The U.S. Fish and Wildlife Foundation, the N.C. Division of Marine Fisheries, and Coastal America Inc have helped the N.C. Division of Water Resources fund the removal of both dams. In 1989, the Albemarle-Pamlico Estuarine Study identified Quaker Neck Dam and Cherry Hospital Dam as barriers to fish migration that could be removed.

Smart water treatment. By the end of the next decade, water and wastewater treatment technology will have taken a giant leap forward. Smart membranes, or filters, will remove organic compounds, which currently react with chlorine to produce harmful disinfection by-products, and will adjust automatically to unclog themselves. Sponge-like grains of sand will attract and hold nitrates and heavy metals to further protect drinking water in large and small systems. That's according to an environmental technology forecast produced by a team of researchers at the Department of Energy's Pacific Northwest National Laboratory. The team, representing decades of experience on national and international environmental issues, identified smart water treatment as one of the 10 most important technological breakthroughs that will lead to a cleaner

environment while providing major benefits to consumers over the next decade. Read about the other top environmental technological breakthrough for 2008 at http://www.pnl.gov/news/1998/bnw98_13.htm.

Privatization of municipal polluters.

As of July 1, owners of large public wastewater treatment facilities in Georgia must privatize the operation and maintenance of their systems if certain violations of their wastewater discharge or land application permits occur. A bill passed by the Georgia legislature in March and signed into law by Gov. Zell Miller in April requires that non-compliant facilities must enter into a binding contract with a private contractor within 12 months of receipt of written notification from the state. A notification to privatize will be triggered by any violation of a facility's monthly effluent limitation for biochemical oxygen demand, total suspended solids, ammonia, or phosphorus for any eight months during any continuous 12-month period after Jan 1, 1999; by a violation by a factor of 1.4 or greater of the same parameters for any four months during a 12-month period; or by three major treatment bypasses during any 12-month period. The contract for private operation, awarded through competitive bidding, must include the entire facility and sewer collection systems and must be for a period of not less than ten years. Failure to meet milestones specified in the law can result in civil penalties of \$50,000 or \$100,000 per day depending on the milestone not met.

Concern over Bt resistance. *Bacillus thuringiensis* (Bt), a natural pest control that is both environmentally safe and effective, has long been used by organic farmers, gardeners, and vegetable growers. Many scientists now fear that crops engineered to produce Bt will give rise to Bt-resistant insects, limiting the time that the natural control will be effective and forcing growers to use more expensive and less environmentally friendly pest control methods. In

February, the Union of Concerned Scientists (UCS) released a report, *Now or Never: Serious New Plans to Save a Natural Pest Control*, calling upon the U.S. Environmental Protection Agency to institute stronger Bt resistance management plans, including new restrictions on genetically engineered Bt corn, Bt cotton, and Bt potato. Among the signers of the UCS report was Dr. Fred Gould, William Neal Reynolds Professor of Entomology at N.C. State University. Dr. Gould said that recent conditional registration of two new Bt corn varieties, requiring resistance management plans close to those recommended by UCS, show that EPA is responding to scientists' concerns. In addition, he said, companies that market existing Bt crops will have to develop resistance management plans next year. Resistance management involves making sure that Bt crops deliver a high enough dose of toxin to kill all but the most highly resistant insects and providing nearby non-Bt "refuge" crops where Bt-susceptible insects can live and mate with highly resistant ones, thereby weakening resistance. Scientists who produced the UCS report found that under existing resistance management plans, refuges were not large enough to successfully carry out the high-dose/refuge strategy. The experts called for non-Bt refuges of 20% to 50% of the total crop acreage, depending upon the crop. According to Dr. Gould, mandated management plans for the new corn varieties require 20% to 40% non-Bt crops. Dr. Gould said that without resistance management, insects can become resistant to controls in as little as one growing season. He said the average time to develop resistance is seven years.

Groundwater remediation by plants.

Cleaning up polluted groundwater by the "pump-and-treat" method normally costs over \$100,000 and sometimes exceeds \$1 billion. Moreover, excavating soil at contaminated sites leaves holes to be filled in with clean earth, and landfilling contaminated soil takes up valuable landfill space. However, recent experi-

ences suggest that using plants to clean up pollution may provide much simpler and less expensive ways to remediate groundwater and soil contamination. *Phytoremediation*, the science of using plants to clean up contamination, is not a new one. Europeans knew hundreds of years ago that certain plants grow in abundance near deposits of zinc and nickel and absorb these materials readily. Recently, scientists have been exploring how many pollutants plants can absorb and how effective they can be at remediating contaminated sites. Laboratory experiments and limited field tests have shown that plants can clean up metals such as lead and nickel by absorbing them, in a process called *phytoextraction*. Some scientists have raised concerns about phytoextraction, fearing that animals and insects could eat metal-laden plants, be eaten by their predators, and spread toxic metals through the food chain in the area around a contaminated site. Others say, however, that metals could be extracted from the plants and put back into use. Bioaccumulation is not a concern when plants break down contaminants into harmless substances, in a process called *phytodegradation*. Scientists have found a wide variety of pollutants like petroleum hydrocarbons that certain plants seem to absorb and destroy. For example, a carefully selected variety of tall fescue has been used to clean up petroleum waste in soil, and poplar trees, selected for their long roots, have been used to attract a plume of contaminated groundwater and break down the pollutants. While the U.S. EPA has taken the lead in investigating phytoremediation, the agency currently has no plans to promote its use. Still, several fledgling companies have formed to perform phytoremediation, and they are seeing increasing demand for their services.—The Academy of Natural Sciences' *Know Your Environment*, May 1998.

Orphan pollution source “Cleanup for Credit” study. The National Forum on Nonpoint Source Pollution, convened by The Conservation Fund and the National

Geographic Society, has launched 25 nonpoint source initiatives across the country. One of these initiatives, the Orphan Sites Feasibility Study, has produced a framework for trading unlike types of pollutants and other resources affecting water quality. The Orphan Sites concept allows any interested entity to “adopt” and clean up an unregulated “orphan” source of pollution in exchange for some type of “credit,” which can be “banked” or sold. The Clear Creek Watershed in Colorado has served as the model watershed for the study. Phases I and II involved obtaining stakeholder input to identify support, list acceptable uses of credit, and identify water quality and environmental management goals for the watershed. The recently completed phase III study, performed by Hydrosphere Resources Consultants, addressed finding an appropriate basis for the evaluation of trades between different types of pollutants and physical characteristics and overcoming the way in which management and regulatory responsibilities are divided among many agencies. The next phase will involve a demonstration project. A number of potential orphan sites have been identified in the watershed for testing the concepts. The phase III reports on evaluating and implementing un-like trading and transactions involving banking can be read at <http://www.hydrosphere.com/hrc/orphandoc.htm>.

Another invasive exotic. The Asian swamp eel, a non-native fish, has been found in canals, ditches, streams and ponds near Tampa and Miami, Florida. The species is spreading and has the capability of invading and harming freshwater ecosystems throughout the Southeast, including the already-besieged Everglades system, according to the U.S. Geological Survey scientists who found the species in Florida. Swamp eels — or rice eels as they are sometimes called — were first discovered in Florida waters in 1997 in two widely separated sites on Florida’s Gulf Coast and at an

artificial lake just north of Miami. In May, USGS biologists found swamp eels in samples they took throughout a major east-west canal near the Dade-Broward County line, including a site near the canal’s border with Everglades marsh habitat. Biologists have not found the Asian swamp eel in interior wetlands of the Everglades or other natural wetland systems, but the interconnectedness of the waterways and the eel’s biology pose substantial risks of the species becoming established there. In North America, the species is sometimes kept as an aquarium fish, although scientists can only speculate that the species may have escaped or been released into the state’s waters. In 1995, swamp eels were found in several ponds at the Chattahoochee Nature Center north of Atlanta, and scientists suspect the swamp eel may have spread to other parts of the Chattahoochee River system. In Georgia, entire groups of fish have disappeared from one impoundment populated by the eels, making Florida scientists especially aware of the potential effect of this species on the state’s native fish communities. Swamp eels, which reach lengths of three feet or more, are predators, feeding on animals such as worms, insects, shrimp, crayfish, other fishes and frogs. Yet the eels are also able to survive weeks—and possibly months—without food. The eels are highly secretive, with most of their activities occurring at night. In the day, the fish hide in thick aquatic vegetation or in small burrows and crevices along the water’s edge. In many populations, all young are hatched as females. Then, after spending part of their life as females, the eels transform into large males. The exotic creature is a highly adaptable predator, able to breathe air and to live easily in even a few inches of water, especially in warm climates. Although few non-native fishes invade natural wetlands—instead being primarily found in disturbed habitats such as canals and drainage ditches—the swamp eel’s biology makes it well suited for all kinds of habitats.—*USGS news release* For more detail and photos visit web site <http://www.usgs.gov>.

Action of the N.C. General Assembly

Following is a list of some environment-related bills introduced in the current session of the General Assembly. Funding bills are not included in this list since funding actions are taken through budget bills. As of July 10, the Senate had passed its budget bill and the House was working on its version. Some provisions of the Senate budget bill are described below.

Legislation passed

S 124 AN ACT TO REDUCE THE WHITE GOODS DISPOSAL TAX RATE TO ONE RATE FOR ANY WHITE GOOD REGARDLESS OF WHETHER THE WHITE GOOD CONTAINS CHLOROFLUOROCARBONS, TO EXTEND THE WHITE GOODS DISPOSAL TAX SUNSET, TO ALTER THE DISTRIBUTION OF THE TAX PROCEEDS FROM THIS TAX, TO CLARIFY HOW THE COUNTIES MAY USE THE TAX PROCEEDS, AND TO LIMIT THE AMOUNT OF SURPLUS A COUNTY MAY ACCUMULATE BY HOLDING FURTHER TAX DISTRIBUTIONS UNTIL THE SURPLUS IS REDUCED.

Legislation introduced

S 1269 AN ACT TO EXTEND BY ONE YEAR THE DATE BY WHICH WELL CONTRACTORS MUST BE CERTIFIED UNDER THE NORTH CAROLINA WELL CONTRACTORS CERTIFICATION ACT AND TO EXTEND THE TIME FOR THE ADOPTION OF RULES BY THE WELL CONTRACTORS CERTIFICATION COMMISSION, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION. (As of 6/9/98 passed by the Senate and referred to the House Committee on State Government.)

S 1274 AN ACT TO EXTEND THE TIME FOR THE RESOLUTION OF CLAIMS TO LAND UNDER NAVIGABLE WATERS, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION. (As of 6/9/98 passed by the Senate and referred to the House Committee on Environment.)

S 1299 (=H 1473) AN ACT TO AMEND THE LAWS REGARDING THE WITHDRAWAL AND TRANSFER OF SURFACE WATERS AND THE STATE WATER SUPPLY PLAN. (As of 7/10/98 no action on either Senate or House bill.)

S 1302 AN ACT TO PROVIDE FOR THE REGISTRATION OF SWINE FARMS ASSOCIATED WITH SWINE OPERATION INTEGRATORS, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION. (As of 7/10/98 no action on either bill.)

S 1303 (=H 1462) AN ACT TO DIRECT THE COMMISSION FOR HEALTH SERVICES TO REQUIRE THAT EACH NEW SEPTIC TANK SYSTEM INCLUDE AN EFFLUENT FILTER AND AN ACCESS DEVICE, TO REQUIRE THE COMMISSION FOR HEALTH SERVICES TO DEVELOP STANDARDS FOR THESE FILTERS AND DEVICES, AND TO ADOPT THESE STANDARDS AS TEMPORARY RULES, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION. (As of 6/29/98 passed by the Senate and referred to the House Committee on Environment.)

S 1304 (=H 1479) AN ACT TO DIRECT THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES TO STUDY ISSUES RELATED TO THE PHASEOUT OF ANAEROBIC LAGOONS AND SPRAYFIELDS AS THE PRIMARY METHODS OF DISPOSING OF ANIMAL WASTE AT SWINE FARMS, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION. (House version passed 7/8/98.)

S 1331 (= H 1483) AN ACT TO REQUIRE THE ENVIRONMENTAL MANAGEMENT COMMISSION TO CLASSIFY THE IMPACT OF LEAKING PETROLEUM UNDERGROUND STORAGE TANKS AS EITHER AB OR CDE AND TO PROVIDE THAT THE OWNER OR OPERATOR OF A LEAKING UNDERGROUND STORAGE TANK THAT HAS A CDE IMPACT SHALL NOT BE REQUIRED TO CLEAN UP THE DISCHARGE OR RELEASE, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION. (No action on either bill as of 7/10/98.)

S 1354 AN ACT TO AUTHORIZE THE ISSUANCE OF GENERAL OBLIGATION BONDS OF THE STATE, SUBJECT TO A VOTE OF THE QUALIFIED VOTERS OF THE STATE, TO ADDRESS CRITICAL STATEWIDE NEEDS BY PROVIDING FUNDS (1) FOR GRANTS AND LOANS TO LOCAL GOVERNMENT UNITS FOR WATER SUPPLY AND DISTRIBUTION SYSTEMS, WASTEWATER COLLECTION SYSTEMS, WASTEWATER TREATMENT WORKS, WATER CONSERVATION PROJECTS, AND WATER REUSE PROJECTS (2) FOR GRANTS, LOANS, OR OTHER FINANCING TO PUBLIC OR PRIVATE ENTITIES FOR CONSTRUCTION OF NATURAL GAS FACILITIES, AND (3) FOR GRANTS OR LOANS FOR RURAL SCHOOLS FOR A SCHOOL WATER OR WASTEWATER PROJECT. (As of 6/30/98 passed by the Senate and referred to the House Committee on Finance.)

S 1366 APPROPRIATIONS ACT OF 1998. The Senate budget bill is 234 pages long but includes only broad appropriations and other provisions. Line items for agencies of the State for the 1998-99 fiscal year are included in the Senate Appropriations Committee Report on the Continuation, Expansion and Capital Budgets. Details are to be found in this report of the 1998-99 budget proposed by the Senate for agencies of the Department of Environment and Natural Resources. Following are some provisions contained in S 1366:

- \$300,000 is to be allocated to the Institute of Marine Sciences of UNC-Chapel Hill for a study of the potential for sustainable oyster aquaculture.
- \$500,000 appropriated to the N.C. Department of Agriculture and Consumer Services for the N.C. Farmland Preservation Trust Fund is to be used for a farmland preservation pilot program in which funds shall be used to purchase agricultural conservation easements.

■ Provided that the full General Assembly takes action on pending recommendations of the Environmental Review Commission, on-site wastewater, public drinking water and environmental health programs are to remain in the Department of Environment and Natural Resources but may not be consolidated into the Division of Water Quality.

■ The Environmental Review Commission is directed to study a number of issues including the following:

- The appropriate roles and financing of local and state agencies in reviewing, permitting, inspection, and monitoring private wells, community wells, municipal wells, and municipal surface water supplies; and in reviewing, permitting, inspecting, monitoring and maintaining septic tanks, package wastewater treatment plants, municipal wastewater treatment plants, industrial treatment plants and animal waste operations.
- Integration of State's review of the financial integrity of applicants for drinking water and wastewater discharge permits.
- Policies to monitor the quality and prevent and reduce pollution of groundwaters and surface waters.
- Consistent State policies for cleaning up contaminated groundwater and soils.
- Coordination of adoption and development of policies by the Coastal Resources Commission, Environmental Management Commission, Commission on Health Services, Marines Fisheries Commission, and other commissions having roles in water quality or wastewater issues.
- Organization of the State's water planning agencies.
- Policies to encourage water conservation and regional water supply and wastewater treatment planning.
- The role of the N.C. Cooperative Extension Service, N.C. Department of Agriculture and N.C. Department of Transportation in the protection of water supplies.
- Organization, functions, powers, and duties of the various boards, commissions, and councils having jurisdiction over environmental public health and natural resource programs, including whether those functions, power and duties should be consolidated in a single commission.

■ The Environmental Management Commission may adopt a temporary rule to provide that the boundaries of a WS-IV watershed protected areas are measured by linear miles rather than "river miles" (as the river flows) under certain conditions.

■ The Department of Environment and Natural Resources shall allocate \$300,000 to the Upper Neuse River Basin Association to develop a cooperative, comprehensive and integrated State-local watershed management plan for the Upper Neuse River Basin to serve as a model watershed management approach for river basins and subbasins in North Carolina. DENR and other State agencies are to provide technical assistance to the Association during development of the plan.

S 1373 AN ACT TO DISAPPROVE AN ADMINISTRATIVE RULE ADOPTED BY THE ENVIRONMENTAL MANAGEMENT COMMISSION REGARDING THE TAR-PAMLICO RIVER BASIN. (May 27, 1998) Section 1. Pursuant to G.S. 150B-21.3(b), 15A NCAC 2B.0316, (Tar-Pamlico River Basin), as amended by the Environmental Management Commission, and approved by the Rules Review Commission on January 15, 1998, is disapproved. (No action as of 7/10/98.)

S 1598 AN ACT TO DISAPPROVE THE RULES RELATING TO RISK-BASED ASSESSMENT AND CORRECTIVE ACTION FOR LEAKING PETROLEUM UNDERGROUND STORAGE TANKS AND TO REINSTATE THE AB/CDE CLASSIFICATION OF IMPACTS RESULTING FROM RELEASES FROM PETROLEUM UNDERGROUND STORAGE TANKS. Pursuant to G.S. 150B-21.3, the amendments to 15A NCAC 2N.0707 (Corrective Action Plan), as adopted by the Environmental Management Commission and approved by the Rules Review Commission on 19 February 1998, are disapproved. Pursuant to G.S. 150B-21.3, 15A NCAC 2L .0115 (Risk-Based Assessment and Corrective Action for Petroleum Underground Storage Tanks), as adopted by the Environmental Management Commission and approved by the Rules Review Commission on 18 February 1998, is disapproved. The provisions of Section 1 of Chapter 648 of the 1995 Session Laws (1996 Regular Session) are to be reenacted and shall remain in effect until otherwise provided by the General Assembly. (Introduced 6/30/98; no action as of 7/10/98.)

H 1333 AN ACT TO REQUIRE THE CODIFIER OF RULES TO PUBLISH THE NORTH CAROLINA REGISTER AND THE NORTH CAROLINA ADMINISTRATIVE CODE ON THE INTERNET. (Reported favorably by Committee on State Government.)

H 1402 AN ACT TO DISAPPROVE AN ADMINISTRATIVE RULE ADOPTED BY THE ENVIRONMENTAL MANAGEMENT COMMISSION. Pursuant to G.S. 150B-21.3(b), 15A NCAC 2B .0233, (Neuse River Basin: Nutrient Sensitive Waters Management Strategy: Protection and Maintenance of Riparian Areas with Existing Forest Vegetation), as amended by the Environmental Management Commission, and approved by the Rules Review Commission on February 19, 1998, is disapproved. (Introduced May 21, 1998. No committee action. Negotiations between DENR and stakeholders are ongoing.)

H 1415 AN ACT TO STRENGTHEN THE SEDIMENTATION POLLUTION CONTROL ACT OF 1973, AS RECOMMENDED BY THE SEDIMENTATION CONTROL COMMISSION AND THE ENVIRONMENTAL REVIEW COMMISSION. Provides that exposed slopes shall be planted or provided with ground cover within 15 working days or 30 calendar days of completion of any phase of grading, whichever is shorter. Increases the number of days for which a stop work order may be issued from three to five. (Passed by House and sent to Senate, 6/17.)

Interagency document on stream restoration available on Internet

Restoration practitioners share the responsibility of stepping beyond the current concept of natural resources conservation to a newer concept of restoring the living environment to an ecologically viable condition—to create places that improve rather than degrade over time.

To aid in that responsibility, the Federal Interagency Stream Restoration Working Group has created *Stream Corridor Restoration: Principles, Practices and Processes*. This document encapsulates the rapidly expanding body of knowledge related to stream corridors and their restoration. It makes no endorsement of one particular approach to restoration over another; nor is it intended as a policy document of any Federal agency. It includes the full range of possibilities facing restoration practitioners, including no action or passive approaches, partial intervention for assisted recovery, and substantial intervention for managed recovery. Its emphasis on looking at all stream users, in varying landscapes and at multiple levels of scales, makes it unique.

Stream Corridor Restoration: Principles Processes and Practices is intended primarily for interdisciplinary teams responsible for planning, design, and implementation of stream corridor restoration projects. It might also be useful to contractors, landowners, volunteers, individuals, and agency staff.

You can find this document on the Internet at: http://www.usda.gov/stream_restoration. The entire 17 MB draft document can be downloaded in PDF format, or chapters can be chosen from the table of contents and downloaded individually.

Workshops and Conferences

Mark Your Calendar! The N.C. Department of Environment and Natural Resources' Office of Environmental Education will present "Living the Commitment," The N.C. Environmental Education Conference, Feb 10-12, 1999, at the Sheraton Imperial, Research Triangle Park, NC. Certification workshops will be held Saturday, Feb 13. Registration will begin Sept 1, 1998. For

more information call the Office of Environmental Education at 1-800-482-8724 or (919) 733-0711.

Composting in the Southeast Conference & Expo will take place Sept 9-11, 1998, in Athens, GA. This event provides individuals and organizations involved in the composting industry with practical information on the science of composting, facility planning and design, operations, regulations, economics, marketing and utilization and other

continued next page

North Carolina Precipitation/Water Resources

	May	June
Rainfall (+/- average)		
Asheville	2.22" (-2.21")	3.64" (-0.59")
Charlotte	1.53" (-2.29")	3.56" (+0.71")
Greensboro	5.04" (+1.02")	3.53" (-0.28")
Raleigh	3.79" (-0.13")	3.45" (-0.23")
Wilmington	7.57" (+3.14")	4.31" (-1.67")

Streamflow

Index Station (County, Basin)	May mean flow (CFS) (% of long-term median)	June mean flow (CFS) (% of long-term median)
Valley River at Tomotla (Cherokee, Hiwassee)	318 (134%)	338 (210%)
Oconaluftee River at Birdtown (Swain, Tenn)	650 (136%)	517 (129%)
French Broad River at Asheville (Buncombe, FB)	2,960 (132%)	1,850 (98%)
South Fork New near Jefferson (Ashe, New)	803 (165%)	538 (127%)
Elk Creek at Elkville (Wilkes, Yadkin/Pee-Dee)	186 (168%)	92 (100%)
Fisher River near Copeland (Surry, Yadkin/Pee-Dee)	320 (148%)	164 (105%)
South Yadkin River near Mocksville (Rowan, Yadkin/PD)	649 (189%)	259 (86%)
Rocky River near Norwood (Stanly, Yadkin/Pee-Dee)	761 (149%)	342 (53%)
Deep River near Moncure (Lee, Cape Fear)	1,650 (171%)	481 (86%)
Black River near Tomahawk (Sampson, Cape Fear)	838 (162%)	444 (106%)
Trent River near Trenton (Jones, Neuse)	54 (54%)	226 (27%)
Lumber River near Boardman (Robeson, Lumber)	1,860 (183%)	676 (81%)
Little Fishing Creek near White Oak (Halifax, Pamlico)	95 (88%)	41.9 (52%)
Potocasi Creek near Union (Hertford, Chowan)	195 (147%)	49 (54%)

Groundwater

Index well (Province)	May depth below surface (ft) (departure from average for month)	June depth below surface (ft) (departure from average for month)
Blantyre (Blue Ridge)	23.64 (+6.05)	26.81 (+3.97)
Mocksville (Piedmont)	13.60 (+2.34)	14.69 (+1.75)
Simpson (Coastal Plain)	4.31 (+0.29)	5.19 (-0.01)

Source: U.S. Geological Survey's *Water Resources Conditions in North Carolina*

Consumer Confidence Report (CCR) Workshop

8:30 am - 3:00 pm *** Tuesday, September 1, 1998
 North Durham Water Reclamation Facility, Durham, NC

The CCR's are coming! Are you prepared?

To help municipalities and agencies in North Carolina prepare to meet the Federal regulation to publish Safe Drinking Water Consumer Confidence Reports, the Public Education Committee of the N.C. American Water Works Association (AWWA) / Water Environment Association is sponsoring a one-day workshop.

The workshop is designed for water quality and communication staff responsible for preparing the utility's CCR/Water Quality Report. Handouts will include the AWWA-CCR handbook, a copy of the Federal Register regulations on CCR's, sample water quality reports from other utilities and sample news releases and radio spots. Participants should bring information specific to their utility and during the work session will work on the preparation of their report.

The cost of the workshop is \$75 and includes a box lunch and materials. To receive a copy of the registration form, please contact Kim Talbert, Registrar at (910) 347-1719 or Cindy Finan, Executive Director N.C. AWWA/WEA at (919) 387-0646.



Storm Water Management: Preparing for NPDES Phase 2



October 1-2, 1998
Crabtree Four Points Hotel
Raleigh, NC

This seminar is designed for public works directors, city/town engineers, utility department directors, consulting engineers, environmental officials

and others who are interested in storm water management techniques. The N.C. Board of Registration for Professional Engineers will recognize 10 Professional Development Hours for full attendance.

The seating capacity for this seminar is limited. Pre-registration is the only way to guarantee space for yourself. The registration deadline is September 14, 1998. No telephone registrations will be accepted. Pre-registration fee is \$90.00. Officials from small communities may attend for \$50.00 registration fee. If space is available, limited late registrations will be accepted at the door. Late registration fee is \$100.00.

For additional details and a registration form visit web site:
<http://www2.ncsu.edu/ncsu/CIL/WRRRI/apwastormconf.html>
 or call WRRRI (919) 515-2815 for a brochure.

A seminar presented by North Carolina Chapter of American Public Works Association, Water Resource Division. Co-sponsored by American Water Works Association and The Water Resources Research Institute of The University of North Carolina.

relevant and timely issues. For information visit website <http://www.bae.uga.edu/outreach/bioconversion/compost.html>.

The International Ground Water Modeling Center and Con Ed at the Colorado School of Mines will present **MODFLOW '98** and accompanying short courses Oct 4-8, 1998, in Golden, CO. MODFLOW, the modular three-dimensional finite-difference ground water flow model released by the U.S. Geological Survey in the early 1980s, is used internationally. The conference and short courses will provide information on the latest developments in MODFLOW and its related models. For information call IGWMC at (303) 273-3103 or visit web site: <http://www.mines.edu/igwmc/>.

The 1998 Stockholm Water Symposium will take place Aug 10-13, 1998. The symposium is a leading forum for discussion of global, regional, and national water issues and will bring more than 700 top world water experts from 80 countries to the Swedish capital. For information visit the Stockholm International Water Institute web site at <http://www.siwi.org>.

Websites

■ The U.S. EPA has announced Internet release of data in the **Sector Facility Indexing Project**, a community-right-to-know and data integration pilot project that provides environmental performance data for facilities in the following industrial sectors: automobile assembly, petroleum refining, pulp manufacturing, iron and steel, and primary smelting and refining of aluminum, copper, lead, and zinc. Data may be accessed at <http://www.epa.gov/oeca/sfi>.

■ The American Water Works Association has sponsored development of web-based software for turning out finished Consumer Confidence Reports that comply with requirements of the Safe Drinking Water Act Amendments of 1996. A demo and beta version are available at <http://www.ccrbuilder.com>. A final version of **CCR Builder** will be available when the final CCR rule is published (final rule expected in August 1998), and utilities will be able to produce a complete report for \$75.

■ The US Geological Survey has just released its latest education-based web site called **"Water Science for Schools."** It is located at <http://water.usgs.gov/droplet>. The site is available for students of all ages and for anyone who wants to find out more about the many aspects of water, from what it is to how we use it. The site includes: Water Basics—test your water knowledge and learn about water properties and how they are measured; Special Topics—information on acid rain, saline water, water quality, and how urbanization affects the

water system; Picture Gallery—dozens of water-related pictures, each with explanatory text; and Activity Center—the interactive portion of Water Science for Schools. Test your water knowledge, answer questionnaires, and respond to opinion surveys. Your answers go into a cumulative database, and you can view how people in other states and countries answered the same questions and surveys. Along with the topics, the site includes help screens, navigation guides, a water glossary, a subject search, and links to schools conducting water studies and to other sources of water information

North Carolina Water Resources Association

NCWRA

North Carolina Section of the American Water Resources Association

Luncheon and Forum Schedule

Sept 14, 1998	Water Quality Issues in North Carolina: Gauging the Environment
Nov 9, 1998	Nutrient Management in the Neuse River Basin
Jan/Feb 1999	New Developments in Erosion and Sediment Control
April 1999	Wetlands Restoration and Related Programs
Sept 1999	Stormwater: NPDES Phase II and Neuse River Rules
Nov 1999	Jordan Lake Allocation Issues

All luncheon/forums take place at 11:30 am at the Jane S. McKimmon Center on the N.C. State University campus. For additional information call Robert Holman at WRRRI (919/515-2815).

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