

Turning the Tide

on runoff pollution

SC DHEC's Bureau of Water

Fall, 2004

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Morse Landing Park

By Steve Moore, SCDHEC-OCRM

Murrells Inlet is unique. Like only a handful of other inlets along the South Carolina coast, it is a small inlet with no significant input of fresh water. Technically, it is called a 'bar-built estuary', meaning that it exists because large sand bars along the ocean shoreline protect the low lying area behind them from the turbulent Atlantic. This low lying area, occupying approximately 15 square miles, has over time turned into salt marsh, characterized primarily by *Spartina alterniflora*, or smooth cordgrass. Estuaries such as this are highly productive, and with their small tidal creeks, are also fragile.

The area adjacent to the inlet, made up of an unincorporated portion of northern Georgetown and southern Horry counties, is generally referred to, somewhat confusingly, as Murrells Inlet. This Murrells Inlet community, Huntington Beach State Park, and the unincorporated area known as Garden City surround the estuary. Like much of the coast, this area is rapidly developing and has experienced some of the water quality and flooding problems that can accompany growth. The Urbanization and Southeastern Systems Study (USES Project, a

joint research effort by the Baruch Institute, the USC Norman J. Arnold School of Public Health, NOAA, and SC Sea Grant Consortium) has documented the effects of the increased population pressure on this watershed, and has identified drainage as the primary culprit in the degradation of the inlet. Runoff containing a wide range of urban pollutants is negatively impacting water quality and fisheries.

Since most of the development around the inlet is residential, it should not be surprising that the USES Project found that most of this runoff is coming from the yards of the surrounding homes, with the

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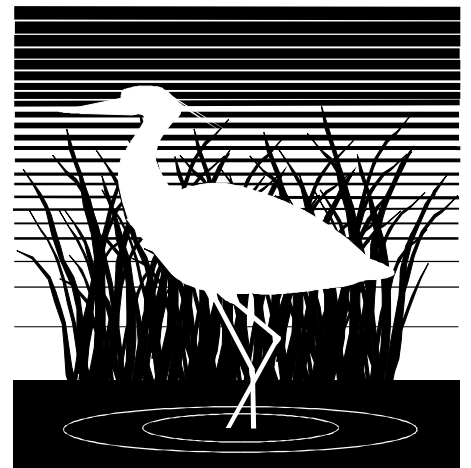
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A Created Wetlands at North Elementary School

By John A. Bethea, Horticulturalist & Chairman NELFL Committee

North first opened in 1965 as a Junior High School. The school was later converted to an elementary school with new kindergarten and fifth grade wings added in 2001. The North Elementary Landscapes for Learning committee was formed when we realized the construction presented us with the opportunity to go beyond utilitarian landscaping and create outdoor areas that could be used for experiential learning. A master plan was developed and sources of funding for projects sought.

The idea for a created wetlands evolved as it was decided we could retro-fit existing drainage structures with water retention devices to create small detention basins. We could then establish wetland plant species in the moist soil areas and have a “created” wetlands. Funding

for the project was obtained through a SCDHEC 319 grant in 1993 and construction started.

Existing drainage swales were enlarged with a track hoe to create a series of small basins. Drop structures with boards for managing water levels were constructed around existing culverts discharging runoff from the site. Indigenous marginal wetland species were planted in the moist soil areas. Examples of trees include Atlantic White Cedar, Bald Cypress, Swamp Chestnut Oak, Sweet Bay Magnolia, Button Bush and Dwarf Palmetto. Herbaceous species include Swamp Sunflower, Joe-Pye Weed, Bog Iris, Cardinal Flower, and Cinnamon Fern. Banks were sown with native grasses and wildflowers. The system was tested repeatedly this growing season with more than 20 inches of

precipitation from three tropical storm events to date.

For more information contact Bill Farrar, Assistant Principal, North Elementary, (803) 283-9918.



North Elementary students busy planting and maintaining created wetlands.

Nominations Sought for S.C. Environmental Awareness Award

The state of South Carolina is seeking nominations for an award to recognize individuals who are doing extraordinary work for the natural environment.

The S.C. Environmental Awareness Award, was established by the S.C. General Assembly to recognize outstanding contributions made toward the protection, conservation and improvement of South Carolina’s natural resources.

Each year the public is invited to submit nominations that are then reviewed by an awards committee, which includes representatives from the state’s natural resource agencies. In judging nominees, the committee considers excellence in innovation, leadership and accomplishments that influence positive changes affecting the natural environment.

Nominations will be accepted through December 31, 2004. Nomination guidelines and forms are available on the S.C. Sea Grant Consortium Web site at www.sceseagrants.org, or contact Linda Blackwell at (843) 727-2078, e-mail: linda.blackwell@scseagrants.org.





127 New Ways to Improve Water Quality in South Carolina

By Steve Wall, SCDHEC

South Carolina is having a banner year when it comes to water quality improvement. There are 127 new ways to improve water quality in South Carolina, 127 new total maximum daily loads (TMDL) that is. We let you know all about TMDLs in the Spring 2002 issue of this publication, so if you have forgotten about it here is a little refresher.

Section 303 of the Clean Water Act (CWA) established the principle of the TMDL as a means of reducing water pollution in impaired waters. A TMDL is a calculation of the maximum amount of a pollutant that a

water body can receive and still meet water quality standards. In other words, it is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources and includes a margin of safety and consideration of seasonal variations.

After a TMDL is approved, the next step in the process is implementation. Two to three times a year funding is made available through Section 319 of the CWA for TMDL implementation projects. Through the action of individuals and organizations, TMDLs can be implemented so that water quality can

be improved and maintained. The most recent batch of approved TMDLs were for fecal coliform bacteria, and involved most of South Carolina's major river basins including the Savannah, Edisto, Saluda, Broad, and Catawba.

For more information about South Carolina TMDLs, Section 319 grant opportunities, and what you can do to help improve water quality, please visit the web at www.scdhec.gov/water/shed/home.html or contact your watershed manager for additional information at www.scdhec.gov/water/shed/contact.html.

News to Use

ASIWPCA Releases Unprecedented Reference on Nation's Clean Water Programs

The Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) has released a never-before-published historical reference on the Clean Water Act and State/Interstate efforts to control water pollution. Entitled Clean Water Act Thirty-Year Retrospective: History and Documents Related to the Federal Statute, this publication is an unprecedented collection of history and historical documents that are of use for those with an interest in the nation's clean water programs.

"The Retrospective is truly unique," said Robbi Savage,

ASIWPCA Executive Director. "While there have been multiple histories of Federal clean water programs, there has been far less attention given to the history of State and Interstate efforts to protect water quality. The Retrospective tells both stories, with historical overviews as well as collections of some of the most notable Federal and State/Interstate documents. It also lets those who have made clean water history speak for themselves. ASIWPCA invited former and current Members of Congress; heads of Federal, State, and Interstate agencies; and Congressional

staff to comment on the development, enactment, and implementation of the Clean Water Act thirty years after its passage, and the letters from those individuals shed tremendous light on the challenges and obstacles related to the development of the nation's clean water programs."

The Retrospective can be ordered by faxing a form available at www.asiwpc.org or by calling 202-898-0905.



Friends of the Rivers, Working to Encourage Another Generation of Conservationists

By Heather Landry, Director, Friends of the Rivers

In the past six months we have been focusing a good deal of our effort on developing and implementing youth programs that include Kids In Kayaks, Friend of the Rivers High School Chapters, and student internships. Collectively these programs make up our School Initiative Program.

The purpose of this program is to engage our youth in environmental stewardship through participation at an age where they are beginning to learn more about natural resources; raising their conscience about human-environmental interactions. By instilling environmental values at a young age, Friends of the Rivers is teaching and influencing another generation of conservationists. This is the generation who will grow to support holistic policies that represent linkages between healthy communities and a healthy environment.

The School Initiative Program will focus on middle school and high school aged students, and will incorporate a hands-on approach to learning about natural resource planning and management. This is a three-

tiered program designed to introduce students to natural sciences as they are entering middle school, cultivate those interested in natural sciences as they enter high school, and to provide a real world work experience for those high school students expressing an interest in pursuing environmental sciences as a career choice.

Sustaining the future environmental integrity of the Low Country begins with education. We feel confident that our youth environmental education programs will instill a sense of intrigue, responsibility and stewardship that will benefit our community well into the future. Friends of the Rivers is able to support these types of programs through the generous donations of Low Country citizens and local foundations.



Kayakers from Jasper County High School preparing to paddle on the Savannah River. Photo: Vicki Levy.

Morse Landing Park

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major source of fecal coliform bacteria being pet waste.

In an effort to help protect inlet resources, SCDHEC-OCRM is working with Georgetown and Horry counties on a Special Area Management Plan (SAMP) for the inlet. A SAMP is a planning tool used to highlight specific problems in a community and institute correction measures.

The Murrells Inlet SAMP was started at the request of a local citizens group called Murrells Inlet 2007. They contacted the planning department of SCDHEC-OCRM and requested that the agency work with them to protect the inlet. The first step was to determine what the local community hoped to accomplish. Ultimately objectives were defined, funding was obtained, an Oversight Committee was formed to direct the SAMP, and four work-tasks were formulated. All of the SAMP's worktasks deal with water quality issues, because protecting the water quality of this inlet is key to protecting its other resources.

Since the water quality problems in the inlet are largely caused by residential development, a large part of this SAMP effort is directed towards educating homeowners on steps they can take to protect water quality. Morse Landing Park, located at the southern end of the inlet, is an excellent place to get the message out on these "backyard" stormwater best management practices (BMPs).

Morse Landing Park is an acre and a half area of open space immediately adjacent to the inlet. It is visited by many local residents, and is the site of several community events. Currently, it is primarily

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Getting the Word Out

World Water Monitoring Day ... a World of Fun

By Meredith Barkley, SCDHEC

What were you doing on October 18th? Most likely you were struggling through another Monday's activities, but students at Kelly Mill Middle



School in Blythewood were out observing water as part of World Water Monitoring Day.

World Water Monitoring Day is celebrated each year on October 18 to educate the public about water quality and the importance of water monitoring. Volunteer monitoring groups, students, and the general public are invited to test four major indicators of water quality: temperature, pH, dissolved oxygen, and turbidity.

At least 100 seventh graders from Kelly Mill spent several hours collecting monitoring data and learning about various aspects of water. Their site was on Lake Carolina, part of a recently

developed neighborhood northeast of Columbia. Staff from SC DHEC and the SC Soil and Water Conservation Society led the students through the monitoring and also shared lessons on drinking water treatment and the connection between soils and groundwater.

The students' data have been recorded on the international webpage, www.worldwatermonitoringday.org, along with data from sites in all 50 states and 35 countries. Not only did the kids have fun and learn about water quality, but they were also a part of something worldwide.

Congratulations to Kelly Mill Middle on a great day of learning!

If you'd like to plan an activity for next year's World Water Monitoring Day, or would like information on the Water Watch program, please contact Meredith Barkley at barklemb@dhec.sc.gov.



Workshop Yields Results

The stormwater utilities, public works departments, drinking water systems and other entities that are tasked with providing public education and outreach have many challenges. A complex environmental message to deliver to a diverse audience, limited staff, and limited resources to create and implement programs are just a few.

To help meet this outreach challenge, DHEC's Bureau of Water, the SC Soil and Water Conservation Society, the Lake and Watershed Association of SC, the SC Sustainable Universities Initiative, and the US EPA sponsored "Getting In Step", a workshop on creating effective public outreach. Over 100 participants attended the October 13th workshop in Columbia.

Did the workshop help participants "get in step" on outreach? Workshop evaluations showed that participants increased their knowledge on average by 26%. They intend to use at least 77% of the information they learned, and most participants felt the workshop will help them meet the outreach goals of their organization.

Morse Landing Park

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planted in turf grass, with a few newly installed live oaks and an area along the northern boundary and near the water used for parking.

With the blessing of Georgetown County, the owner of the park, a contract was awarded to a local engineering company to develop a landscaping plan that would incorporate stormwater BMPs that could be used by the typical homeowner in his own backyard. An added constraint was that the community does use this park for public gatherings, and it was made clear to us that the open space of the park should be protected. The preliminary design has been delivered and includes two grassed swales and an infiltration trench that flows into a raingarden. Permeable paving is to be installed in the area currently used for parking, and there is a small buffer area next to the water. These

improvements will complement existing stations with signs that ask visitors to pick up after their pets and supply a product called "Dispoz-a-scoop" for that purpose. Signs designed to match the existing signs on the inlet boardwalk will be placed at each of these BMPs explaining their design and function. In addition there will be a small kiosk in the park, that will discuss the problems of stormwater runoff and measures that homeowners can take to protect the inlet.

It has been our experience that most of the people who live along the coast want the environment protected. We believe that educating homeowners about stormwater BMPs that they themselves can implement is a good way of safeguarding the resources of this unique part of the coast.

For more information, please contact Steve Moore at (843) 744-5838 or moorese@dhec.sc.gov.

Coming Events



- * **Greening Development to Protect Watersheds: Is the New Urbanist Version of Compact Urban Forms an Answer?** 2004-2005 WRRRI Water Resources Seminar Series. Nov. 23, 2004, 3:00 p.m., 1132 Jordan Hall, NC State University, Raleigh, NC. Go to: www.ncsu.edu/wrrri/wrriseminars.html
- * **NALMS 14th Annual Southeastern Lakes Management Conference Lakes, Reservoirs, Watersheds - Challenges & Opportunities**, April 13 - 15, 2005, Asheville, NC. Go to: www.nalms.org/nclms.

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