



North Carolina Reconsiders a Long Time Ban

By TyAnn Lee

Decisions made in North Carolina’s legislature in 2010 could reverse years of strong policy against using hardened structures to protect state beaches and coastal residents. Since 1985, North Carolina law has banned these structures, including terminal groins and jetties to control erosion along the coast. Previous attempts to change this law have failed. Senate Bill 832, passed by a wide margin this spring was the latest incarnation of efforts to revive support for hardened beach structures. The bill was designed to allow the Coastal Resources Commission to review each application and accompanying environmental impact statement (EIS) individually. The Commission would determine whether a terminal groin is the best solution for any specific location, based on existing variance established by state law. Although the bill got strong backing in the state Senate, it died in the state House when Speaker Joe Hackney would not support it. The vigorous support the bill received raises the specter of its revival when the General Assembly meets in May 2010 for a short session.

As the bill was written, it provided the Coastal Resources Commission with authority to permit construction of terminal groins but not any other type of hardened structure. Understanding how terminal groins and other structures such as jetties differ is essential

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Russian-American Arctic Expedition

By Christine Patrick

In September, I checked off something I’d never even thought to include on my “to do sometime in life” list; spend a month in the Arctic.

As a public affairs specialist in NOAA’s Office of Ocean Exploration and Research, I was offered a once-in-a-lifetime chance to chronicle an Arctic expedition, and an unusual one at that. Under the auspices of the Russian-American Long-Term Census of the Arctic (RUSALCA) Program, American and Russian scientists jointly retrieve and deploy monitoring buoys spanning the Bering Strait between the two countries. In 2004 and again this past summer, scientists added a month-long research expedition venturing further north into the Arctic.

The multiple science teams on the 2009 RUSALCA expedition studied fish, plankton, water properties, ocean acidification, geology, bottom-dwelling organisms, and microbiology. In addition to American and Russian scientists and graduate students, the ship carried two South Koreans, a German, and a Canadian based in Bermuda. And since the Russian ship we used is leased and operated by a New Zealand company, all the on-board announcements were delivered in a Kiwi accent. All in all, about 50 of us piled onto the Russian research vessel *Professor Khromov*.

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All annual reports are now on The Coastal Society website.... For summaries of just what TCS has been doing for the last few years, please click on:
http://www.thecoastalsociety.org/annual_report.html



As I sit at my computer, fall is well underway here in the mid-Atlantic U.S. The foliage colors are stunning, but daytime highs in the 40s, nights in the 30s feel more like December than October. We've just had quite a bit of rain—needed moisture, so we try to feel gratitude, though combined with the cold temperatures, it's been a little bit of a shock to the system.

Not as cold, however, as it was in the Arctic, where one of TCS intrepid Board members only recently returned from a month-long trip. You can read about her experience on the front page of the Bulletin—including the value of the data they were collecting for assessing climate change.

Also on the front page is a TCS student member-written piece about a push to reverse North Carolina state law, which would allow a limited return to hardening coastal shorelines to protect property. You can read more about North Carolina inside this issue, where TCS President Jeff Benoit reports on the Board's Wilmington retreat, and preparation for TCS22. Of course the pressure to protect coastal property isn't just occurring in North Carolina, it's an issue faced on all coastlines, and the effects of global climate change exacerbate concerns.

As always, I would like to encourage all members to consider writing for the Bulletin. There are very likely reports and articles you are researching right now, for work or school that you might use as the basis for a commentary to fellow members. National, international, regional or local, there's a good chance you're working on something that might be useful to others in TCS. If you want to discuss a possible topic, just send me an email; I'll respond quickly to let you know the possibilities.

Whether it's the work of the U.S. Ocean Policy Task Force, changes in energy law, escalating offshore alternative energy development around the globe, rippling impacts of the global economy, stimulus packages, carbon trading arguments everywhere, and the looming world gathering in Copenhagen in December, there's a lot going on that will impact the near and distant future of our coastal areas. I look forward to discussions of much of it here in the Bulletin!

Ellen Gordon
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A pair of crabs survey their floating plastic world. Photographer Karin Malmstrom. Credit Karin Malmstrom/Marine Photobank.

The views expressed herein are those of the authors and do not necessarily represent TCS nor its Board.



TCS 22 CALL FOR PAPERS

Shifting Shorelines: Adapting to the Future

The Coastal Society's 22nd International Conference
June 13-June 16, 2010
Wilmington, North Carolina

Abstracts Due November 6, 2009

The Coastal Society invites submissions for papers, panels and posters that:

- Provide information, knowledge, actions, activities and solutions relevant to solving contemporary coastal problems;
- Integrate science, management, policy and decision-making; and
- Present questions, ideas or case studies that encourage dialogue and the sharing of solutions.

Preference will be given to presentations, panels and posters that complement the conference's theme of adapting to the changing landscape of ocean and coastal resource management and fit one of the five conference tracks. Ideally, presentations and posters should provide case studies or offer innovative solutions in order to spark interactive discussion among the conference attendees during the sessions.

Submission Guidelines

Submissions may take the form of an individual paper, presentation or poster or as a three-person to four-person Panel Session. Submissions should provide case studies or offer solutions to issues that will encourage interactive discussion among conference attendees. Proposals for Panel Sessions are encouraged to incorporate presentations from different disciplines and regions and to offer a diverse set of solutions and opportunity for richer dialogue. TCS 22 has limited space for full-day and half-day workshops. Submissions for workshops are invited and should be relevant to one of the five conference tracks.

For more guidelines on abstract submission, please visit <http://www.thecoastalsociety.org/conference/tcs22/abstract.html>.

Abstract submission is online only.

Abstracts are due by November 6, 2009.

Abstract acceptance will be provided to principal authors by December 18, 2009.

For more information about the 22nd Conference of The Coastal Society, please visit <http://www.thecoastalsociety.org/conference/tcs22/index.html> or e-mail us at coastalsoc@aol.com.



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As the chief scientist pointed out at the beginning of the mission, the undertaking was to be a “blend of change analysis and exploratory research.” Many scientists were eager to resample sites they had visited in 2004; others were more interested in sampling new sites. Dramatic changes in temperature and ice extent are taking place in the Arctic, but how the ocean and its ecosystems are responding is a huge question mark. And since so little biological, geological and physical sampling has been done in the Arctic, there are still many unstudied areas that could yield fascinating discoveries.

The map of potential sampling sites deliberately had more locations than we could visit, so the actual stations were selected, in part, based on what conditions—especially ice—would allow. September is historically the ice-minimum in the Arctic, and the *Professor Khromov* is an ice-strengthened vessel that can withstand some contact with ice. Still, since ice is a navigational hazard and presents real safety issues (such as literally becoming wedged between ice floes; or, think Titanic), we had to choose sites carefully.

Knowing the location of the ice is less straightforward than it would seem. Ice maps are often made from satellite images, and haze and cloud cover interfere; plus, ice projection maps are only updated every few days, meaning they might not have the latest information. Conditions can change quickly. Even a steady wind blowing from one direction can move large masses of floating ice miles within a matter of hours.

We saw ice for the first time in the East Siberian Sea. On the night of September 10, white clumps about the size of a desk chair began to appear. All throughout the night we heard the ship nudging, slicing, or grinding through floating ice. When the sun rose the next day, we were surrounded by breathtaking, bright-white floating sculptures, each one different. Some stuck up at unbelievable angles; others had half-circle bays in the middle; still others resembled animals. Nearly every piece of flat ice had tracks from polar bears or seals. An unusual quiet surrounded the ship: after days of listening to the ocean slosh against the side of the ship and wind whip, the water was perfectly calm. The ice had dampened the swell and chop, and our ship had cut its speed to slalom between ice floes.

Sadly for my camera, within 24 hours we were out of the ice, heading toward the next stations on the map. For several days, oceanographers took samples in quick succession across Herald Canyon, with plans to detect and map the interaction and path of different water masses pouring into the Canyon. Around that time, we received the surprising news that the ice map had been updated and the Arctic ice extent appeared to be the third-smallest ever recorded. A southerly wind had contributed to blow the ice back from even our most northerly stations, which we had expected to be locked in ice and inaccessible. So, once the sampling was finished in Herald Canyon, the *Khromov* covered hundreds of miles over the next few days, moving into international waters, more than 200 nautical miles from any country.



Fish team pulling in otter trawl, Christine Patrick ©

We were headed for the sites of the mysterious seafloor pockmarks, discovered only six years before. It is still not known what caused the depressions, or when they occurred; speculation is that the cause could be giant bubbles of methane, released from the seafloor. Climate scientists are particularly interested in methane, a potent greenhouse gas increasingly released as permafrost on land and under the ocean thaws. RUSALCA scientists hoped the sidescan sonar might be able to sense methane if it still bubbled from the seafloor, or detect dissolved methane in water samples. However, the data they could review during the mission failed to show any clear evidence of methane.

As the geologists reviewed their data, the fishing teams prepared to attempt

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the most northern trawl ever in the Pacific Arctic. At 76.62 degrees north, but still without even an ice cube in sight, the fish team deployed the much-anticipated otter trawl. Although the device spent only about 20 minutes near the bottom, it took a long time to get down to the bottom and back up; two hours, all in all. By the time it was due to surface, in the dark of night, a crowd had gathered. As it came up, something looked off: the two otter doors seemed cockeyed, crooked. When it reached the deck, a murmur of surprise and disappointment rose. Where the net should have held a bulging, unsorted mass of specimens, it was swinging free. A full 15 feet of the net had been ripped off. Worse, those few specimens entangled in other parts of the net, such as the otherworldly sea spider, were interesting and different; what other treasures had the torn net missed?

We hadn't yet found the ice edge, so the *Khromov* headed still further north. On September 21, we awoke surrounded by millions of flat discs of "pancake" ice. The pancakes grew bigger as we pressed on, and larger icebergs came into view, but still no ice edge. When we stopped close to 78 degrees north, some believed they could see the ice edge on the horizon, but we couldn't know for sure.

When the now-repaired otter trawl came back to deck--once again setting the record for the most northern station ever attempted in the Pacific Arctic--it brought back a fish called a glacial eelpout and hundreds of fish ear bones, or otoliths. While the glacial eelpout was known to exist in this area, it has rarely been caught, since the area has been so rarely sampled; naturally, the specimen was prized by the ichthyologists aboard. The collection of otoliths was also not unprecedented, but still unusual. A scientist aboard noted that when another mission had pulled up masses of otoliths, they had dated some of them to 10,000 years old. In the coming days,



Ice Berg, Christine Patrick ©

the fish trawl would also bring up a 5-foot tall deep-water octocoral, which was not known to exist in that area.

Of course, not every day was filled with awe-inspiring ice, dynamic new specimens, or tragicomic failures of the otter trawl. Twenty eight days on a ship is enough time to go through a number of less-than-positive emotions, including homesickness (and seasickness!), boredom, exhaustion, and cabin fever. More than anything, most days were filled with long hours of work--certainly more so for the science teams than anyone. But those long hours allowed a lot of opportunities to learn and grow in ways that would be hard to recreate on dry land. For more information on the 2009 RUSALCA expedition, please visit oceanexplorer.noaa.gov/explorations/09arctic.

Christine Patrick is a Public Affairs Specialist in NOAA's Office of Ocean Exploration in Silver Spring, MD. A member of the TCS Board of Directors, she is Co-Chair of the Chapters Committee as well as the TCS22 Proceedings Editor.



Clean Water Act After Rapanos: US v. Bailey

Description: Gary Bailey constructed a road on a parcel of wetlands in Lake of the Woods, Minnesota, without obtaining a permit under Section 404 of the Clean Water Act (Act). The United States Army Corps of Engineers (Corps) ordered Bailey to restore the land to its pre-violation condition. Bailey refused, and the United States brought an action under Section 309(b) of the Act to enforce the restoration order and to enjoin Bailey from discharging further pollutants into the wetland.

In an enforcement action brought under the Clean Water Act, district court judgment is affirmed where: 1) the Army Corps of Engineer has jurisdiction over the wetland in question under Clean Water Act sec. 309(b) if either the plurality's test or Justice Kennedy's substantial nexus test in *Rapanos v. US* is satisfied; 2) defendant's property met the substantial nexus test as it was situated in

a wetland adjacent to navigable-in-fact waters; 3) the court did not err in admitting the Corps' expert evidence establishing the existence of wetlands as the evidence was reliable and satisfied the Daubert test; 4) the court's order requiring Bailey to restore the wetlands in question was not arbitrary or capricious, and did not violate defendant's equal protections rights; and 5) the court did not abuse its discretion in issuing a permanent injunction ordering defendant to restore the wetland to its pre-violation condition.

Excerpted from Lexapedia, <http://www.morelaw.com/verdicts/case.asp?n=08-1908&s=MN&d=40647>, and from Findlaw, http://blogs.findlaw.com/eighth_circuit/2009/07/us-v-bailey-no-08-1908.html
Full opinion: <http://www.ca8.uscourts.gov/opndir/09/07/081908P.pdf>

Acid in the Oceans: A Growing Threat To Sea Life: NPR

Biologists have realized that rising acid levels in the ocean can affect many other forms of sea life than just shellfish and corals. While acidic ocean water can literally dissolve shells, a second wave of research on ocean

acidification has biologists trying to understand the consequences for all the life in the sea. A change in acid can actually impose a subtle "energy tax" on marine animals. They already use some energy pumping acid out of their cells to maintain a healthy pH. As the oceans get more acidic, animals will be forced to expend more energy to maintain that balance. That means less energy for such things as growing and reproducing, says Eric Pane, a marine biologist at Monterey Bay Aquarium Research Institute. "So we're going to be looking at growth rates



Sea spider, Christine Patrick ©

of organisms over a long time," he says. "We're going to be looking at fecundity, amount of offspring produced. The health of offspring produced. And then try to extrapolate in a long term approach into what's going to happen to these ecosystems that we know."

"The quantity of carbon dioxide we've put in the ocean is now well over 500 billion tons," says Peter Brewer, also of the same Institute. "And you can't just transfer that much mass without making changes to the physical properties as well as the biological properties." The carbon dioxide has already altered ocean chemistry in such a way that it affects the way sound travels through the ocean. That effect will grow, as more and more carbon dioxide ends up in the sea. Excerpted from NPR's All Things Considered. <http://www.npr.org/templates/story/story.php?storyId=111807469>

Key New Findings Regarding Climate Change

The Pew Center on Global Climate Change has published a summary of key developments in climate science since the release of the 4th Assessment Report in 2007 by the Intergovernmental Panel on Climate Change (IPCC). The majority of the new developments described are based entirely or partially on direct observations of climate change. They conclude that, in general, the IPCC projections now appear rather conservative in light of more recent observations and improved modeling techniques. <http://www.pewclimate.org/brief/science-develop>

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ments/June2009.

Good Morning, America! The Explosive U.S. Awakening to the Need for Adaptation

This report provides an historical overview of the public, political, and scientific concern with adaptation in the US and identifies a number of barriers to basic adaptation planning and more ambitious policy developments. Recommendations are provided. <http://www.csc.noaa.gov/publications/need-for-adaptation.pdf>

Sinking Deltas

A new study led by the University of Colorado at Boulder indicates most of the world's low-lying river deltas are sinking from human activity, making them increasingly vulnerable to flooding from rivers and ocean storms. The researchers concluded the sinking of the deltas from Asia and India to the Americas is exacerbated by the upstream trapping of sediments by reservoirs and dams, man-made channels and levees that whisk sediment into the oceans beyond coastal floodplains and the accelerated compacting of floodplain sediment caused by the extraction of groundwater and natural gas. The study found that 24 out of the world's 33 major deltas are sinking and 85% experienced severe flooding in recent years, resulting in the temporary submergence of roughly 100,000 square miles of land. About 500 million people in the world live on river deltas. The authors predict that global delta flooding could increase by 50% under current projections of about 18 inches in sea level rise by the end of the century as forecast by the 2007 Intergovernmental Panel on Climate Change report.

<http://www.nature.com/ngeo/journal/vaop/ncurrent/index.html>

Weather and Climate Extremes in a Changing Climate

Scientific evidence suggests that a warming world will be accompanied by changes in the intensity, duration, frequency and geographic extent of weather and climate extremes. Changes in extremes are already observed to be having impacts on social, economic and natural systems. Examples of changing extremes:

*Most of North America experiences more unusually hot days and nights and fewer unusually cold days. The number of heat waves has been increasing since 1950.

*There has been a decrease in frost days

*Extreme precipitation episodes have become more frequent and intense and now account for a larger percentage of total precipitation.

*Atlantic tropical storm and hurricane destructive potential has increased substantially since about 1970.

*Storm tracks have shifted northward in both the North Atlantic and North Pacific over the past 50 years. The

strongest cold season storms are becoming even stronger in the North Pacific.

http://www.externalaffairs.noaa.gov/pdf/CCSP%203.3%20Companion%20Brochure_Jun%2016%2011am.pdf

Offshore Wind Energy

The world's largest offshore wind farm went into operation on Thursday, September 22 at a site 30 kilometers off the coast of Denmark. The farm, called Horns Rev 2 consists of 91 turbines spread over a 35-square kilometer area. The farm is projected to generate 209 megawatts or enough electricity to supply 200,000 households. The total cost of the project was about \$1 billion. Andris Piebalgs, the European Union Energy Commissioner, said on Monday that a study by the European Wind Energy Commission showed offshore wind could be the dominant source of employment in the sector in Europe by 2025, providing 200,000 jobs. <http://greeninc.blogs.nytimes.com/2009/09/15/largest-offshore-wind-farm-to-go-online/>

EPA to Set Water Quality Criteria For Phosphorus and Nitrogen in Florida Waters, Paving the Way for Other States to Follow

EPA, in a potentially precedent setting consent decree, has agreed to set numeric water quality criteria for nitrogen and phosphorus in Florida's waters. Florida already has a qualitative, narrative criterion for nutrients, but no specific numeric limits. Under the consent decree, EPA must propose nutrient criteria for Florida's lakes and streams by January 2010 and for coastal waters and estuaries by January 2011. Excerpted from Marten Law Group newsletter. <http://www.martenlaw.com/news/?20090915-fla-water-quality-criteria>

Plastics Break Down Fast in Ocean

Plastics decompose with surprising speed in the oceans, releasing contaminants into the water, according to new research. The huge amount of plastic waste in our seas has previously been regarded as a long-lasting pollutant that does not break down easily. Researchers who presented their work at a meeting of the American Chemical Society (ACS) suggest otherwise. Most attention has focused on dangers that visible items of plastic waste pose to seabirds and other wildlife. But the researchers found that plastic in the ocean actually decomposes as it is exposed to the rain and sun and other environmental conditions, giving rise to yet another source of global contamination that will continue into the future. Dr Saido, a chemist at Nihon University in Chiba, Japan, said his team found that when some plastics decompose they release the chemicals bisphenol A (BPA) and poly-

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styrene (PS) oligomers into the water. Previous studies in animals suggest that, at particular doses, exposure to BPA can disrupt hormone systems. Plastics do not usually break down in an animal's body after being eaten. However, the substances released from decomposing plastic could be absorbed, say the researchers. But it is unclear whether marine animals are being exposed at sufficient concentrations to cause concern about the effects of these compounds. From EUCC News.

<http://www.eucc.net/en/news/CMN09-04.pdf>

Nuisance Law and Global Climate Change

In a decision that may place even greater pressure on Congress to enact climate change legislation, the Second Circuit Court of Appeals has allowed a nuisance case against five of the nation's largest utilities to proceed because no federal climate change laws "preempt the field." Eight states and the City of New York brought federal common law nuisance claims against the utilities, based on their emissions of greenhouse gases. The Circuit Court's lengthy opinion in the case of Connecticut et al v. American Electric Power Co., Inc. also affirmed that three environmental land trusts could press similar claims.

The plaintiffs' claims were initially dismissed in 2005, after a federal district court held that they raised political questions which were so intertwined with national domestic and foreign policy on global warming that they were non-justiciable (i.e., not capable of being decided by legal principles or a court of law). Reversing that decision, the Second Circuit held that while the claims had political implications, they remained justiciable in the federal courts and that the states, the City and the land trusts all had standing to pursue those claims. While acknowledging that the EPA or Congress could still issue regulations or adopt legislation that pre-empted the field, neither has done so. Therefore, the Court held that the plaintiffs' claims were not displaced by other federal law or regulation. The Court concluded its opinion by paraphrasing the Supreme Court's earlier opinion in *Illinois v. City of Milwaukee*, in which the Supreme Court anticipated subsequent regulation under the Clean Water Act: "It may happen that new federal laws and new federal regulations may in time pre-empt the field of federal common law of nuisance. But until that comes to pass, federal courts will be empowered to appraise the equities of the suits alleging creation of a public nuisance by greenhouse gases". Excerpted from Marten Law Group newsletter. <http://www.martenlaw.com/news/?20090923-global-warming-nuisance-claims>

TCS Board Hosts TCS22 Promotional Luncheon

By Jeff Benoit

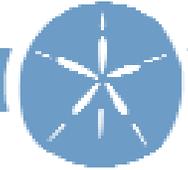
On June 1, 2009, the TCS Board of Directors and Taylor and Francis Publishers hosted a promotional kick-off luncheon at the Hilton Wilmington Riverside hotel in Wilmington, NC, site of The Coastal Society's 22nd International Conference (TCS22), to be held there on June 13-16, 2010. Presiding over the luncheon were TCS22 Co-Chairs Lisa Schiavinato, North Carolina Sea Grant and TCS president-elect, and Todd Miller, North Carolina Coastal Federation. Also in attendance were about 50 individuals from the North Carolina area representing local, state and federal governments, local businesses, universities, and local nongovernmental organizations.

The purpose of the event was to introduce The Coastal Society and our conference to the local community, to offer examples of the types of issues TCS22 will encompass and to provide an opportunity to receive input on how TCS can best highlight coastal North Carolina issues as part of our 22nd conference.

The luncheon consisted of brief presentations by three distinguished and knowledgeable speakers on significant issues facing coastal North Carolina. Heather Burkert, landscape architect with H. Burkert and Company, spoke about her experience incorporating low impact development elements into her design work. Jason Doll, Stantec Consulting, spoke about water resource issues associated with the Lockwood Folly River. The final speaker, Gregory Rudolph, of the Carteret County Shore Protection Office, discussed many of the problems facing local beaches including beach erosion and development pressures.

Following the three presentations, Tricia Ryan of the National Oceanic and Atmospheric Administration Coastal Services Center moderated an open discussion with luncheon attendees to generate more ideas for TCS22 themes. All of the feedback received from the luncheon has been provided to the TCS22 Planning Committee for consideration. This was the first time that TCS hosted such an event to promote one of its conferences and the Board received some solid feedback and great ideas from the participants.

Jeff Benoit is President of The Coastal Society



to this discussion. While terminal groins are described as sediment management structures, jetties are used for navigational purposes. Jetties are usually found in pairs; they are designed to hold a channel in place and prevent sand from accumulating in the channel. A major concern with Senate Bill 832 was that terminal groins would be broadly defined as structures “at the end of a littoral cell or on the side of an inlet to *limit or control sediment passage into the inlet channel.*” (Emphasis added) (SB 832 Section 1, (a) (4) lines 6-8, source: <http://ncleg.net/Sessions/2009/Bills/Senate/PDF/S832v2.pdf>) The Senate bill’s open definition of terminal groins as well as lack of size or specific design requirements would allow the possibility for other coastal structures such as jetties and sea walls to be built. As proposed, terminal groins could be constructed at inlets or “*on an isolated segment of shoreline where it will not interrupt the natural movement of sand.*” (Emphasis added) (SB 832, lines 13-15, source: <http://ncleg.net/Sessions/2009/Bills/Senate/PDF/S832v2.pdf>) In other words, these structures are not exclusive to inlet locations. One of the benefits of North Carolina’s hardened structures ban has been the dearth of lawsuits related to erosion control structures. This would certainly change given the open terminology of this bill. There would likely be legal battles over hardened structures and the erosion that they could possibly cause, leaving coastal management decisions up to the

court’s interpretation—a very undesirable method of beach management.

The effect of jetties and groins is well understood. These structures hold sand in one area, but ultimately displace sediment and intensify erosion down-drift of the structure. Terminal groins can impact near-shore circulation by directing currents offshore, especially during storms. If a significant portion of sand is transferred offshore following a storm, terminal groins are left uncovered. In this position, the groin is particularly destructive, blocking long shore transport until the cell is filled up again. Ultimately, using hardened structures to protect private property could alter nearby beaches and inhibit public access, recreation, and tourism. Western Carolina University’s Program for the Study of Developed Shorelines issued a position statement on the effects of terminal groins. Signed by 43 prominent coastal and earth scientists, it states that, “There is no debate: a structure placed at the terminus of a barrier island, near an inlet, will interrupt the natural sand bypass system, deprive the ebb and flood tide deltas of sand and cause negative impacts to adjacent islands.” The undisturbed flow of sand through natural inlets is an important mechanism for maintaining barrier island dynamics. Blocking this flow of sand will inhibit the ability of the barrier island to respond to rising sea level and storms.



Guess the set back line.....? Jeff Benoit ©

Two terminal groins already exist in North Carolina, one at the beach at Fort Macon and another on Oregon Inlet at the US Fish and Wildlife Service’s Pea Island Wildlife Refuge. Proponents of the Senate bill pointed to these examples as success stories. These structures have been referred to as jetties in the past but are considered terminal groins in Senate Bill 832’s terminology. North Carolina coastal scientists found that beaches in the neighborhood of both structures have required nourishment for decades, with estimates of at least 20 million cubic yards of sand costing \$43 million—before adjusting for inflation. At best, these

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structures have no impact on the stability of the island adjacent to it but at worst, they cause down-drift erosion, necessitating nourishment. Furthermore, detailed analyses have been published showing that the structure at Oregon Inlet has undermined the stability of a highway on the Outer Banks and requires constant maintenance.

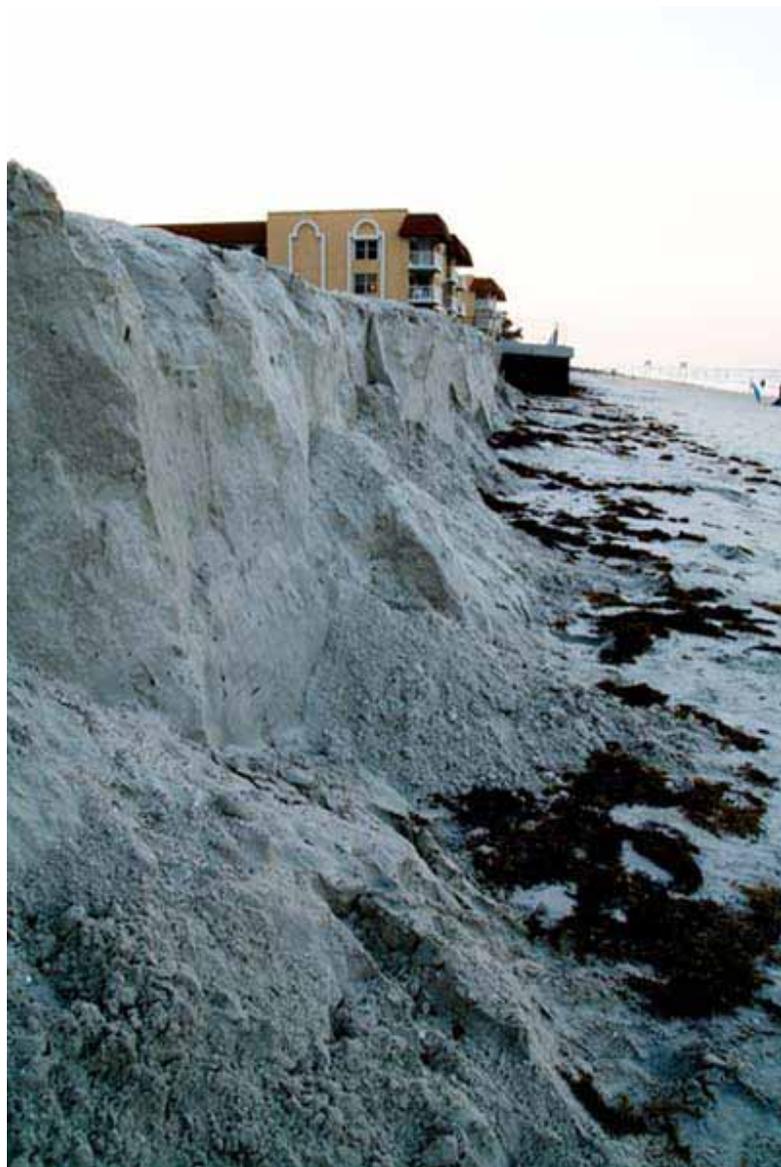
In 2003, the North Carolina Legislature voted unanimously to ban the construction of new permanent erosion control structures on shorelines and inlets. This unity illustrates the recognition that the 1985 ban on hardened structures was sound environmental management policy. Our scientific understanding of erosion control structures has not changed since this rule was promulgated, so the current push to overturn or weaken the ban may be seen as a concession to the economic and political realities of protecting beachfront property. Homes and businesses continue to be built in dynamic inlet areas that shift over time; the pressure on governments to bend beach development rules persists. Counties and towns are dependent on the property and tourism-related tax revenue that these beachfront buildings provide, particularly when the costs of beach rebuilding projects get passed on to state and local governments. North Carolina's ban on hardened structures is laudable but the feeble enforcement of temporary erosion control measures, such as sandbags, may have made it easier for the state to reconsider terminal groins. Sandbags are supposed to be removed after a more permanent solution is found, but many have remained on beaches beyond their authorized permit, with little consequence. As sea level continues to rise and beach erosion worsens, the political pressure to ease the hardened structures ban will remain. North Carolina's current reconsideration of terminal groin use may be a compromise between stakeholders on both sides of the issue.

The passage of House Bill 709 (<http://ncleg.net/Sessions/2009/Bills/Senate/PDF/S832v2.pdf>) and Senate Bill 838 (<http://ncleg.net/gascripts/BillLookUp/BillLookUp.pl?Session=2009&BillID=S838>) in August are the latest attempt to provide legitimacy to hardened structures while keeping the ban in place. Now ratified and signed into law as S.L. 2009-484, they call for a feasibility study—due April 1, 2010--of terminal groins as erosion control measures. The Coastal Resources Commission has hired an engineering firm to prepare the study and to help guide their recommendations to the North Carolina legislature.

It is impossible to indefinitely maintain our coastline the way it is; trying to do so is expensive and difficult. Structures like the proposed groins are temporary solutions to larger problems of beachfront erosion and rising sea

level that coastal North Carolina must confront. Rather than the short-sighted answers offered by the Senate bill, North Carolina must focus on realistic long term policies that can support coastal communities for future generations.

TyAnn Lee is a TCS member pursuing a Master of Environmental Management at Duke University. Her focus is on coastal policy and governance.



Example of beach erosion in New Smyrna Beach, Florida. Credit Joe Flood/Marine Photobank



20th Biennial Conference of the Coastal and Estuarine Research Federation; Estuaries and Coasts in a Changing World

November 1-5, 2009, Oregon Convention Center, Portland, Oregon

Abstract submission deadline: May 15, 2009.
<https://www.sgmeet.com/cerf2009/>

International Symposium on Integrating Offshore Renewable Energy Systems & Aquaculture

November 2-4, 2009, Newport, RI

<http://seagrant.gso.uri.edu/baird/2009/index.html>

2nd International Conference on Progress in Marine Conservation in Europe 2009

November 2-6, 2009, Stralsund, Germany

<http://www.bfn.de/habitatmare/de/aktuelles-progress-in-marine-conservation-in-europe-2009.php>

MEDCOAST 09, 9th International Conference on the Mediterranean Coastal Environment

November 10-14, 2009, Sochi, Russia

<http://www.medcoast.org.tr>

International Conference on Coastal Zone Management of River Deltas and Low Land Coastlines

March 6-10, 2010, Alexandria, Egypt

<http://www.nwrc-egypt.info>

ICCCM'10 International Conference on Coastal Conservation and Management in the Atlantic and Mediterranean

April 11-17, 2010, Estoril, Cascais, Portugal

<http://icccm.dcea.fct.unl.pt>

**Monitoring from the Summit to the Sea
7th National Conference of the National Water Quality Monitoring Council**

April 25-29, 2010, Denver, CO

<http://acwi.gov/monitoring/conference/2010/index.html>

**Fifth Global Conference on Oceans, Coasts and Islands
Global Oceans Conference 2010; Advancing Integrated Ocean Governance at National, Regional, and Global Levels**

May 3-7, 2010, 9 UNESCO Paris, France

http://www.omrn-rrgo.ca/bulletinBoard/GOC2010_Flyer.pdf

Coastal Zone Canada 2010

July 25-29, 2010, Charlottetown, Prince Edward Island,

Canada

<http://www.gov.pe.ca/czc2010>

6th International Conference on Marine Wastewater Discharges and Coastal Environment

October 25-29, 2010, Langkawi, Malaysia

http://www.mwwd.org/site/page.asp?dsy_id=3331

2nd International Symposium on Integrated Coastal Zone Management

June 12-16, 2011, Arendal, Norway

<http://www.imr.no/iczm/homeces>

LITTORAL 2010 "Adapting to Global Change at the Coast: Leadership, Innovation, and Investment"

September 21-23, 2010, London, UK

<http://www.coastnet.org.uk/Littoral2010>

XXIII International Coastal Conference: Coastal Evolution Studies: Traditions and Modern Concepts

October 5-9, 2010, St. Petersburg, RUSSIA

<http://www.rshu.ru/IOC50/>



The Nile delta from space. Credit: Jeff Schmaltz, MODIS Rapid Response Team, NASA/GSFC



Duke University

On September 5th we hosted the 9th annual Neuse Riverkeeper Foundation sprint triathlon fundraiser, to raise money for the local waterkeeper program. Here are two articles on the event: <http://news14.com/?ArID=614265&ap=1&Flash>
<http://www.newbernsj.com/news/river-47678-fish-neuse.html>

We hosted a cleanup site for International Coastal Cleanup Day on Sept. 19th, in cooperation with the North Carolina Coastal Federation and Hammock's State Beach Park. Duke students and faculty cleaned up Huggins Island, which is part of the State Park. There were over 50 volunteers in total, cleaning up three Park islands. Here is an article that ran prior to the event: <http://www.jdnews.com/news/beach-67756-clean-hammocks.html>. We are still tallying the results of our efforts; they will be posted on our website soon!
<http://www.nicholas.duke.edu/people/students/tcs/index.htm>

We are hosting a distinguished lecturer this fall: Dr. Kenneth MacLeod, a professor in the Dept. of Geological Sciences at University of Missouri-Columbia. We were awarded this lecturer as part of the Ocean Leadership Distinguished Lecturer Series, coordinated by the Consortium for Ocean Leadership.



Duke University: International Coastal Cleanup Day

University of Rhode Island

We kicked off this school year with a fall information meeting. Our first activity will be coordinating Beach Clean Ups on October 17th. We plan to start at Bass Rock, where we were previously given a signpost by the Coastal Resources Management Council (CRMC) for the Town of Narragansett. This is a part of the "Adopt-an-Access" program, which preserves and promotes the safe and unobstructed use by the public of CRMC-designated rights-of-way to the shore. We will also be cleaning up Newton and Hazards beaches, when we've finished Bass Rock. These locations have a tendency to collect more debris that washes up from the shore or open ocean, rather than people's left-behind trash.



Duke University: triathlon fundraising event



TCS Board: Looking into the Future

By Jeff Benoit

The Coastal Society Board of Directors met for a retreat, from May 30 to June 1, 2009 in Wilmington, NC at the Wilmington Riverside Hilton, site of TCS22 next June 13-16, 2010. Meeting in the same hotel allowed the Board to see the actual facilities where the conference will be, and to get a sense of the surrounding commu-

nity of Wilmington. A few Board members, families, and friends arrived on the Saturday before the TCS retreat and enjoyed a tour of local beaches, led by Spencer Rogers of North Carolina Sea Grant. During the tour, Spencer pointed out the many difficult shoreline management issues--such as building setbacks and stabilization efforts--that face North Carolina.

TCS mission statement, which, as you see, changed only slightly to highlight “emerging” coastal issues. The second objective was to review the priorities I set for my tenure as President (actions that support a sustainable membership, establishing a diversified and stable financial portfolio, engaging students, and support of our chapters). The third objective was for each TCS Committee to develop clear and achievable actions for the next two years, in direct support of TCS goals and reflecting the president’s priorities.



Back row, left to right: Spencer Rogers, tour guide; Tali Engoltz, Jeff Benoit, Lisa Shiavinato, Judy Tucker. Front row, left to right: Tricia Ryan, facilitator from NOAA CSC, Helene Scalliet. Credit, Randy Flood.

We continue to work on a number of these activities and over the next few months the results will be posted on the TCS website. Overall, we had a successful retreat and found Wilmington to be beautiful, hospitable, with fabulous restaurants, and the perfect venue for TCS22...I can’t wait to see you there!

Mission:

The Coastal Society is an organization of private sector, academic, and government professionals and students. It is dedicated to actively addressing emerging coastal issues by fostering dialogue, forging partnerships and promoting communications and education.

By Sunday morning, other Board members joined us, and for a day and a half, we focused our attention on TCS. The agenda was tightly focused, to achieve maximum results in this short period of time. We were very fortunate to have Tricia Ryan of NOAA’s Coastal Services Center facilitate the meeting, and through a combination of her good guidance and some hard work and humor on our part, we accomplished the three primary objectives of the retreat. The first was to review the accuracy of the

nity of Wilmington. A few Board members, families, and friends arrived on the Saturday before the TCS retreat and enjoyed a tour of local beaches, led by Spencer Rogers of North Carolina Sea Grant. During the tour, Spencer pointed out the many difficult shoreline management issues--such as building setbacks and stabilization efforts--that face North Carolina.

Member Benefits

One of your newest TCS benefits is online access to the Coastal Management Journal. The latest issue includes the following articles:

Stimulating Vertical Integration in Coastal Management in a Federated Nation: The Case of Australian Coastal Policy Reform by Geoff Wescott

Stakeholder Collaboration and Organizational Innovation in the Planning of the Deschutes Estuary Feasibility Study by Thomas G. Safford, Mergen L. Carlson and Zachary H. Hart



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MEMBERSHIP APPLICATION TO THE COASTAL SOCIETY

(Please print out and complete all blanks.)

Name: _____
Last First Middle Initial

Organization: _____

Street: _____

City/State/Zip: _____

Home Address (if preferred mailing address):

Day Phone: (____) _____ E-Mail: _____

Present Occupation: _____

Primary Interest: _____

Sponsored/Referred by: _____

Signature: _____ Today's Date: _____

Type of Membership:

Individual Regular: ___ \$60 U.S. 1-year

Student: ___ \$20 U.S.

U.S. Library: ___ \$50 U.S.

Corporate/Agency: ___ \$250 U.S.

Dues Payment:

Select membership category.

To pay by check: Make check payable to: The Coastal Society. Please mail check and application to: PO Box 3590, Williamsburg, VA 23187-3590.

To pay by credit card: We cannot accept credit card information other than through the PayPal option. Please go to the TCS online membership form if you wish to pay by credit card (<http://www.thecoastalsociety.org/membersub.html>).

Thank you for your support.

The Coastal Society is an organization of private sector, academic, and government professionals and students dedicated to actively addressing emerging coastal issues by fostering dialogue, forging partnerships, and promoting communication and education.