

CITIZENS WORKING TOGETHER FOR A HEALTHY COAST

Coastal Review

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IRENE AFTERMATH

COMING IN 2012: COASTAL REVIEW ONLINE

PROTECTING THE PELICANS

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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LAYOUT/DESIGN: 8 Dot Graphics

COVER PHOTO: Hurricane Irene damage – Photo by Michael Halminski, www.photoblog.michaelhalminski.com

Turbulence is life force. It is opportunity. Let's love turbulence and use it for change.

Ramsay Clark said that while serving as U.S. Attorney General during a period of rapid social change under President Lyndon B. Johnson. The quote captures our philosophy here at the N.C. Coastal Federation. We're constantly finding new ways to make lemonade during these turbulent economic and environmental times.

Next year is our 30th anniversary as an organization. Things have changed dramatically during the past three decades. Thirty years ago we used typewriters and rotary phones, and almost every newspaper had an environmental reporter. Coastal real estate was a solid investment, and we never got hurricanes anymore in North Carolina. And while the economy had ups and downs, government agencies kept getting bigger and employment prospects in the private sector kept expanding.

Now we have smart phones, amazing computers and thousands of powerful apps that do everything from finding good restaurants to reconnecting us with friends. Our advanced technological society, though, allows us to bombard each other with so much information that it's all too easy to spend days simply responding to emails or Facebook trivia. We do so with little time for critical thinking or imagination.

None of these amazing technological advancements has secured a strong economy. Unemployment rates are sky high, and take-home pay is stagnant at best.

Traditional news media have been hardest hit. Newspapers are in a decades-long economic depression that has permanently changed the industry. They, along with TV stations, have had to cut staff and pull back on coverage. One casualty has been the environment. New stories about it get a lot less play now. There used to be a dozen reporters in North Carolina who regularly wrote about the state's environment. Now, you can count them on one hand.

That means that voters are a lot less informed and decision-makers less accountable. It also means that the federation can no longer rely on traditional media to cover important coastal environmental issues.

All this turbulence will change the way we do business here at the federation. Starting next year, we're launching a much timelier and news-focused website that will strive to fill the vacuum left by the demise of the news media: the **Coastal Review Online**. Each day we'll be posting new stories and blogs that cover the environmental news of our coast. We will bring you all the news that isn't being reported in the daily press with self-imposed standards that will strive to be objective and honest about what we report.

Keeping up with the news of the coast requires a lot of persistence, and in addition to our own staff, we'll also rely on freelance writers to help us with our reporting. We are currently putting together a network of seasoned writers, many former journalists, who will produce stories for us.

Take advantage of this new service we'll be providing. You can sign up for daily updates that will arrive with your email starting in February.

GOODBYE AND THANK YOU.

Jan DeBlieu will no longer be a federation employee after Dec. 31. She has resigned her post to give her time to write books and to travel the world. Thank you, Jan, for a job well done in establishing our programs along the northeast coast.

Speaking of valued employees, other staff at the federation will reach significant anniversary milestones in their work in 2012: Lauren Kolodij, deputy director, 20 years; Jo Ann Marsh, business manager, 19 years; Sally Steele, development director, 16 years; Tracy Skrabal, coastal scientist, 15 years; Ted Wilgis, coastal education coordinator, 14 years; and Frank Tursi, assistant director, 10 years. I'll be starting my 30th year as executive director.

Todd Miller



The Red Clay Ramblers will celebrate their 40th year of musical inspirations.

Red Clay Ramblers Team Up With High School Band

The famed Red Clay Ramblers will come together for a unique performance with the Croatan High School Band on Saturday, March 17, at Croatan High School along the banks of Bogue Sound in Carteret County.

Now in their 40th year, the Tony Award-winning Ramblers are a North Carolina string band whose repertoire reflects their roots in old-time mountain music, as well as bluegrass, country, rock, New Orleans jazz, gospel and the American musical.

The Croatan High School Band program has received high ratings in every phase of music evaluation, garnering more than 250 awards over the past decade.

The band will kick off the concert at 7:30 p.m. with a half-hour performance. The Red Clay Ramblers will take the stage from 8:15

p.m. to 9:30 p.m.

Tickets are \$7 for students and \$10 to \$20 for adults, based on seating. Tickets can be purchased online at www.nccoast.org and from Croatan High School Band Boosters and band members.

What They're Saying About the Ramblers:

"On my last visit [to the Carter family fold] I saw the Red Clay Ramblers, and they were great." —Johnny Cash

"Endlessly inventive... a bluegrass, jazz and general zaniness ensemble with a full helping of musical mirth." —San Francisco Examiner

"Remarkable." —The New Yorker

"The brilliant string band from North Carolina." —The Nation

Make the Holidays Greener

Federation holiday gift cards will feature Jeffrey King's stunning photo of a snowfall on Oak Island.

"Oak Island Snow," Jeffrey King's winning photo in our 2011 Photo Contest, is the centerpiece of the federation's year-end giving program.

You can make a donation and complete your holiday shopping all at the same time. When you make a donation in someone's honor, we'll send them a gift card featuring "Oak Island Snow" and announcing your generosity. It's a wonderful way to share your interest in helping the coast and honor special people this season.

Why not send us your Christmas card list and we'll take care of the rest while you enjoy the holidays?

Watch your mailbox for details or check out www.nccoast.org.

Here are a few other ways you can make this a green Christmas:

Buy a federation gift membership (it's easy to do on our website).

Shop our online store for federation apparel, coastal books, King Mackerel & the Blues Are Running CDs and more (also on our website).

Buy a Habitat Hero for the young environmentalists on your list (you guessed it - on our website).



BUY A KAYAK AND BECOME A MEMBER: Chuck Millsaps, right, marketing director for Great Outdoor Provision Co., explains the store's newest promotion to Bland Simpson, a federation board member, during an evening social in Raleigh. The store is giving an annual federation membership to everyone who buys a fishing kayak between now and February.

HAMPTON INN IS OUR NEWEST BUSINESS FRIEND: The Hampton Inn & Suites of Swansboro has recently joined the federation's growing list of Business Friends, bringing the total to 17 businesses that offer members a discount or special deal. Manager Carol Mortensen recently gave our staff a tour of the beautiful new hotel on Old Hammock Road in Swansboro. Members can take advantage of the Hampton's corporate rate. For a complete listing of Business Friends visit www.nccoast.org and click on join/renew.

Let Us Connect With You

We're planning a great 2012 – marsh cruises, summer camps, kayak trips, Cycling for the Coast, workshops, volunteer restoration projects and more. Be sure we have your current email address so we can let you know about events along the coast. Send your email address or changes in your email to nccf@nccoast.org.

Getting a Jump Start on Our Legislative Strategy

By Rob Lamme

With the 2011 legislative session now well behind us, it may seem premature for the N.C. Coastal Federation to begin preparing for the next session, which begins in May. The next legislative session may be months away, but getting an early start on a strategy for success in Raleigh is now more important than ever.

In odd-numbered years, the legislature goes into session in January and typically completes its work sometime in the summer.

But in even-numbered years, the Honorables start their business in May – and also finish up before the end of the hot weather. This is the so-called “short session.” And while the N.C. General Assembly’s major task is revising the state’s budget, lawmakers will also take up hundreds of bills – many of them concerning coastal issues.

For starters, it looks likely that the 2012 session will be an extremely fast one. Recently legislative leaders, including House Speaker Thom Tillis, suggested that the next session could be over in as little as 25 working days – or about six weeks, which would make it one of the shortest sessions in recent memory.

At that pace, advocates for conservation and coastal preservation must spend the months leading up to the session getting ready for a full-speed political sprint next spring. Because once the legislature kicks in to high gear, there is little time to educate lawmakers about an issue as they literally run from meeting to meeting.

Looking ahead, it’s clear that two issues—the state’s still-anemic budget and our weak economy—will affect everything that the legislature will do next year. And of course, 2012 is an election year, so lawmakers will have November on their minds as well.

With the state’s economy still in the doldrums, legislative leaders have promised to keep their focus on economic development and budget tightening.

On the budget front, we’ll be working with GOP and Democratic legislators to protect

We’ll be working with GOP and Democratic legislators to protect and hopefully expand the state’s Clean Water Management Trust Fund and other sources of funding for open-space protection.

and hopefully expand the state’s Clean Water Management Trust Fund and other sources of funding for open-space protection. The 2011-2012 state budget sharply reduced funding for conservation, but there remains bipartisan support for the state’s trust funds and the conservation projects they support. We’re cautiously optimistic that 2012 will begin a return (albeit a slow one) to the pre-recession funding levels for conservation in North Carolina.

On the policy front, leaders in both the Senate and House have a strong interest in revising rules and regulations that they think might hinder economic development - and

have promised to make “regulatory reform” a focus of the 2012 session.

While the Coastal Federation will oppose any “reform” that reduces protection for our natural resources, we’re also looking forward to engaging legislators on this topic. Our coastal advocates have long been frustrated with many of the state’s

rules and the way they can impede rather than encourage sound environmental planning, such as our living shoreline efforts and low-impact development (LID) techniques. Both approaches often cost less to implement than standard rules while doing more to protect the environment. But often, the state’s rules and processes can make implementing them slower and more costly than the traditional, less-effective approaches. We’re hoping the legislature’s interest in the regulatory process will give us the opportunity to implement rules that can save money, protect jobs and improve the environment.

Toward that end, we will use a range of strategies in the months ahead to convince legislative leaders that conservation and economic development go hand in hand. We’ll host policymakers for tours of our coast and organize forums with federation members and legislators in key inland areas to build support and knowledge of coastal issues. You will also find the federation advocating for conservation at legislative study commissions, editorial board meetings and in legislators’ home districts throughout the state.

Of course, none of these strategies will work without strong support from our members. Indeed, grassroots support is still the single most effective lobbying tool in Raleigh. If you are interested in being part of the federation’s advocacy efforts - or if you have questions about your own representatives’ support for coastal conservation - please do not hesitate to contact the federation’s office and I will be happy to speak to you about how you can make 2012 a great legislative session for the N.C. coast.

Rob Lamme is the N.C. Coastal Federation’s lobbyist in Raleigh.



N.C. Speaker of the House Thom Tillis says that the 2012 short session could be over in as little as six weeks.

Project Will Protect Nesting Pelicans on Beacon Island



Here's some exciting news for us and for the pelicans of Beacon Island. The N.C. Coastal Federation and its partners received a grant to restore eroding shoreline on the island in Pamlico Sound. It is one of only nine remaining nesting sites in North Carolina for brown pelicans.

The federation will work with Audubon North Carolina, which owns the island, local tour boat operators and the Ocracoke Working Watermen's Association. We'll build a series of living shorelines along the island's shore to help protect the nesting area from further erosion, restore marsh area that has been lost through the years and create estuarine habitat. The work will begin next year.

"This grant not only gives us the ability to help buffer the brown pelican's nesting area from the increased erosion it's experiencing, but it also provides us with a way to prevent sedimentation of the shallow waters in Pamlico Sound," said Lexia Weaver, one of the federation's coastal scientists. "Those waters provide valuable habitat for fish, crabs, oysters and many other aquatic species."

Beacon Island is the oldest nesting site for brown pelicans in North Carolina and

supports nearly 10 percent of the state's pelican population, noted Walker Golder, deputy director of Audubon North Carolina.

Money for the restoration comes from the TogetherGreen's Innovation Grants Program, which Audubon and Toyota launched in 2008 to fund conservation projects, train environmental leaders and offer volunteer opportunities that significantly benefit the environment. The program is funded by a \$20 million Toyota gift to Audubon.

CAPE LOOKOUT WANTS SAND FOR SHACKLEFORD

The superintendent of Cape Lookout National Seashore has told the Army Corps of Engineers that the park wants some of the sand that the Corps periodically dredges from Beaufort Inlet be placed on the beaches of Shackleford Banks, which is part of the seashore. Sand from the dredging has in the past been used only to re-nourish the developed beaches of Bogue Banks.

But Patrick M. Kenney, the new superintendent at Cape Lookout, emailed the Corps in October asking that it recommend in its draft environmental study of the inlet dredging that sand be placed on Shackleford beaches. Kenney doesn't describe in the email why the beaches have to be re-nourished.

The request to artificially place sand on the seashore's beaches seems to run counter to the philosophy expressed in the park's 1982 management plan. "The sea produced these islands, and the plants and animals that live here have adjusted themselves to the harsh environment. The islands and the life thereon will maintain themselves if man interferes least. Thus, the seashore will be mainly a natural area, some of it having a wildland character."

Officials at the beach towns on Bogue Banks will likely take a dim view of the seashore getting sand that has traditionally been reserved for them. A sand war looms. Stay tuned.

BUSINESS GROUP URGES DELAY OF SEA-LEVEL POLICY

The N.C. Coastal Resources Commission at its meeting in October once again delayed

taking action on a draft sea-level rise policy to give its scientific panel time to respond to a business group's criticism of the data behind its report.

The commission's scientific committee, which consists of geologists and engineers, first released the report in 2010. Relying on the most recent scientific evidence, it recommends that coastal communities prepare for one meter, or 39 inches, of sea-level rise by 2100.

That prediction drew significant ire from NC 20, a business group that claims to also represent county governments along the coast. It dismissed the one-meter benchmark as radical and argued that a more modest sea-level rise is much more realistic. The group's primary concern seems to be the economic burden the new benchmark would place on new businesses, from site selection to construction.

A much watered-down policy is now expected to be ready for the Commission's review in February.

PERDUE NOW LEANING TOWARD DRILLING

Gov. Bev Perdue now says she is leaning toward supporting offshore drilling for oil and gas if it is carefully done, as a high-powered panel that she appointed ends a two-year study of the pros and cons of coastal energy exploration.

The 105-page draft report lays out the potential for the state to reap hundreds of millions of dollars of tax revenues, and the creation of an unknown number of jobs if energy companies are allowed to erect offshore platforms. But it also notes the numerous obstacles: the fragile nature of the state's barrier islands and sounds, the risks of catastrophic spills and accidents that would endanger the coast's large tourism and fishing industries and the high chance of underwater landslides on the steep slopes where oil or gas might be found.

After the final touches are put on the report, it will go to Perdue. If she endorses offshore drilling, Perdue will reverse the stand she took on the issue during her election campaign three years ago.

HURRICANE AFTERMATH: BLOOD SUCKERS AND POISONS

The storm-force winds from Hurricane Irene had been stilled for only a few days when the air in flooded communities was filled with a high-pitched buzzing from all directions.

Its source: mosquitoes, breeding prolifically after months of dry weather.

It was a bloodletting of decadal proportions, fueled by standing water and aggravated by the heavy rains that began the week after the storm. In early September a two-minute landing count on Hatteras Island netted 900 mosquitoes. One elderly Nags Head resident commented that she hadn't seen such an eruption since the hurricane of 1933.

Coastal officials responded with an all-too-predictable strategy: Hit 'em with everything you've got. Trucks worked overtime, spraying neighborhoods five to seven nights a week with a synthetic pyrethroid called Aqua-Reslin. The mosquitoes persisted. Finally county officials begged the state for permission to do an aerial spraying of an organophosphate called Dibrom. Even that seemed to knock the bugs down for only a few days. Those that persisted seemed faster, fatter and stronger.

The swarming hoards finally abated in October, whether because of chemicals or a northerly turn in the wind no one could say. In their aftermath, coastal residents were left wondering what's in our waters.

No one argues that something needed to be done to control the mosquitoes. And insecticides hadn't been sprayed aurally on the coast since Hurricane Isabel in 2003. The chemicals used are assumed to be safe when applied according to directions.

But the cumulative environmental and public health effects of using large amounts of synthetic pyrethroids alongside organophosphates merits investigation, according to Charles Apperson, the William Neal Reynolds professor emeritus in the Department of Entomology at N.C. State University.

Federation Coastal Advocate Jan DeBlieu and Executive Director Fawn Pattison of

Toxic Free N.C., a nonprofit organization that fights chemical pollution, contacted Apperson because of their concerns about the buildup of insecticides in the environment, especially coastal waters, and the possible effects on human health. Chemicals used in mosquito sprays also kill non-target species, including dragonflies, fireflies and butterflies. Synthetic pyrethroids have been shown to be toxic to estuarine and marine animals.

Organophosphates like Dibrom can have neurological effects in humans, especially infants and children (DDT, the notorious insecticide that caused near-extinction of birds of prey in the U.S., is an organochloride. Organophosphates do not accumulate in the environment as readily.). Synthetic pyrethroids, which consist of bacterial treatments, have fewer health effects, but in large amounts can still harm children, according to Pattison.

Officials in Dare County were the first to request aerial spraying of Dibrom on the advice of a veteran mosquito control consultant in northern Virginia. Four other northeast counties followed suit. Federal Emergency Management Agency funds paid for two applications in Dare at a cost of \$100,000 each.

Entomologists say a one-time or two-time application of Dibrom should not pose a threat to the environment or human health—if residents are warned beforehand to stay indoors with windows and doors closed. The chance to control mosquito populations is worth the risk, they say.

But in Dare and Hyde counties insecticide spraying is not allowed in federal and state preserves. So none of the land within the Cape Hatteras National Seashore, the state parks, or the Alligator River, Pea Island, Currituck, Mattamuskeet, or Swan Quarter wildlife refuges was sprayed—giving



mosquitoes plenty of refuge. Dr. Apperson says certain species of mosquitoes can fly for many miles in search of a blood meal, though many others remain local throughout their life cycles.

Are there no better options?

Entomologists counsel residents to reduce standing water in their yards, a tall order after a hurricane or unusually heavy rain. In an emergency it's possible to obtain a special permit to pump stormwater from flooded property into local waterways. But the runoff will carry sediment, bacteria, oil, gas and fertilizer with it. As a result, emergency pumping should be allowed only in the most dire circumstances.

Chemically, the best way to control mosquito populations is to treat larval populations, not the adults targeted by the sprays commonly used aerially and in trucks. Dare County sprays for larvae as well as adults. While more effective, this adds yet another component to the load of chemicals routinely pumped into the environment.

Pattison suggests that homeowners place commercially available rings containing larval insecticides in standing water in their yards. The compound in the rings does not migrate outside the immediate area. County funds that now go into spraying for adult mosquitoes could be diverted into purchasing the rings and making them available to residents.

Federation volunteers told DeBlieu about a study on an easy-to-use sugar bait that killed 90 percent of mosquitoes in tested areas in Africa. The bait was featured in recent news articles and contained a poison that did not harm other insects or butterflies.

"The wisest course would be to come up with a mosquito response plan that could be carried out systematically after storms," DeBlieu says. "There's got to be a better way to do this."

Wetlands and Rain Garden Work Net Partnership Prize

Thanks to the construction of a living shoreline at Jockey's Ridge and the installation of a large rain garden in a once-ugly ditch, the federation has been selected as Business Partner of the Year by First Flight Middle School faculty and staff. The award

was accepted by federation Board Member Midge Ogletree at a banquet given in October by the Dare Education Foundation.

Although all three regional staff members participated in the projects, Sara Hallas, northeast education coordinator, played the leading role by teaching lessons to eighth-grade students on water quality and the importance of estuaries in coastal ecosystems.

The federation's affiliation with the middle school began in 2008, when Hallas contacted teachers about participating in a student wetland nursery program funded by the Carlson Family Foundation. Since then, each year Hallas has taught numerous classroom lessons to eighth graders. Students have helped bag recycled oyster shells, built a reef sill from the bags, and planted marsh grass sprigs behind them—all the while learning about the interconnected natural systems of estuary and shore.

The result is a 725-foot sill and accompanying marsh that now helps protect the shoreline in back of Jockey's Ridge from erosion.

In addition, last spring the three First Flight schools in Kill Devil Hills were the subject of an intensive stormwater study by Coastal Scientist Erin Fleckenstein and Coastal Advocate Jan DeBlieu. More than 35 techniques were identified that could help hold stormwater on school grounds. Any overflow from the campuses drains through a stormwater piping system to the Atlantic Ocean. School officials hope to eliminate the stormwater discharge except after extremely heavy rains and tropical storms.

The study ranked the rain garden at the middle school, which is in a highly visible area in front of the school, as one of the most needed of the projects identified. Last spring middle school students helped plant and mulch the garden. The work was funded by a National Fish and Wildlife Foundation Five-Star Restoration grant.

A rain garden was also constructed in October by northeast staff at First Flight Elementary School in a site identified by the stormwater study. The garden was funded by Wal-Mart. Students in the after-school program helped put plants in the ground.



Katherine Mitchell: The Rain Garden Lady of the Northeast

The success of the Northeast Region's rain garden program is due in large measure to the design talents of Katherine Mitchell, horticulturist at the N.C. Aquarium on Roanoke Island and a private garden consultant.

Kathy first partnered with the federation on the 2006 construction of two large rain gardens at the Manteo Middle School. Staff members have since come to know her as one of the key go-to professionals on native plants in the region.

As a private consultant, she has since worked with the federation on numerous rain gardens, including the design and installation last spring of the garden at First Flight Middle School and the design and construction this fall of a garden at First Flight Elementary.

Kathy moved to Manteo in the early 1980s. She fell in love with the landscape and endemic plant communities and settled down to stay. A graduate of Syracuse University and the School of Museum Fine Arts in Boston, she hadn't really intended to spend her life getting her hands dirty with soil. But after working in landscaping, she realized she'd found her calling with plants.

It was while employed by the Elizabethan Gardens in Manteo that Kathy discovered gardening with native plants. The idea made immediate sense to her, "although at the time there was sort of a disparaging attitude toward using natives," she says. "The m.o. was, let's tear these out and put in some camellias and hydrangeas."

In 2000 she was hired at the state aquarium, where she discovered the concept of rain gardens. Planted with hearty native species that can withstand both dry conditions and floods, rain gardens are designed to trap and hold stormwater so it can infiltrate into the ground. The infiltration removes pollutants and recharges the water table. She loved the idea.

"I thought, what a great way to showcase colorful native perennials." She quickly made a name for herself in the region as a designer of rain gardens and native landscaping.

"My garden plans are the only place I've used my education in fine arts," she jokes.

But judging from the beauty of the finished product, her studies have paid off in spades.





above & right: The villages of Rodanthe, Waves and Salvo received a storm surge of 10 feet.

The S-curves on N.C. 12 just north of Rodanthe were breached by the hurricane. Within days after completion of repairs, the ocean again threatened the single dune protecting the highway.



Executive Director Feather Phillips confronts a maze of insurance forms after the flooding of the Pocosin Arts building in downtown Columbia. "We were prepared for our usual three to five inches of water," she said. The shop and studio flooded to two feet. Afterwards a salvage company removed 390 gallons of polluted river water from the building and 380 gallons of condensation.



The historic courthouse and many businesses were flooded in downtown Manteo.

A modular two-lane bridge now spans a deep channel at the new inlet in the Pea Island National Wildlife Refuge.



Only the frame remains of a building on the east side of Columbia, where a tornado spawned by the hurricane touched down, destroying nine homes and this business on U.S. 64.



From Carteret to Currituck, IRENE LEAVES US REELING

When Hurricane Irene pushed flood tide through the Hatteras Island villages of Rodanthe, Waves and Salvo on Aug. 27, Michael and Denise Halminski watched nervously as the surge rose to within an inch of their door sill. Just after midnight the water began to recede, leaving the building's interior dry.

Many of their neighbors were not so fortunate.

The three villages share the dubious distinction with Columbia of suffering the worst damage from Irene. Halminski has ridden out many big blows during his three decades on Hatteras. "Hurricane Irene brought in more storm surge from (Pamlico) Sound than any other storm in the past 75 years," he wrote on his photography web site. "It is now the new benchmark for sound-side flooding in our villages."

The careful preparations made by residents turned out to be insufficient. Residents parked cars on the highest ridges, falsely assuming they'd be safe. A surge that was ultimately measured at 10 feet tore out docks, destroyed heat pumps perched on six-foot platforms and in some cases made buildings uninhabitable. For

weeks the village streets were lined with debris. In a picnic area south of Salvo, salvage workers amassed a mountain of ruined wood, insulation and furniture that dwarfed nearby houses.

Along with wet belongings, mold and hoards of mosquitoes, Hatteras residents had to contend with the isolation that came from the severing of N.C. 12 by two new inlets. Neighbors responded with an unprecedented showing of care and concern for each other.

When you move to the coast, you make an unspoken deal with the devil: Most days you get to enjoy the abundant natural beauty. But at some point a storm will come that will leave you reeling.

Irene was that storm, the most recent reminder that here on the coast, nature is firmly in charge.

Hurricane Irene by the Numbers

HIGHEST WIND GUSTS

Location	County	Highest Gust (mph)
Cedar Island	Carteret	115
Atlantic Beach	Carteret	101
Jacksonville	Onslow	94
Stacy	Carteret	93
Fort Macon	Carteret	92
Aurora	Beaufort	90
Hatteras	Dare	88
Duck	Dare	85
Cape Lookout	Carteret	78
Morehead City	Carteret	78
Oregon Inlet	Dare	78
Beaufort	Carteret	77
Cherry Point	Craven	75
New Bern	Craven	74
Newport	Carteret	74
Manteo	Dare	74
Alligator River	Tyrrell	71
Ocracoke	Hyde	69

RAINFALL TOTALS

Location	County	Rainfall (inches)
Bayboro	Pamlico	15.74
Bunyan	Beaufort	15.66
New Bern	Craven	14.79
Williamston	Martin	14.27
Washington	Beaufort	13.11
Jacksonville	Onslow	11.70
Pocosin Lakes	Washington	11.20
Croatan Forest	Carteret	11.13
Havelock	Craven	10.70
Newport	Carteret	10.41
Swansboro	Onslow	9.67
Morehead City	Carteret	8.11
Fairfield	Hyde	7.61
Beaufort	Carteret	7.00
Hatteras	Dare	6.77
Cedar Island	Carteret	6.68
Ocracoke	Hyde	2.72

Sources: National Weather Service, WITN-TV, WCTI-TV

Activists Score Stunning Victory Over Sulfur Smelter

In a stunning victory, Potash Corporation of Saskatchewan Inc. (PCS) killed plans to build a plant to melt sulfur at the state port in Morehead City. Gov. Beverly Perdue made the announcement on July 27 at the port before more than 200 cheering opponents.

The smelting plant raised a stink in Morehead City and Beaufort. Hundreds of people attended meetings of local elected boards to express their opposition. They picketed in the streets and formed a grassroots group, the Clean County Coalition, to fight the proposal. More than 400 packed the auditorium at Carteret Community College to attend the group's first community meeting.

And Frank Tursi, one of our assistant directors and coastal advocates, and Dick Bierly, the vice president of our board, have been smack in the middle of it. Both are on the steering committee of the new group and have been involved in helping it develop strategy. Dick was later named president of the group.

Todd Miller, our executive director, worked Sven-gali-like behind the scenes. He and Frank researched Morehead City's zoning code and determined that the smelting plant wasn't an allowable use. Frank presented those findings to the town council, which eventually directed its planning board to review the zoning code at the port to determine if changes are needed.

The federation, the Clean County Coalition, the Carteret County Chamber of Commerce and other groups urged the council to modify its zoning code for the port to eliminate uses that aren't compatible with a clean environment and with the residential and commercial districts it adjoins. That review is ongoing.

The groups also hope to work with a governor's task force looking into the future of the state's two ports.

Gov. Perdue reportedly received more than 1,000 emails on the subject. It was enough for her to dispatch Al Delia, her senior advisor, to Morehead City to talk with opponents and with local government officials — almost every elected board in the county has passed resolutions opposing the smelter.

While the smelter might be dead, PCS now wants to import dry sulfur into the port. It would then ship the sulfur by barge to the company's fertilizer plant and phosphate mine on the Pamlico River.

Frank and Dick are working with the groups to evaluate the latest proposal.

Two Carteret Towns Adopt LID to Control Runoff

Rain gardens, pervious paving and tree protection are just a few stormwater management techniques that will now be promoted in Cedar Point and Cape Carteret, two adjoining towns in western Carteret County.

In October, both towns unanimously approved a low-impact development (LID) manual that had been in the works for the past year. The manual offers voluntary options for developers to use LID to minimize the amount of stormwater runoff being generated by increased development of the landscape.

LID is an approach to control runoff that strives to mimic a site's natural hydrology by using design techniques that infiltrate, filter and evaporate runoff close to its source before it has a chance to become polluted runoff. LID works best when applied to new construction but it can also be used to reduce stormwater from existing development.

Cedar Point received a grant from the U.S. EPA to work with Cape Carteret to develop the LID manual. The towns partnered with the N.C. Coastal Federation, the N.C. Division of Water Quality and Withers & Ravenel, consulting engineers on the project.

To get the job done, the towns assembled a team of professional builders, land surveyors, engineers and realtors to create the manual. This Technical Review Team worked with staff from the towns and the federation. It met several times for a year to draft the LID manual.

Team member Maria Tart of Jordan

Building Co. is a strong supporter of LID and was a driving force behind the development of the manual. "It just makes sense to offer LID to developers and promote its use," says Tart. "LID has so many benefits: it helps create attractive and marketable developments, can save builders and developers money and can help protect the coastal environment that brings so many folks here to buy homes in the first place."

The manual offers a great how-to guide for developers and individual property owners who want to use simple LID techniques. To view the document, visit www.nccoast.org or the towns' websites.

Cycling for the Coast

As Sept. 17 rolled around, the weather forecast looked bad -- rain, clouds and wind. Not exactly great weather for bicycle riding, even for the pros. Luckily, the rain on that Saturday morning held off, and 96 riders showed up on Bogue Banks to complete the 20K, 40K or 80K distances. The Cycling for the Coast ride was created to raise awareness for our coastal estuaries and white sandy beaches, and raise funds for the federation.

A group from the Wounded Warrior

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Cycling for the Coast riders stretch out along N.C. 58 on Bogue Banks.



Students from Coastal Carolina Community College count and measure new oysters growing on bags of oyster shells at Jones Island.

Measuring the Success of Our Habitat Restoration Projects



Volunteers and staff at the N.C. Coastal Federation spend a lot of time restoring salt marshes and building oyster reefs, like the ones we've completed on Jones Island in White Oak River. But do they work?

Did the thousands of salt marsh plants that were planted along the shoreline survive? Is the new oyster and salt marsh habitat attracting oysters, fish and crabs? What kinds of plants and animals are living at our restored sites and how many are there?

To answer these questions, the federation performs annual monitoring of our wetland and oyster restoration projects. The monitoring consists of measuring the coverage and growth of the salt

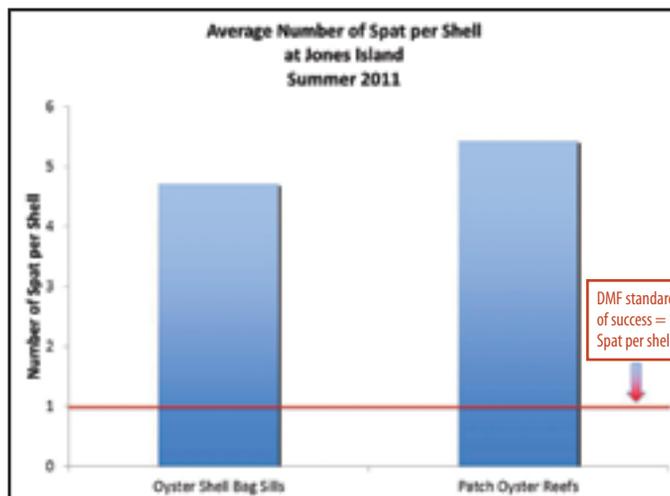
marsh plants in the restored areas and counting the new oysters attracted to our reefs, measuring their size and recording what plants and animals have colonized the restored reefs. The restoration projects are also photographed extensively from permanent photo stations before, during and after the restoration. The resulting data tell us whether the restoration projects were successful and help guide our future restoration efforts.

Students from Coastal Carolina Community College in Jacksonville recently counted the number of spat (baby and juvenile oysters) found on each of the first 30 recycled shells retrieved from the reefs we've built around Jones Island.

"Seven spat, four barnacles, six mussels, one mud crab and two shrimp."

The students recited those words over and over as they

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VOLUNTEER PROFILES

Sliding their kayaks up onto the shore at Jones Island, Ryan Roberson and Gracie Heath disembark, pulling the boats up farther onto dry land. They grab some gloves and decide who will do what job; they know what to do since they've helped monitor oysters before. Ryan and Gracie live on the other side of the White Oak River from Jones Island and are neighbors. Many federation volunteers live on or near the water, but these two still live with their parents – Ryan is 16 and Gracie is 13.

Ryan has been helping NCCF since 2009, when his youth group from Swansboro Methodist Church got involved. Now, the central region staff sees him monthly. "Everybody takes so much from the environment," Ryan says, "I think it's good to give back." A junior at Swansboro High School, he stays busy playing and watching sports and enjoys diving, fishing, swimming and kayaking, anything on the water.

Gracie is constantly on the move, from playing soccer to running to helping with yoga and kayak programs at Second Wind Eco Tours, her mother's business. Gracie learned about volunteering for NCCF through her mom. "My mother volunteered for the federation, so I did too. Volunteering builds character, teaches responsibility, and for me, giving back gives me a sense of satisfaction."

At some point, Ryan and Gracie will both be on their own, but they say that volunteering has become a permanent part of their lives. "Seeing the difference I make in the world is the best feeling," says Gracie, "and I absolutely want to volunteer in the future."

Finishing up the oyster monitoring day at Jones Island, Ryan and Gracie jump back in their boats and push off, getting ready for the paddle back home. Both say they enjoy volunteering for the federation because the staff is so fun. The staff disagrees: for them, it's easier to work during those long, hard restoration days when the volunteers are as wonderful as Ryan and Gracie.



Photo: Ryan Roberson and Gracie Heath



The Stop Titan Action Network had a strong presence at all three public hearings for Titan's draft air permit. Here volunteers help Stop Titan supporters with materials and tips for public commenting.

TITAN OPPOSITION GAINS MOMENTUM

Residents of New Hanover County and beyond have shown inspiring perseverance and commitment against a heavy polluting industry like Titan as the company continues to seek its air permit.

With three N.C. Division of Air Quality hearings in one week and a county commissioner meeting the next, concerned people took precious time away from home, work and family to participate in an important decision that could affect Titan's proposed cement plant project on the shores of the Northeast Cape Fear River near Wilmington.

Titan opponents well outnumbered the project's supporters at the state hearings during the last week of September. Although Titan employees and representatives argued for approval of the air permit based simply on the promise of jobs, their claims were effectively countered by medical professionals, economists, environmentalists, business owners and parents who addressed the real issues: Without clean air, people can't work. Without clean water, people can't work. Without either, our tourist economy founders, residents and clean businesses move away and our region follows the limited path of other industrial towns.

The federation estimates that more than 600 people attended one of the three public hearings and over 1,000 public comments have been sent to the air quality division

before the comment period ended Oct. 31. These comments and others will be considered before the state makes a final decision.

How heavy industrial projects in New Hanover County are reviewed and approved came to the forefront during the Titan debate. Following reasoned urging by the county staff and hundreds of residents, the county's Board of Commissioners voted 4-1 to adopt much-needed changes to the outdated industrial zoning laws that haven't changed since 1969.

More than two years in the making, the revised regulations now require intensive industry to receive a special-use permit for their project. Grandfathering provisions were granted for existing industries to expand, providing the uses do not significantly change. This new permit process provides people, experts, planning staff and local elected officials an opportunity to



Residents hold up green cards that say "Yes to zoning revisions" at the September meeting of the New Hanover County Planning Board. PHOTO: ALAN CRADICK

request necessary information, assess the effects of the proposed project on the local community and make informed decisions on the proposal.

Although the Titan proposal will most likely be the first through the special-use permit application process, the changes will affect any heavy industries.

Titan's draft air permit does not disclose the effects the facility will have on water quality, wetlands, public health or the local economy. The federation and its partners argue that all the effects of the Titan project should be studied in a comprehensive review before any permits be issued.

Taking LID to the Streets

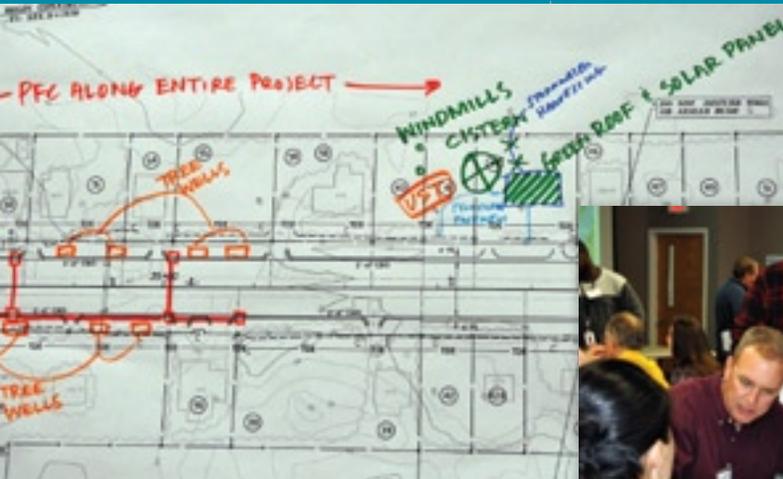
We think of highways as long stretches of asphalt that ensure we get safely from place to place. We rarely consider their effects on the coastal environment. But in an effort to

explore how the state might reduce the amount of polluted stormwater coming off the roads and help protect our coastal environment, a collaborative team from the N.C. Department of Transportation Hydraulics Unit, the N.C. Coastal Federation, Brunswick County and consulting

engineers Withers & Ravenel and URS Corporation put their heads together and organized a workshop to discuss just how we might do things differently.

High-level DOT officials and engineers and staff members with the N.C. Division of Water Quality (DWQ) participated in the workshop to explore ways to use low-impact development (LID) techniques in state highway projects. The federation collaborated with partners to organize the Raleigh event, which was paid for by the N.C. Clean Water Management Trust Fund.

LID is a stormwater management technique that strives to minimize the volume of stormwater that reaches our coastal waters by allowing it to soak into the



Engineers with the N.C. Department of Transportation study road plans for ways to incorporate LID techniques.



ground before it becomes polluted runoff.

LID experts from Maryland, Texas and Florida shared how they are incorporating LID in their states' highway projects, offering a peer-to-peer training on the stormwater-management techniques. DOT and DWQ staff learned about LID strategies, specific case studies and lessons learned.

Larry Coffman, the expert who pioneered LID, shared information on LID principles and techniques. He told the group of 85 that if we can work smarter and make use of the existing rights-of-way to capture and infiltrate highway runoff, we can reduce the amount reaching our coastal waters by up to 80 percent. He challenged the group to

work smarter, taking advantage of the existing landscape to treat the runoff instead of capturing and collecting it to ditches and ponds.

DOT is now taking LID to the streets and has worked with consulting engineers to design and build a series of stormwater reduction measures to test the LID techniques on existing roads. One such project will be built in Brunswick County early next year. These sites will be used to test and showcase how we might be able to use LID to fix existing stormwater problems and prevent future volumes of runoff.

NORTH TOPSAIL ISLAND WEIGHS OCEAN SHORELINE MANAGEMENT OPTIONS

Officials at North Topsail Beach have gotten an earful from engineering firms, geologists and environmentalists about what the town should do to control beach erosion. Much of the advice has been conflicting.

The N.C. General Assembly passed a law this summer that would allow up to four small jetties, called terminal groins, to be built at N.C. inlets. The North Topsail Beach Town Board invited engineering firms, geologists and the N.C. Coastal Federation to recommend whether the town should pursue such an option.

Two engineering firms (Coastal Science and Engineering and Gahagan and Bryant) told the board that a steel groin and an associated beach re-nourishment project would cost about \$6-7 million. But the figure didn't include the studies that would be required to get a permit, contingencies, annual maintenance or re-nourishment or the cost of the bond that the law requires to cover damage done by the groin or its eventual removal.

One group of engineers cautioned the board that

terminal groins are a tool to manage erosion, not a solution. A groin at New River Inlet, these engineers noted, would only protect a "very precise area of beach", the location of which was unspecified in their presentation.

Another engineering firm, Coastal Planning and Engineering, gave the board a sharply divergent recommendation. Instead of building a groin, the town should consider moving the channel in the inlet farther away from land and pumping sand on 9,000 feet of the island's beaches.

Channel re-alignment and beach nourishment for the northern 9,000 feet of shoreline would cost about the same as a groin, the engineers told the board. This option has been in the planning stages since 2004. The town already has all the necessary state permits and anticipates receiving its federal permits in the near future.

The federation backs the channel re-alignment plan over terminal groins.

Student Making a Difference in Her Backyard

Jessica Mattingly, an engaging senior at J.T. Hoggard High School in Wilmington, lives with her family in a subdivision in the headwaters of Howe Creek. She wanted to use her graduation project to help improve water quality in the tidal creek.

After learning about some of the federation's local rain garden projects, Jessica decided to use her interest in plants to help clean up our local waterways.

"I live with a marsh behind me, so all of our stormwater flows straight into a very important natural habitat," she reasoned.

With the help of Ted Wilgis, the federation's educational coordinator in our Southeast Region, Jessica researched rain gardens and how to design one for her family's property. To complete her project, Jessica chose the site, determined how much of her roof, driveway and yard would drain to the rain garden, conducted infiltration tests and contacted the local utilities. She then calculated the size and depth of the rain garden and selected the appropriate native plants.

Joined by willing friends and family, she spent several days digging out a 300-square-foot rain garden, spreading three cubic yards of mulch and planting 45 native plants to complete the project.

"Hopefully, building my rain garden will encourage others in my neighborhood to do the same, so that we can reduce the flow of stormwater reaching Howe Creek," Jessica said after completing her beautiful and functional rain garden.

Congratulations to Jessica, for a job very well done. She is Howe Creek's newest environmental champion.

Supplies and guidance for the project are provided by the federation's Student Habitat Education program, which is funded by a grant from the North Carolina GlaxoSmithKline Foundation.



Jessica Mattingly third from left and fellow students at J.T. Hoggard High School break ground on a 300-square-foot rain garden in Jessica's backyard.



Bottlenose dolphins delight passengers on a cruise through the marshes of the White Oak River and Sam Bland talks about the wonders of our estuaries.



Volunteers and staff bag oyster shells and plant marsh grasses at the Morris Landing Clean Water Preserve.

Playful Dolphins, Heavy Lifting Mark Estuaries Celebration

Walk along a sound-side beach and watch black skimmers perform an aerial ballet inches above the water as they feed, smell the rich odor of decay and new life emanating from the salt marsh, listen to boats working the water or feel the tug of a flounder on your fishing line.

Experience all this in our coast's rich and vibrant estuaries. From a local tidal creek to the 3,000 square miles of water that make up Albemarle and Pamlico sounds, estuaries define our coast and enrich our lives.

Forming a transition zone between the land and sea, estuaries are incredibly productive ecosystems. Three quarters of the fish caught commercially in the United States live in estuaries, meaning that on average, estuaries produce more food per acre than our most productive farmland. Estuaries also help support the boating, fishing and tourism industries, which provide more than 28 million jobs nationally, according to a recent study. The tourism value of estuaries to local and regional economies is also significant, with nearly 70 percent of the U.S. population visiting our coastal waters.

The N.C. Coastal Federation helped people discover these magical and productive ecosystems on National Estuaries Day, an observance held each year on the last Saturday in September. We took people on cruises in

the marshes along the White Oak River and put them to work building oyster beds and planting marsh grasses in Stump Sound.

The federation partnered with Hammocks Beach State Park near Swansboro on two ferry boat excursions through the maze of marsh islands around Bear and Huggins islands and along the historic Swansboro waterfront. Under a steady rain, the federation's Sam Bland told passengers about water quality, habitat restoration and the cultural and natural history of the area.

They were rewarded with great views of wading birds, ospreys, king fishers and even a rare American avocet. Bottlenose dolphins delighted passengers by surfacing nearby and slapping the water with their tails. With its motors shut down, the ferry boat drifted along with the current allowing passengers to enjoy their escort of playful dolphins.

Earlier in the day, Sarah Phillips, a federation educator, paddled her kayak to Jones Island in the mouth of the White Oak, where she met other kayakers for a tour of

the oyster reefs and marshes that volunteers have built during the past five years. The 1,200 feet of oyster reefs and over 63,000 marsh grass plugs waving along the water's edge are wonderful examples of people working together to restore and protect the extraordinary and picturesque North Carolina coast.

Farther south in Stump Sound, volunteers rolled up their sleeves for some good old-fashioned physical labor at our Morris Landing Clean Water Preserve. Ted Wilgis, another federation educator, and Mike Giles, one of our coastal advocates, worked with an industrious group of 30 volunteers, including 20 employees and family members from the General Electric-Hitachi Nuclear Energy International Facility in Wilmington.

With the help of a Bobcat to do the heavy lifting, volunteers cut, sealed, hauled and stacked 20- 40-pound bags of oyster shells and marl. The determined volunteers braved the rain and worked hard to fill 700 mesh bags. To put that in perspective, they hauled and stacked about 90 bushels or 2.5 tons of oyster shell and about 4 tons of marl. The volunteers also worked into the afternoon to plant 800 *Spartina alterniflora* seedlings along the shoreline. The bags of shells and plant seedlings were used to build a living shoreline of oyster reef and salt marsh habitat at the preserve. Many thanks to our hardy volunteers!

Jan DeBlieu Leaving Federation to Write Book

Jan DeBlieu, one of our coastal advocates and the program manager for our regional office in Manteo, will leave the federation at the end of the year to write a book that has been in the works for two years.

A longtime resident of the Outer Banks, Jan joined the federation in March 2003. She was the first staff member of our fledgling Northeast Regional office, working out of her home in Manteo. She helped establish our presence along the northern coast and has been a guiding

force for a project in Hyde County that will restore the hydrology of farmland in the region.

Before joining the federation, Jan published four books and dozens of articles and essays. Her book, *Wind*, won the 1999 John Burroughs Medal for Natural History Writing, the highest national award for the genre. Other winners include Aldo Leopold, Rachel Carson, Peter Matthiessen and Barry Lopez.

The loss of their only child, Reid, in a car accident in 2009 was a devastating blow to Jan and her husband, Jeff. "Losing Reid completely turned my life upside down," Jan says. "I see writing this book as a way to honor his life and memory—and that trumps everything else right now."

The book is about what it takes to live a life of true service—meaning being of real, lasting help to other people.



SARA HALLAS ATTENDS MARINE MAMMAL INSTITUTE

Sara Hallas, our education coordinator in the Northeast Region, was one of 16 educators from North Carolina chosen to participate in the Marine Mammal Institute this August, an all-expense paid trip to aquariums on the East Coast to study the impacts of climate change on marine mammals. It was paid for by a NOAA climate education grant. Sara will do a presentation on climate change next spring in Columbia schools in Tyrrell County, using a high-tech piece of equipment called a GeoDome that illustrates how climate change will affect the world's oceans.



CENTRAL ROUNDUP

continued from page 10

Project rode, as did many visitors from out of town. One rider, Steve Kremer, was visiting the Crystal Coast from Big Flats, New York. "I was out riding on Friday afternoon and saw these orange spray-paint marks on the road," he said. "I went home, did a little research online, found out about the event and signed up."

The federation raised over \$5,000 and added 75 new members.

It was such a success that we plan to do it again next year. Stay tuned for details.

Federation Has Fantastic Days at the N.C. Seafood Festival

The N.C. Seafood Festival draws tens of thousands of visitors to the Morehead City waterfront every October. It is a perfect venue to educate masses of people about our mission. And who better to do that than board member Donna Snead. She organizes the federation's booth at the festival and works both days alongside volunteers to talk to as many visitors as possible. She is very

passionate about outreach and education. Here's her summary of the event:

"Wow! What a fantastic two days," she said. "Great weather and we met so many wonderful, interesting people, including the super volunteers. Hundreds of people visited the booth and showed different levels of interest in what the federation is about and what we do. Many wanted all the information we could offer and showed a distinct interest in what they could do to help the environment and NCCF. Educators and parents looked for ideas for their students and kids, while many college students also looked for project ideas. A great number of the people we talked to enjoyed having the opportunity to share their personal experiences and ideas with us. Sort of like the booth gave them an opportunity to connect with like-minded individuals...another one of the reasons I feel it is so important (but, hard to quantify) for the federation to always have a presence at this event."

Thanks to Donna and the many volunteers who help us every year with our outreach efforts.

MEASURING THE SUCCESS OF OUR HABITAT RESTORATION PROJECTS

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enumerated what they found on the shells. On average, they found that each oyster shell that was placed into the water attracted more than four new oysters. These results clearly show that the restored oyster reefs are successful and are working to recruit numerous oysters and other species. In fact, our restored oyster reefs significantly exceed the N.C. Division of Marine Fisheries standard for successful oyster restoration efforts of one spat per shell.

As with all of our events, the monitoring would not be possible without the help of our dedicated volunteers who are not afraid to get their hands dirty and rummage through snapping mud crabs to count thousands of new oysters. Thanks to all of you who helped determine the success of our restoration projects.

If you are interested in becoming a scientist for a day and would like to help us with our salt marsh and oyster reef monitoring events, please contact Lexia Weaver at lexiaw@nccoast.org.



North Carolina Coastal Federation

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Calendar

FEBRUARY

2 – Science Café with Orrin Pilkey, Back Bar, Chapel Hill

MARCH

17 – Red Clay Ramblers with Croatan High School Band, Croatan High School, Newport

APRIL

14 – Currituck Sound Water Quality Day, Powell's Point, Currituck

27 & 28 – Native Plant Sale, Federation Headquarters, Ocean

SAM'S FIELD JOURNAL

THE PEREGRINE FALCON

Every autumn, the cooler weather ushers in the ritual migration of a variety of birds of prey. One of these hunters, the peregrine falcon, will show up along our beaches to take advantage of unsuspecting shorebirds such as terns and sanderlings.

This falcon has long pointed wings that make this bird a powerful and super-fast flyer. It can easily cruise along at 45 mph and quickly burst up to 70 mph when chasing its main prey, other birds.

From high in the sky, the peregrine will conduct a free-fall dive, called a stoop, racing at over 200 mph to track down prey. One peregrine was documented doing a dive at 242 mph. In mid-air, the falcon will smack the bird with a clenched foot then snatch the falling bird with its talons before it hits the ground. The peregrine falcon has special nostrils for easier breathing and a protective transparent third eye lid that make these high-speed stoops possible.

During courtship, the male peregrine will take the female out to dinner. During flight it will offer the female killed prey. The female will then fly under the male, reaching upside down, to retrieve the treat.

As with other birds of prey, the peregrine falcon's population took a 20-year dive starting in the 1950s because of pesticide poisoning. Chemicals that accumulated in the bird's body caused reduced calcium production that led to egg shell thinning. The eggshell easily cracked and



would not develop. In 1970, the peregrine falcon was one of the first animals to receive protection under the federal Endangered Species Act.

With the banning of DDT and successful recovery projects conducted by federal, state and non-profit agencies, the peregrine was taken off the endangered species list in 1999. This sleek and graceful raptor continues to be protected by the Migratory Bird Treaty Act.

Not one to stay still, the peregrine might travel up to 15,000 miles a year and is known as the "wandering falcon" and the most widespread bird of prey. In 2007, the peregrine falcon was chosen by Idaho to represent the state in the U.S. Mint's Statehood quarter dollar series.

Paul Dunn warms up for the Cycling for the Coast ride.

