

CITIZENS WORKING TOGETHER FOR A HEALTHY COAST

Coastal Review

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TERMINAL GROIN STUDY PROBLEMS

OYSTER STIMULUS 1ST PHASE COMPLETE

WIND ENERGY IN PAMLICO SOUND

UNCW ARCHIVES NCCF DOCUMENTS

Coastal Review

Coastal Review is the quarterly newsletter of the North Carolina Coastal Federation (NCCF). NCCF is a non-profit tax-exempt organization dedicated to involving citizens in decisions about managing coastal resources. Its aim is to share technical information and resources to better represent current and long-term economic, social and environmental interests of the North Carolina Coast.

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DEVELOPMENT DIRECTOR Sally Steele: sallys@nccoast.org

Northeast

CAPE HATTERAS COASTKEEPER® Jan DeBlieu:
 hatteraskeeper@nccoast.org
COASTAL SCIENTIST Erin Fleckenstein: erinf@nccoast.org
COASTAL OUTREACH SPECIALIST Sara Hallas: sarajh@nccoast.org

Central

COASTAL OUTREACH SPECIALIST Sarah Phillips: sarahp@nccoast.org
CAPE LOOKOUT COASTKEEPER® Frank Tursi: lookoutkeeper@nccoast.org
COASTAL SCIENTIST Dr. Lexia Weaver: lexiaw@nccoast.org

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 capefearcoastkeeper@nccoast.org
SENIOR COASTAL SCIENTIST Tracy Skrabal: tracys@nccoast.org
COASTAL OUTREACH SPECIALIST Ted Wilgis: tedw@nccoast.org



3609 Highway 24 (Ocean), Newport, NC 28570
Phone: 252-393-8185 • **Fax:** 252-393-7508
E-Mail: nccf@nccoast.org • www.nccoast.org

The North Carolina Coastal Federation is located on Highway 24 in Ocean, N.C., between Swansboro and Morehead City. Our offices, nature library and shop are open Monday through Friday, 8:30 a.m. to 5 p.m. NCCF also has field offices in Manteo and Wilmington.

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COVER PHOTO: NCCF Photo Contest 1st Prize Winner Linda Sunderland
 – Lake Mattamuskeet

DIRECTOR'S LETTER

Few 'Terminal Groins' Exist Because They Don't Work

A funny thing happened on the way to studying the feasibility of building small jetties, called terminal groins, along the N.C. coast.

Advocates for building these structures claim they are proven technology. They potentially want to build seven more of them at Bogue, New, Topsail, Rich, Lockwood Folly, Shallotte, and Tubbs inlets. Their lobbying group, which is pushing to relax the complete prohibition on building seawalls and groins on ocean beaches, circulates maps and charts showing widespread use of terminal groin structures (www.inletsolutions.org/Portals/o/dean_feb09157.pdf).

The N. C. General Assembly listened, and instructed the N.C. Coastal Resources Commission to study the feasibility of allowing terminal groins on the state's beaches. The commission hired the engineering firm Moffatt and Nichol with almost \$300,000 in state funds. The firm mapped sites where terminal groins supposedly exist (dcm2.enr.state.nc.us/CRC/tgs/map.html). They had been instructed by the commission to pick eight existing groins to study in detail. All 23 sites were examined, and it turns out only five sites have characteristics that would make them useful to study (www.nccoastmanagement.net/CRC/tgs/study%20sites.html). Most of the other existing structures are full-sized jetties built to stabilize navigation channels.

Two terminal groins are in North Carolina. The one at Oregon Inlet protects an end of the Bonner Bridge. It anchors the end of Pea Island to prevent a bridge to nowhere since Hatteras Island wants to migrate rapidly south. The second location at Beaufort Inlet is actually three groins built to protect Fort Macon in Atlantic Beach after deep dredging of the ship channel caused erosion that threatened the

historic site. Both beaches adjacent to these terminal groins require frequent and large-scale beach re-nourishment.

The three other "terminal groins" that are included in the study are in Florida. These sites have very different coastal geology and tidal dynamics from the shallow, rapidly shifting inlets where new terminal groins have been proposed in North Carolina.

Is there reason to fear that this intense push to allow "single" terminal groins at the end of islands next to inlets is just the beginning of efforts to unravel the state's prohibition on building seawalls and groin fields all along the oceanfront?

Yes.

There's a fundamental reason so few terminal groins currently exist.

Most states don't prohibit building terminal groins. If they worked, there should be dozens working to prevent beach erosion. One terminal groin is obviously much cheaper to build than seawalls, groin fields and jetties along the beach.

Now that these existing terminal structure sites have been inventoried, we know that very few actual terminal groins are installed to address erosion problems. Instead, beaches elsewhere are littered with multiple structures that keep increasing in number as erosion problems mount.

Armored beaches in these other states have one thing in common with North Carolina beaches. Despite all the money spent trying to control erosion by building structures, all these states still want increased funding to pump new sand on their eroding beaches.

No structure has yet been invented that has solved beach erosion woes.

Todd Miller

FEDERATION ENDOWMENT HONORS RICHARDSON

The N.C. Coastal Federation Board of Directors in August honored the memory of the late H. Smith Richardson Jr. by establishing the H. Smith Richardson Jr. Fund for Environmental Stewardship. Money for the endowment was part of the federation's capital campaign, which raised \$3 million and ended in January 2009.



In addition to expanding federation programs coast-wide, the campaign set out to provide a more solid financial base for the growing organization. The endowment and a reserve fund have been created to meet this goal. Earned interest on the endowment will provide dependable annual operating revenue and a vehicle for future planned gifts.

H. Smith Richardson Jr., a federation member and well-known philanthropist, was born in Greensboro. He was the grandson of Lunsford Richardson, the man who developed the popular cold remedy Vaporub. Smith Richardson's business life centered on the family company until his retirement in 1994. He then moved to Wilmington with his wife, Adele.

Richardson lived by principles that are often termed old-fashioned, and he gave generously of his wealth. Few people have combined Richardson's respect for traditional values and his willingness to innovate. Throughout his life he maintained a direct interest in people and institutions conceived to improve the lives of others.

Richardson became concerned about the

future of the coast as he watched the development of Hewletts Creek outside his back door. He called everyone he could find to get his concerns addressed, and soon stumbled on the federation. Over time, he realized that attempting to improve coastal management on a case-by-case basis would never stem the tide of coastal destruction he was witnessing. When the federation suggested using the 20th anniversary of the Coastal Area Management Act as an opportunity to evaluate its effectiveness, Richardson jumped at the idea with great enthusiasm. He recruited former Congressman Richardson Preyer to help lead the evaluation, and together they worked with Governor Jim Hunt to form the Coastal Futures Committee by executive order.

Hunt appointed the committee chaired by Preyer with Richardson as one of its key members, and asked the federation to provide staff support for the committee's work. Over the next year a set of hard-hitting findings and innovative recommendations were devised. These ideas were presented at a Year of the Coast conference held in Wilmington in 1994 that was attended by more than 400 people. In the audience was Sen. Marc Basnight, the president pro tempore of the N.C. Senate. Basnight announced a few months later plans that would advance one of the committee's key recommendations – that the state should invest much more heavily in buying land to protect and restore coastal water quality. In 1996, Basnight was able to get the Clean Water Management Trust Fund enacted by the North Carolina General Assembly.

The Richardson family remains active federation members, and we are privileged to hold the endowment which honors his memory.

MEMBERSHIP CARD FEATURES OYSTER PROJECT



Members look forward to receiving their new membership card each year. We think you'll like this year's card and featured project. The 2010 membership card highlights our \$5 million stimulus grant that will create almost 40 acres of new oyster habitat and save or create 140 jobs for fishermen, tug boat operators and others along the coast.

Remember – your membership card is more than just a pretty face. It's good for discounts and special privileges. You'll want to have it on hand for:

- Getting a discount on federation shirts, caps and totes – Members get 10 percent off
- Entering the Members-Only Native Plant Preview on April 23
- Checking out books at the Nature Library at the Ocean Headquarters – Monday through Friday
- Getting discounts and special offers from the federation's business friends – www.nccoast.org/support-nccf.asp
- Enjoying discounts on tickets for the 2010 Coastal Cohorts concerts

We'll begin distributing the new cards January 1 with each membership renewal. We hope you'll make your card valuable by using it often and joining us for another exciting year.

State Study of ‘Terminal Groins’ Already Raising Concerns

The N.C. General Assembly’s mandated study of so-called “terminal groins,” has the attention of state coastal scientists, conservation groups like the N.C. Coastal Federation and members of the state’s Coastal Resources Commission (CRC).

For the second straight session, the legislature didn’t pass a proposed bill that would have allowed small jetties to be built on the beach near inlets to help control erosion. Hard structures like jetties, groins and seawalls are illegal along the state’s oceanfront because they can destroy beaches by increasing erosion and restrict people’s access to the beach.

But bowing to political pressure of proponents, the legislature instead directed the CRC to study the feasibility of these small jetties at inlets that proponents claim will help save the beach from being eroded.

The study created immediate controversy when the state hired Moffatt & Nichol, a coastal engineering firm that builds groins and jetties, to conduct it. The federation is working with a network of allies among coastal scientists and conservation groups in the state and hired Katherine McGlade as a consultant to track the study’s progress and to keep our allies informed and constantly engaged in the process.

We’ve recommended that mechanisms be built into the study process that would allow for a meaningful peer review by scientific experts and commission members. In response, the CRC created a sub-committee of its members and advisory council to direct the study and required all data and findings to be reviewed by its panel of scientific advisors.

Already the study has demonstrated that there is virtually no track record for how well terminal groins like what proponents want to build at highly dynamic, shallow water inlets in N.C. actually work. Only five case study examples have been found on the entire east and gulf coasts, and none of these sites closely resemble the sites in N.C. where terminal groins are being sought.

Some CRC members are wondering how meaningful the study’s recommendations will be since a report must be delivered to

the legislature by April 1, 2010. Jim Leutze, a commission member, vice chair for the Beach, Inlet & Waterway Association (an advocacy group lobbying for terminal groins), and former chancellor of the University of North Carolina Wilmington, told the city’s newspaper, the *Star-News*, that he expects the study will find that terminal groins would work well in some places and not in others, hamstringing the ability of the commission to offer a definitive recommendation. “I can’t imagine we’re going to hear anything substantially different from that,” he told the newspaper.

Why DID All Those Fish Die?

Maybe 100 million fish died in the Neuse River near New Bern this summer, and no really knows why.

The kill seems to be abating, but not before it ignited the passions of people who left bags of dead fish on bureaucrats’ doorsteps and drew politicians and reporters to the stricken river. What they saw were gasping Atlantic menhaden dying by the hundreds in front of them, then swept into shoreline piles and left to rot and stink. After almost a month of monitoring the continuing kill, members of the Neuse River Foundation visited the Craven County Health Department, carrying bags of dead fish and asking for the county’s help in mobilizing state agencies to determine the fish kill’s effects on public health.

The state’s official explanation: low dissolved oxygen. The oxygen content of the water in some portions of the river was so low that fish suffocated.

Larry Baldwin, the Lower Neuse Riverkeeper, has been pressuring the state to determine why oxygen levels fell so unusually low. He wants the data used to make that determination so he can find out

what made this kill so much larger and last so much longer than others.

Lobby, Baby, Lobby

Just because the presidential election and the political sloganeering that accompanied it are over doesn’t mean that interest has waned in drilling for oil and natural gas off the N.C. coast – at least among those in the drilling business.

Maybe no one is shouting “Drill, baby, drill!” in the nearest TV camera, but the oil industry, reports the *News and Observer* of Raleigh, has been quietly engaged in behind-the-scenes strategizing that can be summed up as “Lobby, baby, lobby.”

The American Petroleum Institute, an oil industry trade group, has kept itself busy promoting offshore drilling in coastal states. The group wants Congress to lift the nation’s three-decade moratorium on offshore drilling.

In North Carolina, that job falls to William Weatherspoon, executive director of the N.C. Petroleum Council, the state branch of the Washington-based lobby group. The newspaper reported that Weatherspoon’s PR offensive takes him to business groups, civic organizations and editorial boards and behind the microphones for TV and radio interviews.

Part of Weatherspoon’s message has been to paint groups like the federation as aiding in America’s dependency on foreign oil. We have historically opposed offshore drilling as shortsighted and potentially harmful to our coastal environment and culture.

New Ocean Setback Rules Take Effect

New setback rules requiring bigger structures to be built farther back from the ocean finally went into effect in October.



Photos © Bill Birkemeier, U.S. Army Corps of Engineers

Regulations allowing some beachfront structures to creep closer to the ocean along regularly nourished beaches also became law after the General Assembly adjourned without modifying them.

Both sets of rules had been in limbo because they were challenged after being approved by the N.C. Coastal Resources Commission in September.

The revamped setback rules require oceanfront structures bigger than 5,000 square feet to be built 60 times the erosion rate back from the first line of stable vegetation – generally the dune line. Previously, it was 30 times the erosion rate, which is two feet a year along most of the coast.

That remains the setback requirement for structures less than 5,000 square feet.

New rules also will allow development to follow the dune line toward the ocean along nourished beaches – assuming towns can meet some strict requirements. To take advantage of the so called “static-line” exception, beach towns must show they have long-term financial and sand resources to keep up with the periodic sand-pumping requirements.

The new rule also limits the size of structures allowed to migrate toward the ocean to 2,500 square feet and requires that they not be closer to the surf than neighboring structures.

FLOOD INSURANCE UPDATES CAN AFFECT NORTH CAROLINA

BY TYANN LEE

Two recommendations for reforming the National Flood Insurance Program came out of the beach summit organized by the federation in March.

Now Congress has extended the program on a month-to-month basis, after a report from the Congressional Research Service warned that the program lacks adequate controls and is too far in debt to become financially sound as it is currently operated. The program currently shifts too much taxpayer money to the insurance industry.

The program has been deeply in debt since Hurricane Katrina, the report notes. Though it collects more than \$2 billion in annual premiums, the insurance policies are sold by private insurance companies, which pocket a portion of the premiums.

Under current law, any deficit run in the program must be borrowed from the U.S. Treasury and repaid with interest. The debt in 2008 was \$19.2 billion.

The program was set to expire earlier this month but the U.S. Senate passed a temporary extension which President Barack Obama signed into law just a few hours before the program was set to expire. Despite criticism that the program lacks adequate controls and supports the insurance companies, it is expected to receive monthly extensions until a broader reauthorization is approved.

Flood damage is a real concern in North Carolina, especially with climate change impacts becoming clearer. An international team of scientists reported in the journal *Geology* that sea level rise in 20th century North Carolina is accelerating three times faster than during the last 500 years. Rising sea level only exacerbates flooding problems from storms, making insurance an important resource for coastal residents.

Greg “Rudi” Rudolph, who heads Carteret County’s Shore Protection Office, says the insurance program “serves a safety net

purpose.” Otherwise, the federal government would have to pay for repairing uninsured properties damaged from floods. It is a necessary program because without it the subsidized private insurance would be too costly. Its maps have helped to categorize flood prone areas and increase understanding of the risk of living in low-lying areas.

Many low-income families still can’t afford flood insurance or don’t realize they need a policy. Middle and upper income residents are limited by the program’s coverage of up to \$250,000 for residential buildings and \$500,000 for commercial buildings, including rentals. Many barrier island homes are worth much more than this. Raymond Burby, a professor emeritus in city and regional planning at the University of North Carolina at Chapel Hill, says “the primary burden is that failing to include the potential for erosion damage in flood insurance rates, the program subsidizes barrier island development.”

The N.C. Coastal Federation recognizes the National Flood Insurance Program’s effects on coastal development. Two of the 2009 beach summit’s recommendations addressed the need for flood-insurance reform:

Congress should require that the flood program to pay for the relocation of vulnerable structures before they are washed away. The program should create incentives to encourage relocation of appropriate structures before the storms hit or afterwards.

Congress should develop erosion insurance to assist landowners in protecting against financial losses from coastal erosion.

As with every insurance sector, there are years with few flooding disasters resulting in excess money, but during periods of high flooding, the plan is underfunded. A balance is needed so money is available during both good and bad years. These recommendations are adaptation measures that will help the U.S. coast prepare for inevitable flood problems due to sea-level rise.



Jockey's Ridge Project and Education Program Expand

Restoration/Education

The 2008-2009 school year was the first time the northeast region had a fully staffed environmental education program. With the start of the current academic year, Outreach Specialist Sara Hallas continued to build our curriculum with a series of classes for middle school students in Manteo, Kill Devil Hills and Columbia.

Activities planned for the current year include construction of another living shoreline at Jockey's Ridge State Park, funded by a grant from NOAA's Southeast Aquatic Resources Partnership.

After starting the year with a class on river basins, students learned about the natural components needed to create a healthy estuarine system. Next Hallas provided water samples for the students to analyze, using federation test kits. By comparing test results, they were able to draw conclusions about the general health of local waters and wetlands.

A few weeks later, as the tassels on *Spartina alterniflora* plants along the islands turned brown and developed mature seeds, Hallas and Fleckenstein scoured local

marshes for mature seeds to be used in a germination experiment. Next spring students will plant grasses grown from the seeds in the living shoreline at Jockey's Ridge State Park.

The first living shoreline at the park stretches for 425 feet. It was built last spring by students, volunteers and staff, using oyster shells that had been loaded into bags. These were arranged in the water to form a barrier, called a sill, with marsh grasses planted in the calmer waters on the shoreward side.

The second part of the project will protect another 300 feet of shoreline. Volunteers in October began the process of loading 1,800 bushels of shells into bags during a work

session with visiting Boy Scout troops. More work days will be scheduled through the winter. Contact Hallas at 252-473-1607 or sarajh@nccoast.org to inquire about dates and to sign up.

HYDE COUNTY FARM PROJECT SHOULD HELP PAMLICO SOUND

Next spring, for the first time, a carefully controlled amount of water will be held in 600 acres on Mattamuskeet Ventures farm in Hyde County, creating vital habitat for migrating shorebirds. The project will also reduce the runoff coursing into the Intracoastal Waterway and Pamlico Sound.

The hydrologic restoration at the farm is

A new marsh starts to take shape at Jockeys Ridge State Park.





ABOVE LEFT, MIDDLE & RIGHT: Students at First Flight Middle School in Kill Devil Hills perform experiments using marsh grass seeds that they collected.

the first step in a planned 42,500-acre project to restore the natural flow of water in the area. Funded by a U.S. Fish & Wildlife Service Partners for Fish and Wildlife grant, the first phase of the project entails installing pumps and water control structures to direct runoff into blocks of land that have been enrolled in the a federal program to preserve wetlands. The project is expected to be completed by the end of the year.

Restoring the hydrology on drained farmland serves a number of purposes, says Erin Fleckenstein, the federation's regional coastal scientist. It provides wildlife with needed habitat, gives farmers access to water that can be used for irrigation and, through the installation of flashboard risers and other water control structures, helps protect fields from salty storm surge that can poison soils. It also greatly helps improve water quality in local waters by allowing runoff to be filtered through soil, rather than discharging directly into area waters.

"We're very excited to have our first on-the-ground project in Hyde County come to fruition," she said.

WIND ENERGY IN PAMLICO SOUND

Duke Energy and the University of North Carolina at Chapel Hill want to test the feasibility of producing commercial-scale electricity from wind by building the country's first offshore wind turbines in Pamlico Sound off Hatteras Island as early as next year.

They hope to build between one and three turbines in a study area that stretches seven to 10 miles off Avon. The study area has favorable winds and turbines there would pose few dangers to migrating birds or fishing interests, according to a Coastal Wind Feasibility Study completed by a UNC panel in June.

The turbines would each cost between \$12 and \$15 million and would each be capable of generating up to 3.6 megawatts of power, enough to provide electricity to 1,000 homes. They would be built in waters 16 to 20 feet deep and would stand as high as 500 feet.

The question is, what happens after the pilot project? Hatteras Island residents, concerned that a large field of turbines will soon lie off their shores, are warily tracking the project.

Utility and wind-energy companies consider the state's north coast as one of the nation's most promising regions for development. Weather data show that the best wind is offshore, where it can scream unimpeded over open waters.

So why build a pilot project in the sound instead of the sea?

"It's a great question. We get asked it a lot," says Spencer Hanes, manager of Duke's program on renewable energy and carbon strategy. While the offshore winds are more consistent, Hanes says, building a test project in the more sheltered inshore waters would be simpler and cheaper. And the company would still learn quite a bit about the best turbine designs, installation techniques and hurricane-proofing measures. "So some of the answers would translate directly into offshore use," he says.

Because the country has no industrial-scale wind farms in public waters, the Duke-UNC pilot project has raised a range of sticky questions. Seeking answers may be complicated by a new state law that mandates the pilot project and requires turbines to be installed and operating by September 2010. Officials with the Army Corps of Engineers, for instance, say the project will likely require an Environmental Impact Statement. To meet the September deadline, however, construction of the turbines must begin next spring. It's unlikely that an EIS will be completed by then.

In addition to impacts at the turbine site, the

project would require transformers, distribution lines and other infrastructure. The type and scale of impacts to the coast differs markedly between inshore and offshore projects.

Especially in a barrier island system, Hanes acknowledged, "siting all the infrastructure is going to be very important. We're still very much in the research phase."

At a meeting in Buxton in September, members of the UNC study team introduced the pilot project to Hatteras residents. Public reaction varied from excited support to fears that wind power will raise the price of electricity and further stress the local economy.

The study speculated that the area in Pamlico Sound suitable for wind energy could, if fully developed, support as many as 138 commercial turbines, spread over 25 square miles.

The potential for ocean development is even larger, according to the UNC study: 2,800 square miles, within which lie 311 federal lease blocks. Of those, 190 blocks are considered to be of prime potential. Each block would hold a maximum of 49 turbines.

In a recent study, the National Renewable Energy Laboratory calculated that North Carolina could reasonably produce 20 percent of the projected U.S. demand for wind energy—about 10,000 megawatts—by 2030.

All that's far down the road. In the meantime, Duke Energy is trying to figure out the costs and environmental ramifications of installing a few turbines off Avon. The turbines would be installed on monopoles that would be sunk into the sound floor. A distribution line would hook the turbines to the grid on Hatteras Island.

While a major upgrade to the grid would be required for a full scale wind farm, the test project would require only minor work, Hanes says.

For now, he adds, Duke Energy has no plans to move forward beyond the pilot project. "It's the first time it's ever been done in the country. I'd love to see a wind project off North Carolina, but there are just too many questions that still need to be answered."

Although developing wind energy is far preferable to drilling for oil or natural gas, the federation believes that the state should move carefully to protect the integrity of the natural system and the public's right to use coastal waters.

PLAN COULD REDUCE POLLUTED RUNOFF INTO BOGUE SOUND



Education/Restoration

The federation and the N.C. Division of Marine Fisheries are partnering to create a plan to control stormwater at the division's headquarters on Bogue Sound in Morehead City using low-impact development (LID) techniques. A grant from the N.C. Clean Water Management Trust Fund is paying for the project plan.

The stormwater plan, which is being developed by engineers from Withers & Ravenel in Raleigh, will identify all the potential LID practices that can be used at the site. Such treatments include cisterns, rain gardens and other types of bioretention areas, green roofs and porous pavement. These simple and effective practices, which can also be installed on your own property, have been shown to reduce stormwater runoff and improve the quality of our coastal waters. The project is being monitored by the University of North Carolina's Institute of Marine Sciences in Morehead City.

Division staff and volunteers built a rain garden in front of the division's building as part of National Estuaries Day in October. Division staff built and graded the 1,100-square-foot garden and more than 40 volunteers planted more than 150 native plants, including cardinal flower, lizard tail, beautyberry, rose and seashore mallow, blue flag iris, swamp red bay and wax myrtle. The volunteers included Girl Scout



Volunteers planted more than 150 native plants in a rain garden in front of the office of the N.C. Division of Marine Fisheries in Morehead City. The garden looked good when they were done and everyone posed for the group shot.

Brownies, Cub Scouts and staff from the federation, the division, the Albemarle-Pamlico National Estuary Program (APNEP) and the N.C. Coastal Reserve/National Estuarine Research Reserve. The APNEP program paid for the project.

COMMUNITY CLEAN-UP AT HAMMOCKS BEACH STATE PARK

Forty-eight volunteers traveled to Hammocks Beach State Park near Swansboro on a beautiful Saturday morning in September. They didn't go to fish or look for birds or hunt for shells. They went to pick up trash. They returned later that day from the park's three main islands – Bear, Huggins and Jones – with 25 bags loaded with about 300 pounds of trash.

The federation, Duke University's Nicholas School of the Environment and Hammocks Beach State Park planned the clean-up as part

of the International Coastal Cleanup Day. People around the world go to their local beaches, lakes, rivers and waterways on that day to help pick up trash. Sponsored by the Ocean Conservancy, the annual event has become the largest volunteer effort of its kind. Last year, nearly 400,000 volunteers around the world collected more than 6.8 million pounds of trash.

Thanks to all volunteers that participated in Big Sweep and International Coastal Cleanup during the months of September and October.

Coastkeeper®

NEW GRANT AIMED AT HELPING WHITE OAK

The federation will help a small town in western Carteret County take steps to control polluted stormwater that is closing shellfish beds in the White Oak River.

The U.S. Environmental Protection Agency and the state Division of Water Quality gave Cedar Point a two-year grant to pay for the measures. The federation is a major partner in the grant, which is intended to pay for recommendations made in a study funded by EPA that analyzed stormwater pollution in portions of the lower White Oak. Completed this year, the study found very high bacteria levels throughout the lower river and identified polluted stormwater as the primary culprit. The federation and the town were partners in that project as well.

With the new grant, Cedar Point and neighboring Cape Carteret plan to devise an ordinance encouraging LID and other green building techniques. This would follow-up on similar work the federation did in Brunswick and New Hanover counties.

The grant would also pay to retrofit LID techniques in people's homes and businesses, install stations in a county park where people can dispose of their dog's waste and to educate people about the effects of runoff on shellfish waters.



JONES ISLAND: DEVELOPMENT THREAT LEADS TO NATURE SANCTUARY

Jones Island in the White Oak River is a good example of how we here at the N.C. Coastal Federation work. What started as an effort to prevent the uninhabited island from being developed will end with a protected sanctuary that will teach people about the beauty and wonders of our coastal rivers.

To understand how that happened, you first should know that everybody here does a little bit of everything, though each staff member's official job description might say otherwise. Our advocacy, education and restoration and preservation programs are so tightly intertwined that a project started by one program often begets another headed by a different program. While the staff goes through a rigorous process each year to outline future goals, we're not so bound by the resulting plan that we can't react quickly to unforeseen opportunities.

When it all goes right, we end up with something like Jones Island.

A landowner on the island at the river's mouth near Swansboro planned to develop his land and received the blessings of Onslow County Board of Commissioners, which reluctantly agreed in 2003 to rezone his land to allow residential development. The precedent was set. The late Bryan Harper, the other major private landowner on the island, then put his six acres up for sale, hoping to attract a residential developer.

But Harper was a local boy. He had owned the land on the island for more than a decade

and had lovingly cared for it – clearing underbrush, preserving the stately live oak trees, mowing and pruning. He built a cabin and several other structures, dug a well and a septic tank. He used his land as a primitive campground for kayakers and canoers. He really didn't want to see it developed.

Frank Tursi, our Cape Lookout Coastkeeper©, called Bryan to ask if he would like to sell his land to the federation instead. We would then donate it to Hammocks Beach State Park. Bryan was thrilled by the prospect and worked with us for the year it took to secure a grant from the state's Clean Water Management Trust Fund to buy his land and several smaller tracts.

We got the grant in 2005. As part of the deal, N.C. Audubon also donated the 10 acres it owned on the island to the state park. As a result, more than 70 percent of the island is now protected.

But the park received no money to maintain the island or to offer any programs there. That got us to thinking. Todd Miller, our executive director, Dr. Lexia Weaver, our regional coastal scientist, and Sarah Phillips, our regional educator, sat down with Paul

LEFT: A cabin on Jones Island will now be used for education. MIDDLE: Jones Island is ideally situated in the middle of the lower White Oak River. RIGHT: Sam Bland works on remodeling the old bath house.

Donnelly, the superintendent of Hammocks Beach. They conceived a plan that was later formalized into an official agreement with the state. The park would tap into our expertise in habitat restoration and education, and we would have an ideally situated island to use as a classroom to teach people about our coastal environment.

Then our staff got to work to find the money to pay for it all. All summer, Sarah has been taking school kids and adults over the island where Lexia has put them to work rebuilding marshes and building oyster reefs.

We got a little lucky next. Sam Bland, who worked at the park for 22 years before retiring early this year, joined the federation staff part-time. His main job has been Jones Island. Joined by volunteers Randy Mason, a federation board member from Emerald Isle, Bob Hixon and Donnelly, Sam has worked all summer to convert the campground's old bath house into a classroom. Next spring, the federation will offer various educational programs in the building. Visitors will be able to take nature walks along the shoreline, help plant marsh grass or build an oyster reef. Be sure to check out our website, www.nccoast.org, or our newsletters next year for a schedule.



EPA Tells State Titan Air Permit Not Tough Enough

Coastkeeper®

The U.S. Environmental Protection Agency (EPA) has told state regulators that their draft air permit for the proposed Titan Cement plant near Wilmington isn't tough enough to meet the new pollution standards for cement plants that EPA will soon release.

In a letter to permit engineers at the state's Division of Air Quality (DAQ), Gregg M. Worley, EPA's chief of the Air Permit Section in the Southeast, echoed many of the concerns of the federation and other Titan opponents. The draft permit, Worley noted, would allow the kilns at the plant to discharge far more pollutants than EPA's new standards would permit. For instance, the state would allow Titan to emit over eight times more mercury into the air than would be allowed under the new federal limits.

Many of the people who spoke at two public hearings in October on the permit told state regulators the same thing. More than 150 people at the hearing spoke in opposition to Titan's plans. Few people favored the plan.

An estimated 1,500 people attended the DAQ hearings in Wilmington. The overwhelming opposition to the project by area residents, scientists and doctors should send a strong message to state regulators.

At the request of the federation, the state extended the written comment period until

Nov. 20 to allow sufficient time to prepare comments on this complex permit and issue. On behalf of area citizens, technical comments will also be provided on the draft permit by a consultant/expert. In addition, Mike Giles, our Cape Fear Coastkeeper®, is working with several experts to evaluate the permit and provide critical comments.

Comments from the public hearings and additional information about the Titan issue and ways that people can stay informed and get involved can be found at our website, www.nccoast.org.

Restoration/Education

MONITORING SHOWS SUCCESS OF REEFS

Volunteers are the key to a successful restoration season, and hundreds of students and residents in our southeast region helped us finish a banner year in our restoration program.

At the federation's Morris Landing Water Quality Preserve in Onslow County, the state Division of Marine Fisheries christened the newly-built pier by loading tens of thousands of bushels of recycled oyster shells onto barges. The shells were used to create oyster reefs in Stump and Topsail sounds. The federation, using grant money from the state Attorney General's Ecosystem Enhancement Program,

built four acres of reefs in the sounds.

Monitoring restored oyster reefs is an important part of the federation's restoration program. It helps us evaluate the reefs' success and guides future projects. In October, 26 volunteers, student divers from the University of North Carolina Wilmington and staff from Cape Fear Community College and the N.C. Coastal Reserve Program helped monitor oyster reefs in the New River near Jacksonville and in Dicks Bay near Masonboro Island.

Restored in 2007, the 17 oyster reefs spread over seven acres of bottom. Preliminary observations show that the reefs are doing well. Oyster populations fluctuate yearly, but the oyster abundance remains high with a good representation of ages and sizes. Young oysters, called spat, have settled on the reefs and overall development is good.

Especially encouraging were high numbers of oysters found on the experimental reefs in Dicks Bay restored with a mixture of oyster shells and limestone marl. The shallow reefs in the New River had a great diversity and abundance of reef-dwelling animals. This year's sampling included a French angelfish and a four-eyed butterfly fish, both of which are more commonly found in warmer climates. Oyster toadfish, blennies, pistol shrimp, mud crabs, gobies and sheephead are abundant on all our local oyster reefs.



Ted Wilgis, left, helps UNCW volunteer diver Justin Kennedy retrieve a sampling cage from the New River oyster reef restoration project. The sheephead was alive and well and released unharmed.



Students and Wal-Mart volunteers plant the rain garden at E. A. Alderman Elementary School.

THIRD-GRADERS BUILD RAIN GARDEN

Sixty third-graders at Edwin A. Alderman Elementary School in Wilmington traded pencils and paper for shovels and plants to demonstrate their environmental stewardship and create a living classroom at their school.

Educators from the federation and the New Hanover County Soil and Water Conservation District guided the students through a series of hands-on activities focused on soils, plants, stormwater pollution and watersheds. Thirty-five volunteers from regional Wal-Mart stores, the school's parent-teacher association and the community joined the students to plant more than 300 native grasses, flowers and shrubs in a newly built 2,500 square-foot rain garden.

Wal-Mart and the conservation district's Community Conservation Assistance Program paid for the project, with support from New Hanover County Schools.

The federation worked with a local engineer to design the rain garden. It's designed to capture and treat rain water from portions of the school's roof and parking area and to ease flooding. The school's rain garden joins a newly installed pervious concrete parking area to showcase Alderman's commitment to clean polluted stormwater from their campus before it reaches nearby Hewlett's Creek.

VOLUNTEER PROFILE

Wayne and Mary Grossnickle, Sneads Ferry

How does a couple, one originally from Wales and the other a retired captain with the New York City Police Department, end up knee-deep in a salt marsh with hands full of oysters? Volunteering for the federation is just one way that Wayne and Mary Grossnickle spend their free time helping to protect and restore our coast.

Retired since 2000, Wayne and Mary moved to Chadwick Bay in Sneads Ferry.



Wayne and Mary Grossnickle volunteer at many federation events, like the Sneads Ferry Shrimp Festival.

They soon developed an interest in oysters, joining the Shellfish Gardeners of North Carolina and the federation.

Despite less-than-perfect field conditions, the Grossnickles have participated in all aspects of our oyster habitat restoration program. They have also helped with the stewardship of the Morris Landing Clean Water Preserve and volunteered at festivals. Wayne and Mary deserve our thanks and recognition as true leaders in coastal stewardship.

Loss of a Dedicated Volunteer

It is with great sadness that we learned of the passing of Jerry Allred. Jerry was a stalwart volunteer helping with many of the federation's oyster restoration projects. Despite suffering from Parkinson's disease, Jerry and his life partner, Edie Steele, were able to visit Antarctica in 2008, completing their quest to visit all seven continents.

FOUR-WHEELER FOLLIES AT MORRIS LANDING



Two people were charged in August for criminal trespass and damage to federation property at the Morris Landing Water-Quality Preserve in Holly Ridge.

After getting a call from Holly Ridge police, Mike Giles, the federation's Cape Fear Coastkeeper®, went to the landing and found a four-wheeler and a full-sized pickup truck so embedded in the marsh that four wreckers and one large tractor were needed to remove them. The off-road joy-riding damaged the marsh and the fishing pier. Estimates to restore the habitat and fix the pier total \$3,000.

Holly Ridge police and the N.C. Division of

Mike Giles, the Cape Fear Coastkeeper®, surveys the damage at Morris Landing.

Coastal Management charged two local people. The federation has asked that they be required to do community service at Morris Landing, under the supervision of the federation and Holly Ridge.

The federation bought the 52-acre preserve in 2004 with grant funding from the N.C. Clean Water Management Trust Fund. It's now a place where people can fish and launch small boats while maintaining open space habitat and protecting Stump Sound's excellent water quality.

GRANT WILL AID STORMWATER CONTROL

The federation has received a \$200,000 Environmental Enhancement Grant from the N.C. Attorney General's office to work with the N.C. Division of Soil and Water Conservation (DSWC), local governments and private landowners to restore and protect water quality in the Lumber, Cape Fear and White Oak river basins.

Soil and Water Conservation Districts in Carteret, Onslow, New Hanover and Brunswick counties will use much of the money to help the districts' Community Conservation Assistance Program (CCAP) pay for projects to control stormwater in those impaired river basins.

The state's Soil and Water Conservation Districts have traditionally helped farmers control erosion and protect water quality. The N.C. General Assembly in 2006 authorized the districts to use that expertise to control stormwater on non-agricultural lands by creating CCAP.

Under the program, homeowners, businesses, schools, churches, local governments and other owners of land not used for farming can volunteer to use a variety of techniques to control stormwater on existing development. Rain gardens, cisterns, porous pavement and streamside buffers are just a few of the practices that are eligible for funding under CCAP, which will pay for up to 75 percent of their costs.

While the Division has been successful receiving significant grant funding for CCAP, the program has not received substantial funding from the General Assembly. This grant will provide needed money to help the program carry out its mandate in the targeted watersheds. We hope that by getting more projects on the ground, the program will prove its effectiveness in restoring water quality, making it easier to get future appropriations from the legislature.

Oyster Project Gets in Full Swing



The federation's project to build oyster reefs in Pamlico Sound is going great guns.

After a bout of bad weather, the crew has gotten into an efficient routine, placing up to six mounds of limestone marl (at 150 tons each) a day. By late October, 92 mounds were created at the Crab Hole Oyster Sanctuary off of Stumpy Point using over 13,850 tons of marl. The work will move to Clam Shoal off of Hatteras for the winter. When the project is completed, it will have placed over 54,000 tons of marl in the two oyster sanctuaries.

A federal economic stimulus grant from the National Oceanic and Atmospheric Administration (NOAA) is paying for the project.

Scientists from N.C. State University's Center for Marine Sciences and Technologies, the University of North Carolina Wilmington and North Carolina Sea Grant are monitoring the project.

The other component of the project, slated to begin next spring, will pay fishermen to put 40,000 bushels of oyster shells in the water at select sites up and down the coast. The N.C. Division of Marine Fisheries is leading this facet of the project and will be recruiting fishermen early next year. Stay tuned.

The project has been in the news, as well. The federation is working with Greenville TV station WITN reporter who is following



the entire project. The first segment was taped in Stumpy Point on Oct. 1 and aired on Nov. 10. The *Outer Banks Sentinel* and the *Coastland Times* also visited the site and ran

articles. Follow ups are planned for spring on both aspects of the project. Jack Betts of the *Charlotte Observer* has also written about the project and it was also one of

the main attractions at the federation booth at the N.C. Seafood Festival in Morehead City in October, which drew over 185,000 people this year.



SWANSBORO HONORS SAM BLAND

The Swansboro Town Council named its first community-service award after Sam Bland, who worked for 22 years at Hammocks Beach State Park in Swansboro before retiring this year. Sam now works part time for us.

Stephen T. Edwards, Swansboro's public works director, received the first Samuel Swann Bland Outstanding Community Service Award. The award will be given annually to a public employee, civic leader or community volunteer based on the nominee's effects on community improvement, efforts that exceed normal requirements of time and attention to duty, the ability to marshal resources to accomplish projects, initiative and vision.

Rachael Was Seafood Festival President

Rachael Carlyle, the federation's director of operations, was president of the prestigious N.C. Seafood Festival, which is held each fall in Morehead City. Her term expired after the festival in October.

Rachael has worked with other board members to organize the "Coastal Yesterday and Today" educational area of the festival since 2004. The "Cooking with the Chefs" program, which features chefs from local restaurants preparing a signature dish using local seafood, was introduced in this area of the festival in 2008 and has been a tremendous success.

The federation has been represented on the festival's governing board since 2006. Our involvement has ensured a positive environmental component to the festival.

Sarah Attends Education Conference

Sarah Phillips, our outreach specialist in the central region, attended the annual North American Association for Environmental Educators Conference in Portland, Ore. The group is the professional association for environmental education and has members throughout North America and in more than 55 other countries.

More than 1,200 educators attended the conference. Sarah gave a presentation on

the federation's community-based restoration programs.

Jan Wows Them in Florida

Jan DeBlieu, our Cape Hatteras Coastkeeper®, told college students at the University of North Florida that people only need three things in order to achieve happiness: meaningful work, meaningful human relationships and a meaningful relationship with their environment.

The university in Jacksonville invited Jan to speak at the University Center where she gave a lecture titled "Sleeping with the Enemy: How Liberals and Conservatives Joined Forces to Save the Outer Banks."

Former Intern Gets Restoration Job

Lynnette Batt, a Duke University Stanback intern with us in 2007, got a job as an associate director for American Rivers in Durham. The nationwide conservation group advocates for the protection of restoration the nation's rivers. Its headquarters are in Washington but it has regional offices throughout the country. She will be coordinating the group's restoration program in North Carolina.

While with us, Lynnette helped develop a watershed plan for the Lockwood Folly River in Brunswick County. She graduated from Duke in 2008 with a master's degree in environmental management.



Website Gets Overhaul

Be sure to check out the federation's overhauled website, www.nccoast.org, which is set to launch in early December.

The new site will be more interactive and easier to navigate than the current one and more capable of displaying video and photographic slide shows. All information on the pages has been updated, and each of our regions will have their own home pages that will be updated frequently to feature current activities in the regions.

Frank Tursi, our Cape Lookout Coastkeeper® who doubles as our webmaster, was in charge of the overhaul and everyone on staff contributed new material for the site. 8 Dot Graphics in Raleigh, which also designs our newsletters, did the web design.

You can also now follow the federation and news about our coast on Facebook at www.facebook.com/pages/NC-Coastal-Federation/185345054061?ref=ts and on Twitter at twitter.com/nccoastalfed.

FEDERATION FILES NOW PART OF UNCW LIBRARY COLLECTION

The federation's voluminous collection of papers has been archived as part of a special collection at William Madison Randall Library at the University of North Carolina Wilmington.

The collection spans more than 25 years and contains a wealth of material on various coastal topics. Making this collection available will enable students, professors and the general public to do research on the federation and on coastal environmental issues. The collection will ensure preservation of the federation's rich history and accomplishments.

An open house featuring the collection was held at the library in October.

We're indebted to Dr. Glenn Blackburn, a federation member who has a second home on Holden Beach. A retired college history professor, Glenn helped arrange the collection at the library.

CALLING ALL ARTISTS, CRAFTSPEOPLE

Come show your stuff at the federation's 2010 Native Plant Festival, which is scheduled for April 24 at the federation office in Ocean.

N.C. artists and craftspeople can now apply to participate in the festival. Last year about a dozen participants displayed and sold art, pottery, jewelry and other handmade items. Festival-goers were thrilled with the addition of art and crafts, so we're expanding the area in 2010. It's great fun and a wonderful way to promote your craft, make money and help contribute to the overall success of the federation's annual event.

We will provide the outdoor space and will advertise statewide. Indoor space is available in case of rain. You supply your own booth or tables. There's no rental fee, but participants pay 20% of gross sales as a donation to the federation. For an application or to learn more, contact Rose Rundell at 252-393-8185 or at roser@nccoast.org.

WANTED: YOUR RECYCLED POTS

Our volunteers will begin potting native plants for the festival over the coming months and we need hundreds of plastic plant pots. Please recycle your pots by dropping them off at the federation headquarters in Ocean, Monday through Friday.

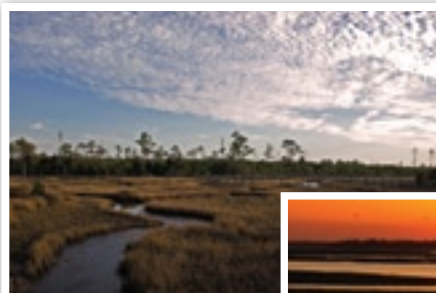


2009 Photo Contest Winners Announced

Linda Sunderland's stunning photo of Lake Mattamuskeet took first place in the N.C. Coastal Federation's 2009 Photo Contest. Sunderland, of Sunrise, Fla., won the \$500 cash prize.



FROM TOP: Lake Mattamuskeet by Linda Sunderland; Brunswick County Swamp by Kyle Humphrey; White Oak River Marsh by Bill Meserve; Bogue Sound by Cheryl Burke; Scuppernong River by Brian Higgins



Kyle Humphrey of Kure Beach won second place with his brooding photo of a swamp in Brunswick County, and Bill Meserve of Newport came in third with his serene photo of a marsh along the White Oak River in Cedar Point. Honorable mentions were awarded to Cheryl Burke for her photo of Bogue Sound and Brian Higgins for his Scuppernong River photo.

Almost 100 photographers submitted entries in the contest, which featured coastal landscapes. The contest, sponsored by Emerald Isle Realty, ended April 15 and the judges announced winners in June.

You can view the winners of the federation's photo contest by visiting the federation's

Facebook Page, www.facebook.com/pages/NC-Coastal-Federation/185345054061?ref=ts



The North Carolina Coastal Federation presents

Native Plant Festival

April 24, 2010 • 8AM to 4PM

MEMBERS PREVIEW SALE APRIL 23, 5PM-7PM

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COASTAL COHORTS CELEBRATE ANNIVERSARY WITH BENEFIT TOUR

The Coastal Cohorts' original King Mackerel & The Blues are Running and Wild Ponies music has celebrated life on the N.C. coast since 1985. To celebrate their 25th anniversary, the Cohorts will give benefit concerts across the state for the federation.

The Cohorts – Jim Wann on guitar, Bland Simpson on piano and Don Dixon on bass – have performed throughout the state and the Southeast, in New York City and at the Kennedy Center in Washington.

Clive Barnes, an arts reviewer at the *New York Post* has called the Cohorts “a pure, salt-watered delight.” Mary Cornatzer of the *News & Observer* of Raleigh described King Mackerel & The Blues Are Running as “a musical Valentine to coastal life.” She wrote that the songs “deal with things anybody who’s ever been to the coast can identify with – pier fishing, joy riding on the strand, hurricanes and living on the sound side.”

The Wild Ponies CD celebrates the freedom of “wild ponies on the run” on protected islands in North Carolina and includes odes to Low Country cooking, boat-building by hand “without any plans,” “a Southern Belle in a coastal town” and many more. The CD also includes new versions of “Catfish” and “Farmer Tan” from the Broadway hit *Pump Boys & Dinettes*, which was written and composed principally by Wann.

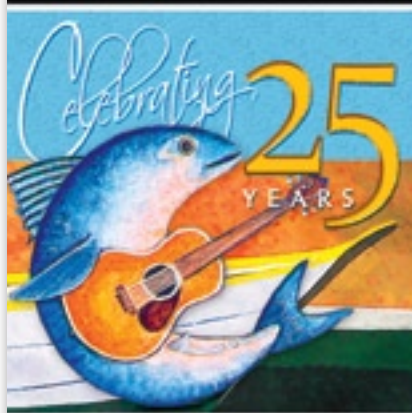
The members of the Coastal Cohorts have each been critically acclaimed, over the years, for their solo work:

Wann’s hit *Pump Boys & Dinettes* was a Tony Award and Drama Desk Awards nominee for Best Musical and Best Music on Broadway, an Olivier nominee for Best Musical in London, and, at four and a half years, the longest running musical in Chicago theater history. Wann also recorded the *Pardon My Southern Accent* series and has hosted the television show *Farmer’s Almanac TV*, a nationwide PBS program.

Dixon, of the rock band *Arrogance*,



THE COASTAL COHORTS
DON DIXON, BLAND SIMPSON & JIM WANN
PERFORMING SONGS AND STORIES FROM
KING MACKEREL & THE BLUES
ARE RUNNING and WILD PONIES



THE COASTAL COHORTS
KING MACKEREL & WILD PONIES

produced both *King Mackerel* and *Wild Ponies*. The celebrated singer-songwriter and record producer’s other credits include working with REM, Hootie and the Blowfish, Marti Jones, James McMurry, The Smithereens and many more. He followed his ninth solo CD – *The Entire Combustible World in One Small Room* – with his band’s

CD: Don Dixon & the Jump Rabbits, *The New Look*.

Bland Simpson, of the Tony Award-winning *Red Clay Ramblers*, is Bowman & Gordon Gray Distinguished Term Professor of English & Creative Writing at the University of North Carolina at Chapel Hill; author of the books *Into the Sound Country* and *Ghost Ship of Diamond Shoals*; and collaborator on the musicals *Diamond Studs* (with Wann) and *Kudzu* (with Jack Herrick and Doug Marlette).

The Coastal Cohorts have been doing performances to help the federation since June 1986.

Coastal Cohorts Concert Schedule, Tickets

FRIDAY, MARCH 5

Sunset Theatre, Asheboro: 7:30 p.m. Tickets: \$15 for federation members; \$20 non-members. Purchase tickets at www.nccoast.org. Tickets are also available at the Parks and Recreation Office, 241 Sunset Ave., Asheboro

SATURDAY, MARCH 6

Lincoln Theatre, Raleigh: 8 p.m. Tickets: \$22 for federation members; \$27 non-members. Purchase tickets at www.lincolntheatre.com. Tickets are also available at the Lincoln Theatre, 805 N. West St., Raleigh

FRIDAY, MARCH 26

Arts of the Albemarle Maguire Theatre, Elizabeth City: 8 p.m. Tickets: \$15 for federation members; \$20 non-members. Purchase tickets at www.nccoast.org. Tickets are also available at the Arts of the Albemarle, 516 East Main St., Elizabeth City, by calling 252-338-6455 or visiting www.artsofthealbemarle.com.

SATURDAY, MARCH 27

Roanoke Island Festival Park, Manteo: 8 p.m. Tickets: \$15 for federation members; \$20 non-members. To purchase tickets visit www.nccoast.org. Tickets for all shows are also available at the N.C. Coastal Federation office at 3609 N.C. 24 in Ocean.

North Carolina Coastal Federation
CONCERT SCHEDULE
FRIDAY, MARCH 5, 2010
Sunset Theatre, Asheboro
SATURDAY, MARCH 6, 2010
Lincoln Theatre, Raleigh
FRIDAY, MARCH 26, 2010
Arts of the Albemarle Maguire Theatre
Elizabeth City
SATURDAY, MARCH 27, 2010
Roanoke Island Festival Park, Manteo
Watch for other
concerts to be
announced later in
the year
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CALENDAR

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252-393-8185 or nccf@nccoast.org

DEC 2-4: N.C. Marine Fisheries Commission
meeting, Clamdigger Inn, Pine Knoll Shores

DEC 4: NCCF CE Volunteer Appreciation
Luncheon, Headquarters, 12-2 p.m.

DEC 5: NCCF Beach grass planting, Jockey's
Ridge, 11:00a.m.-2:00p.m.

DEC 11: NCCF NE Volunteer appreciation
luncheon, 11:30a.m.-1:30p.m., Manteo office

JAN 13-15: N.C. Coastal Resources
Commission meeting, North Raleigh Hilton

MARCH 5: Coastal Cohorts concert to benefit
NCCF 7:30 p.m. Sunset Theatre, Asheboro

MARCH 6: Coastal Cohorts concert to benefit
NCCF 8:00 p.m., Lincoln Theatre, Raleigh

MARCH 26: Coastal Cohorts concert
to benefit NCCF 8:00 p.m., Arts of the
Albemarle Maguire Theatre, Elizabeth City

MARCH 27: Coastal Cohorts concert to
benefit NCCF 8:00 p.m., Roanoke Island
Festival Park, Manteo

APRIL 23: NCCF Native Plant Festival,
Members-only preview, 3:00-7:00 p.m.
NCCF headquarters, Ocean, NC

APRIL 24: NCCF Native Plant Festival,
Open to the Public, 8:00 a.m.-4:00 p.m.
NCCF headquarters, Ocean, NC



Gift memberships in the N.C. Coastal Federation are perfect for a green holiday – and now you can enjoy a special holiday price of just \$25. (Available to federation members through December 31.) We'll send gift recipients a special holiday greeting announcing your gift along with a membership packet that includes our new fabric shopping tote. Or if you prefer, we'll send the package directly to you for gift-giving.

Four Ways to Order Holiday Memberships

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- **BY MAIL:** complete the form below and mail with your check made out to NCCF, 3609 Highway 24, Newport 28570
- **BY FAX:** complete the form below including credit card information and fax to: 252-393-7508
- **BY PHONE:** call us at 252-393-8185

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