

NC COASTAL RESOURCES COMMISSION (CRC)
November 15-16, 2012
Vernon James Research & Extension Center
Plymouth, NC

Present CRC Members

Bob Emory, Chair
Joan Weld, Vice Chair

Renee Cahoon
David Webster
Jerry Old
Bill Peele

Joseph Hester
Jamin Simmons
Lee Wynns
Veronica Carter

Present CRAC Members

Charles Jones
Tim Tabak
Ray Sturza
Morgan Jethro
Wayne Howell

Harry Simmons
Ben Rogers (for Bryant Buck)
Joe Lassiter
Phil Harris
Webb Fuller

Present Attorney General's Office Members

Mary Lucasse
Christine Goebel

CALL TO ORDER/ROLL CALL

Bob Emory called the meeting to order reminding the Commissioners of the need to state any conflicts due to Executive Order Number One and also the State Government Ethics Act. The State Government Ethics Act mandates that at the beginning of each meeting the Chair remind all members of their duty to avoid conflicts of interest and inquire as to whether any member knows of any conflict of interest or potential conflict with respect to matters to come before the Commission. If any member knows of a conflict of interest or a potential conflict of interest, please state so when the roll is called.

Angela Willis called the roll. No conflicts were reported. Pat Joyce, Melvin Shepard and Ed Mitchell were absent. Based upon this roll call, Chairman Emory declared a quorum.

Renee Cahoon, Bob Emory, Veronica Carter and Jamin Simmons read their Evaluations of Statement of Economic Interest from the State Ethics Commission which indicated they did not find an actual conflict, but did find the potential for a conflict of interest. The potential conflicts identified do not prohibit service.

MINUTES

Veronica Carter made a motion to approve the minutes of the August 2012 Coastal Resources Commission meeting. David Webster seconded the motion. The motion passed unanimously (Weld, Cahoon, Hester, Webster, Old, Peele, Carter, Simmons)(Wynns absent for vote).

EXECUTIVE SECRETARY'S REPORT

DCM Director Braxton Davis gave the following report.

A DCM update memo was provided in your packets that covers recent permitting, enforcement, rule development, planning and Coastal Reserve activities within the Division. Some notable items include the recent Secretary's three-month extension of our Emergency General Permit for the replacement of structures damaged by Hurricane Irene. We think the three month extension will be a big help to a number of property owners, especially in this region, who have experienced unavoidable construction delays or delays in obtaining insurance settlements. We have updated information on our permitting trends and our recent issuance of a CAMA Major Permit for the Bonner Bridge replacement. You will also find updates on proposed rules as well as some non-regulatory program activities being led by DCM's policy and planning section related to estuarine shoreline management, the BIMP and land use planning activities. You will also find an update on our Coastal Reserve program and their recent Local Advisory Committee meetings and appointments.

I also want to provide an update on the Division's activities in response to Hurricane Sandy and the nor'easter that followed last week. Significant beach erosion and coastal flooding occurred as Hurricane Sandy passed offshore of North Carolina in late October with the greatest impacts felt in Dare County, especially Kitty Hawk and Kill Devil Hills, and overwash along several segments of NC-12. I was able to fly the coast to assess damage last week, and staff in each of our District offices conducted immediate post-storm damage assessments and coordinated closely with local governments, NCDOT and other state agencies before, during and after the storms. We also worked with Secretary Freeman for the issuance of an Emergency CAMA General Permit that allows for emergency dune reconstruction in beachfront communities with no permit application fee and reduced permit processing requirements. Frank Jennings, District Manager in DCM's Elizabeth City district office, opened a temporary office in Southern Shores in Dare County to answer questions and help people affected by the storm navigate any state and federal permitting requirements for repairs.

We had a fantastic field trip yesterday. I want to express our sincere appreciation for the significant work that Commissioners Simmons and Peele put into this field trip. I would also like to thank Rufus Croom of NRCS and Mac Gibbs from the Hyde County Cooperative Extension as well as Hyde County, the Blackland Farm Manager's Association, Impact Agronomics, and the NC Farm Bureau. I would also like to commend the work that DCM staff have done to pull the field trip and this meeting's agenda together. In working with the Executive Committee, I hope you'll agree that we have a very good agenda for this meeting. We will be discussing drainage issues in this region, sea level rise, and agricultural practices that are important issues in this region as well as an update on the work being conducted in accordance with HB819. There are also updates on several proposed rules and other efforts that DCM staff are engaged in. I hope you'll be able to join us for a poster reception to recognize the outstanding work of this year's Walter B. Jones Memorial Awards for Coastal and Ocean Resource Management. These are national awards for excellence in our field. It should be noted that North Carolina nominees received seven of the fourteen national awards made this year.

Finally, I would like to thank NCSU and the Vernon James Center for allowing us to hold the meeting here today. We now have dates set for the 2013 CRC meetings. The locations for these meetings will be largely budget-driven but we are going to try to have our February meeting in Wilmington. We would like to travel to Nags Head in April and then back to Carteret County in

July. Please let me know if you have any thoughts or suggestions on locations for Commission meetings.

I spoke with the Governor's office a couple of days ago. There are still two outstanding reappointments that are in the works as well as two vacancies to be filled.

CHAIRMAN'S COMMENTS

Bob Emory stated the field trip was very helpful in gaining a better understanding of the issues in this area including salt water intrusion and other sea level rise related problems. We were also able to see some of the adaptation measures that are already being taken. It was clear that there is a big challenge here with the rising water levels. The last Science Panel meeting was well attended and there was a good exchange with the Science Panel about the interaction between the Commission and the Panel. One of the outcomes was identifying the need for the Commission to be much more specific when we ask the Science Panel to do something. This will allow them to be more efficient and will help them to stay focused on the real needs. We will have requests of the Panel to help with HB819 and we need to be very specific.

Renee Cahoon gave a Dare County update following Hurricane Sandy. She stated NC12 and Hatteras Island were hit the hardest. Some houses have been condemned and one house was lost. The beach nourishment in Nags Head worked exactly the way it was designed to work and there was minimal damage. There was some ocean overwash. Kill Devil Hills and Kitty Hawk had more damage.

PRESENTATIONS

Unique Challenges Facing Eastern NC related to Sea-Level-Rise and Drainage Issues Paul Lilly, NCSU Assoc. Prof Emeritus, Department of Soil Science

Paul Lilly stated this is an area that has been impacted for a very long time and has an interesting history and interesting geology with a problematic future. We are located in the tidewater area. This is a relatively young landscape. All of the surface features in the coastal plain were shaped by the ocean or by rivers. The main factor that has shaped the coastal plain into what it is now and what it will become is continental glaciations. There were small glaciers in the North Carolina mountains, but that impact had no affect on us here. The continental glaciers tied up such vast amounts of sea water that the sea level rose and fell substantially. The coast at that time was in the vicinity of Raleigh. Glaciers covered what are now the Great Lakes and all of the northern part of the continent. Sea level was 400 feet below the present level and the coast line was much further east than it is today. As sea level has risen and fallen and paused at different times over the years we have formed scarps. The elevation in Plymouth is quite low. The elevation at the foot of the Suffolk Scarp is twenty feet and the land slopes at about one foot per mile to the coast from there. According to the Corps of Engineers, since colonization took place by Europeans sea level has been rising at about one foot per 100 years. That is not a long, slow, gradual rise over thousands of years, but it comes in spurts and sometimes reverses. More recently it has been rising one foot per 100 years. That means that since the first colonists came to this region, sea level has probably risen at least four feet. Four feet on this landscape is significant. When you see some of the houses and businesses that are located in areas that seem to be awfully wet today you wonder why they located here. When they were put there it wasn't that wet. Sea level has risen and made it wet. If global warming increases then the rate of sea level rise will likely increase also. There is marsh migration due to rising sea level. The Corps has estimated that a one foot rise in sea level can cause about 1,000 feet of migration on this landscape. Without protection a lot of the crop land near the

Pamlico Sound is subject to saltwater overwash. Lunar wind tides cause the salt to move up the canals and flood the land. This is not uncommon. A lot of places that are now marsh have been crops in the past. The coastal area of North Carolina has never been stable for very long. It has always been in transition from one state to another. The lower coastal plain and tidewater because of its flatness and newness is characterized by wetlands. The factors of wetland formation on this landscape are high rainfall or high water table, flat topography, slow movement of water downward, and large distances between drains. The counties in this region have a high proportion of wetlands. Hydric soil by itself is not the definition of a wetland, but it is close. Hyde County is 97.3% hydric soil. Because of the prevalence of wetlands, artificial drainage and water management have been necessary for agriculture, forestry and construction in much of the coastal zone.

With the population expansion by 1734 the Governor reported that all plantable land along navigable streams had been taken up. There was pressure and demand for more cropland. The first place people looked was the Great Dismal Swamp. This was the first deep organic swamp attempted to be farmed. Before the Revolution, George Washington and other investors obtained the rights to about 40,000 acres of land in the Great Dismal Swamp. Washington had about a 5,000 acre share in The Dismal Swamp Land Company. He believed the land could be drained and used for farming. There was little profit in it so he started producing Jumpier shingles after the Revolutionary War which proved very profitable. The land eventually became part of the Camp Manufacturing Company and is now part of the Dismal Swamp National Wildlife Refuge. During this time there was a canal dug and it was called "Washington's Ditch". It was surveyed in 1768 and dug shortly after. It is still there. A watershed event occurred after the Revolutionary War. All land that had been Crown land became state property which had great implications. The state took over the management of public lands. This introduced a time of tremendous land speculation and land development. Most all of the unclaimed land was swampland. The first development in truly deep organic soils was at Lake Phelps in Washington County. The state issued a permit for a group of investors to drain Lake Phelps. After they began their development they found that they had enough elevation for water power and irrigation and the lake was not drained. Josiah Collins and his partners did drain about 100,000 acres near Lake Phelps with a six mile canal that was dug around 1787-1788. That canal is now the county line between Tyrrell and Washington counties. Somerset Place Plantation on the shores of Lake Phelps was built in the 1830's and is now a state historic site. The Plantation was successful. As a result of the success, the state got into the land development business in the early 1800's. The state had invested with the swamplands as a way to raise money for public education. The state endowed the fund with money for land development. A canal was dug at Pungo Lake in 1843, at New Lake in 1843, a canal in Fairfield in 1849, and a canal at Lake Landing in 1838. This was all an attempt to develop swamplands sold to support the Literary Board. The Lake Landing canal was done on a petition of the landowners and lowered the level of the Lake by three feet in 1838. The Lake has never retained the previous depth. The first canals at Open Ground were dug in the 1850's under the same program. After the Civil War, North Carolina was bankrupt and interest turned to logging the swamps. The state had huge tracts of valuable, virgin timber. Entrepreneurs from the north came in and took advantage of it. Before the Civil War there was very little heavy logging in the swamps. After the Civil War people of the north brought in narrow gauge logging railroads into the region. There was extensive logging from about 1870-1900's. One of the largest companies was the Roper Lumber Company. In 1907 Roper owned 600,000 acres of land and had cutting rights on 200,000 more. The town of Roper (formerly named Lees Mill) was renamed for the large sawmill located there. Norfolk and Southern Railroad later bought out Roper to obtain their railroad right of ways. This was a time of great abundance and waste in lumbering. There were a number of other lumber companies to the east. Richmond Cedar Works owned most of Dare County and parts of Tyrrell. There was no reforestation. Reforestation

did not come to North Carolina until about the 1930's. They wound up with a lot of cut over forest land that for all practical purposes was worthless at that time. Owners of the cut over land, including Norfolk and Southern Railroad, promoted land sales and development and invented the term, "The Land of Tall Corn".

A major turning point to state drainage was the State Drainage Act of 1909. The Act made it possible for people to band together and form drainage districts. By 1911, drainage districts were covering 700,000 acres. By 1928, it was estimated that over 500,000 acres had been drained. Lake Mattamuskeet was drained in 1916, 1920, and 1926. There was no equipment for large-scale land clearing so it was all done by hand. A pumping station was built and the shell of the building is still there today. The pumping capacity was 1,200,000 gallons per minute. At the time it was the largest pumping station in the world. A plan for the Town of New Holland was laid out. The town was built on the bottom of Lake Mattamuskeet around 1921-1923. Part of the lake bottom was farmed. By 1932 the Lake was full again. The land was purchased by the federal government in 1934 and today it is Mattamuskeet National Wildlife Refuge. There was very little activity in the region between the first and second World Wars because of the Great Depression and because there was a land surplus. After the Second World War, interest turned back to clearing swamp lands with the advances in equipment technology and attractive crop prices. The flat and level land that occurred in large tracts was suited for large-scale mechanized agriculture. Land was still relatively cheap in the 1960's and 1970's. The largest attempt during this time period was by Malcom McLean. In 1973 he paid \$60 million dollars for 581 square miles of land which was about one third of the entire Albemarle-Pamlico peninsula and established First Colony Farms. At the same time, Open Grounds was acquired by the Ferruzzi Family and they have kept it through the present time. It is now the largest farm in North Carolina with over 50,000 acres. During this time period field size and drainage patterns became standardized. By 1977, Mclean had made a decision to switch to a tenant system of farm management. Over time all First Colony land was sold or transferred to other owners. Concern over loss of wetlands and stricter laws stopped all land development in the early 1980's. Low elevation was and still is a considerable problem for much of the land in Hyde, Tyrrell and Dare Counties. If you were around here 30-40 years ago you didn't hear much about it. Folks just dealt with it by putting in dikes and pumps. Salt water intrusion on crop land was a recurring problem. Dikes and pumps create artificial elevation differential for drainage. Dikes protect against storm surge to a degree depending on the size of the dike. Dikes with pumps or tide gates block salt water intrusion. Tailwater recycling is very feasible on pumped land. Water discharge can be located for least environmental impact when you have dikes and pumps. The Governor's Coastal Water Management Task Force was formed in 1981. A report was issued in 1982 that included agriculture, forestry, fishing and environmental interests. A status report was issued in 1984 and then the Administration in Raleigh changed and it was never seen again. Things have not changed much in 30 years. Water management issues today are about the same. These are not new issues and they are not going to go away. There are drainage systems that have been here for well over 200 years and they need to be addressed. You should not ignore the traditional, long-term drainage systems and prevent their use when they have been in place for that long. Salt water intrusion and flooding due to rising sea level and storms is still an ongoing issue. Timely water removal after large storm events at low elevations is a real problem. Outlet placement to mitigate fresh water impacts on nursery areas was a big issue 30 years ago and we haven't heard much about it since. A recommendation was made for the state to take over outlets and outlets should be located in less sensitive environmental places. That hasn't happened. Water conservation and storage is a problem. It could be a resource, but we don't use it. North Carolina has no water storage. A statement from the EPA Environmental Research Letters of 2009 stated that most of the land vulnerable to sea level rise is along the Albemarle and Pamlico Sounds. These lands are

lightly developed, with little immediate prospects for development except for land immediately along the shoreline. Nevertheless, some agriculture areas in Tyrrell and Hyde Counties are protected with dikes, and Tyrrell county expects to expand that practice as sea level rises. These Letters tend to ignore extensive land protection inland. There are areas they didn't even recognize that had been under dike and pump. They don't recognize that there are people living in those areas that have that protection today. We need area-wide, comprehensive water management strategies. One major problem is the lack of water storage. As agriculture progresses and as urbanization continues there is a demand for water and we shouldn't continue to dump fresh water into marine environments. The South Florida Water Management District is a regional governmental agency that oversees the water resources in the southern half of the state, covering 16 counties from Orlando to the Florida Keys and serving a population of 7.7 million residents. It is the oldest and largest of the state's five water management districts. It was created in 1949 and the agency is responsible for managing and protecting water resources of South Florida by balancing and improving water quality, flood control, natural systems and water supply. The management system has more than 1,600 miles of canals and 1,000 miles of levees/berms, 60 pump stations and more than 500 structures and 700 culverts. It helps to protect regional water supplies, provide flood control, and has dedicated water storage areas. We need to look at our water resources in North Carolina in a more holistic way. We focus on water as a limitation and as a problem. We need to focus on water as a resource.

Permitting Agricultural Drainage

David Moye, DCM

David Moye stated two years ago Commissioner Peele asked how CAMA permits agricultural drainage ditches. A presentation was given to describe the permitting authority. CAMA lays out specific activities that are not development and do not require a permit. This includes the use of any land for the purposes of planting, growing, or harvesting plants, crops, trees or other agriculture or forestry products including normal, private road construction, raising livestock or poultry or for other agricultural purposes except where excavation or filling affecting estuarine waters as defined in NCGS 113-229 or navigable waters is involved. Based on this statute, DCM's first thought was that agricultural ditches are exempt from permitting authority. However, an exception to this exemption is if the proposed activity includes excavating or filling estuarine waters. In Hyde County all the ditches drain into the headwaters of the bay and sound system and all of those waters are classified as estuarine waters. The jurisdictional authority extends in there for any digging or filling activity. If we move to the CRC rules, there is a section in 7K that exempts small ditches. Small ditches used for agriculture or forestry purposes with maximum dimensions equal to or less than six feet top width by four feet deep are exempt from CAMA permitting requirements. All ditches with widths greater than six feet by four feet will require an application for a letter of authorization from the CRC. If the Commission determines that the ditch will affect estuarine or navigable waters a Major Development Permit will be required. A lot of the ditches we saw on the field trip and that we see in the field fit the exemption. When we move out of the agricultural field and move into the 404 wetland area, the wooded area or marsh area the regulatory authority applies and permits are required. You can get a General Permit for maintenance excavation in a manmade system allowing up to 1,000 cubic yards in material to be removed as long as the excavated depth is no deeper than the connecting water body and as long as you have a high ground place to put the spoil. The problem we run into is once we move into a coastal wetland component those ditches may not have been maintained for decades. The old spoil banks are not functioning spoil banks. Then it becomes filling coastal wetlands if you try to place spoil on it. No activity is exempt from the state Dredge and Fill Law. In areas with large canal systems we have tried to look for a cutoff (a

road crossing or culvert) that we can demarcate a line to say that below that we claim jurisdiction on the open-water portion going out and above it we do not. We have always said that if the use above the cutoff changes then we would change the jurisdictional call. Most of the issues we have had are once we get out of the fields and get into the transitional area as we have seen in Hyde County.

Impact of Water-Level Rise on Municipal Infrastructure: Town of Plymouth Perspective Brian Roth, Mayor Town of Plymouth

Brian Roth stated there are a lot of trees in the Albemarle Sound and cypress trees don't germinate in water. If there isn't dry land then the seedlings will die. In this region there are trees in the water. Plymouth is a typical coastal community. I use the term water level rise instead of sea level rise. Sea level rise is a long term thing that is happening and will continue to happen, but we know we have water level rise issues today. We have a sewer lift station on Main Street that is underwater after a heavy spring rain. In coastal communities we know that if the water comes and stays what it will look like. If water level rise comes and stays as sea level rise, how are we as small towns around America going to get to our pipes to maintain them?

Parts of our sewer and water systems are over 100 years old. When we have rain events the old pipes deteriorate. When the water table is high it puts enormous hydrostatic pressure on the pipes. We smoke tested the sewer system and everywhere that there is a crack is an opportunity for water to go into the sewer system. If sea level rise happens and stays permanently then our system will be permanently saturated with surface water. We received funds from the Clean Water Management Trust Fund and did a project in 2006-2007. We were able to replace over a mile of pipe and dozens of manholes. We would not have been able to do this project without the Clean Water Management Trust Fund and the Rural Economic Development Center. We have created a very efficient system to get our sewage to the treatment plant, but if water level rise comes and stays then we are going to have to deal with the pumping stations and other piping along the lower edges in all towns across the country. A key starting point to getting assistance is to document what is going on in your town. Sea Grant was very instrumental in working with the Town of Plymouth about two years ago on a Vulnerability and Consequences Adaptation and Planning Scenario (VCAPS) process. We looked at our vulnerable infrastructure and from there we identified the assets that we feel are vulnerable to water level rise. Detailed water level rise mapping was done for the community. Our communities are ready to get work done. We need to move beyond the rhetoric. In small communities we know that we have water level rise issues today that no one can argue with. We need financial funding and technical assistance from external sources.

Tailwater Recovery as an Agricultural BMP Erin Fleckenstein, NC Coastal Federation

Eric Fleckenstein introduced herself as the person heading up the North Carolina Coastal Federation's habitat restoration work. Some people call this tailwater recovery and some call it integrated water management. At the Coastal Federation we think that there is a real opportunity for the co-mingling of water management and improvements in coastal water quality. This is just one technique that could be employed throughout eastern North Carolina to improve water quality and build some resiliency into the landscape in the face of sea level rise and climate change. Oysters improve water quality through filtering, protect shorelines from erosion, they provide habitat for a number of estuarine dependent species, and are important to the economy and culture of eastern North Carolina. Since the late 1880's oyster harvest has declined considerably. The

decline has occurred from a number of factors. In 2003, the Coastal Federation with funding from the Clean Water Management Trust Fund, set about to devise a plan for restoration of oysters throughout North Carolina. In the northern region we looked at where historic oyster rock occurred. There was a high concentration along the Hyde and Dare county mainland. The workgroup that was created to prioritize locations for oyster restoration decided to focus on the Hyde and Dare county mainland, but quickly realized that to have successful oyster restoration we need to tackle some water quality issues that the Sound was dealing with. They formed a wetlands stakeholders group. Much of the area in Dare and Hyde counties is in Pocosin Swamp with very rich, deep organic soils. Much of it has been cleared for farming operations. The drainage off of the landscape is a concern because of sediments, bacteria and nutrients that are being discharged into the sound. We needed to look at ways that we could mitigate and lessen the impact of the canal system. The stakeholder group was formed to look at pocket wetlands throughout Dare and Hyde Counties where we could restore some small wetlands at the mouth of the canal and allow for settlement and treatment of the stormwater runoff. We were put in touch with Wilson Daughtry, a local farmer, who has been thinking about tailwater recovery as an agricultural benefit and thought that there might be some co-mingling of wetlands restoration and tailwater recovery on a large scale. Wilson is part of the Matamuskeet Drainage Association. He owns and manages about 7,000 acres. The Association is comprised of about 39 landowners and it is 42,500 acres. The landowners are assessed a fee based on their land use and they pay into the Association structure which operates and maintains the pumps, canals and roads within the Association. Two of the pump stations discharge into Pamlico Sound. The waters are closed for shellfish harvest because of the bacterial contamination in the water. The sources of bacteria are animals so source control is not an option. Treating the bacteria is difficult. The best option is to look at the flow to the sound to capture and treat the water. We worked with NCSU through a grant from Clean Water Management Trust Fund to model the historic flow of water in the Drainage Association. There was no flow to the Sound. We wanted to get back to the historic flow and reduce flow to the Sound. The current flow is discharging a lot out to the Sound. Through a variety of stakeholder meetings and lots of field visits we started talking about how to manage the water differently. We developed a series of wetland restoration projects throughout the Drainage Association. Most of them are in partnership with the Natural Resources Conservation Service. Much of the land in the proposed projects is in a conservation easement program called the Wetland Reserve Program. We are working with NRCS to implement these projects. One of the projects was the shorebird project. It is a 600 acre area. In addition to the water quality benefits we were also looking at creating some shorebird habitat. This project was implemented in 2010 and was funded by NRCS, USFWS, and APNEP. The land was already being used as waterfowl impoundments and we did some earth work and installed a pump that allows the landowner to manage the waters so they create a foraging area for the migrating shorebirds. A water management plan was developed with guidance from the Fish and Wildlife Service to create mudflat habitat and moist soil habitat for the shorebirds. Two additional projects are funded for construction through Clean Water Management Trust Fund. Permits have been received to install two pump stations. This will restore the historic flow. This will bring it back to the oyster restoration once the water quality has been improved. We have plans to continue to work with the Division of Marine Fisheries and the Nature Conservancy to install future sanctuaries to continue the holistic landscape scale approach to water quality, water management, and oyster restoration.

Impacts of Rising Water Levels on Wildlife Refuges

Chuck Peoples, Nature Conservancy

Chuck Peoples stated his primary focus area is the Roanoke River, but facilitates all TNCs activities across North Carolina. We are working on a project in collaboration with the Fish and Wildlife Service. It is all about using ecological restoration to create resilience in a coastal habitat complex. We have worked at the Refuge and used natural infrastructure to address some of these adaptation issues. The Great Dismal Swamp was one of our first big projects in this area in 1973. It became a national wildlife refuge. Then we helped Alligator River National Wildlife Refuge in 1984. We also have a strategic partner in the Fish and Wildlife Service. They have 490,000 acres in this region. When you think about that and their National Refuge system, it wouldn't seem that significant, but when you look at the eastern seaboard of the United States it represents 39% of Fish and Wildlife's land holdings. There is a substantial investment in this region by the Fish and Wildlife Service. We have had multiple large fires in the Pocosin wetlands. From 2008-2011 there has been 52 million dollars spent putting out fires in this region. 415,000 acres of public land lie within one meter of sea level. The Albemarle-Pamlico is an extremely vulnerable region. It has been identified as one of the most vulnerable regions on the east coast in terms of sea level rise. One of the first things you will see on Google Earth when looking at the Refuge's historical imagery is how the forest and wetland that fringe the Albemarle and Pamlico Sound has died back and transitioned into a marsh system. There is also substantial shoreline erosion that has occurred. There is also direct inundation. The other thing that contributes to the vulnerability in the region is the legacy of past use. There is a considerable network of canals, ditches, and drainage ways that empty into the sound. There are also deep peat deposits in this region. It is of particular importance because this is one of the few areas where large peat based wetlands fringe the sound. These peat systems are like putting a carbon filter in your water to remove odors and toxins. There is salt water intrusion on the lower elevations. Where the ditches meet the sound there is salt water coming into the landscape. There is salt poisoning of vegetation. There is anaerobic soil decomposition which leads to local subsidence. At the higher elevations you have incremental soil loss due to oxidation. There is also catastrophic soil loss due to soil ignition. Six million tons of carbon went up into the atmosphere during the Evans Road fire in Pocosin Lake National Wildlife Refuge. There is a range of benefits to restoring wetlands. The biggest one is reducing the threats of wildfire. There are ancillary benefits to that. During these fires incidents of asthma and visitation to emergency rooms went up. We know that there are impacts to tourism and there are cost savings. Restoration facilitates application of prescribed fire that can promote healthy forest growth. Having a freshwater head on the wetland slows the onset of sea level rise. All of this improves water quality. One of the first big steps is working with Fish and Wildlife Service. We have partnerships with nine coastal refuges. Another step is identifying the types of strategies you might put in place. We had to pick an area that we could test concepts on to demonstrate them to the public. We picked a site in Dare County. Our three main components there are planting of salt tolerant vegetation, managing the hydrology and building nearshore oyster reefs. There has been significant evidence of change at this site of both habitat transition and shoreline erosion. Most of the shoreline loss is associated with areas that have ditches taking water off of Alligator River out into the sound. We planted 80 acres at the demonstration project site. The first year we had great survival. Then we had a hurricane. The species that we picked were ones you would find on the refuge now but they didn't like the salt water. We had about 10% survival. You have to envision what you want in the system and not necessarily what was there in the past. This site had a water control structure. We were able to pull together the funds to put in a new structure. One of the big concerns was not about the flow going out; it was more about the salt water coming in. We put in tide flex check valves. They only open with pressure from above. When the sound water moves in they actually

pinch and close. They are working very well. There was an immediate change in the salinity above the structure. The key is to keep the salt water off the landscape and keep the fresh water on it. We also built reefs out of marl and limestone and also built reefs out of oyster shell bags. We were experimenting with construction techniques and looking at the efficacy of them. We found that oyster reefs do a great job. You will not stop shoreline loss in this area, but you can slow the rate of loss. We have been plugging ditches that are carrying water off of the landscape from Highway 264 out. We haven't moved toward the interior of the Refuge. We have expanded our reef work and we have begun looking at how to put a marsh in place that will hold the peat together in the absence of salt tolerant tree plantings. We have also pulled together the funds to develop a water management plan that includes the Dare County bombing range and a big chunk of the Refuge. We have also done some work at Swan Quarter where there was a failed bulkhead and we replaced it with an oyster reef.

H819 Legislative Studies Status (CRC 12-40)

Braxton Davis, DCM

Braxton Davis stated H819 which became law in July has five sections. The first section defined the coastal area and codified the twenty coastal counties. The sea level rise policy was the next section. It lays out that the Commission and DCM shall be the only agency authorized to define rates of sea level change for regulatory purposes and we cannot adopt any rates for regulatory purposes prior to July 1, 2016. It also directs the Science Panel to deliver the five-year updated assessment to its Report by March 31, 2015. The update needs to have a comprehensive literature review, address the potential for sea level fall as well as rise; it must define assumptions and limitations, and be made available for public comment. It also mentions that the CRC should evaluate predictive models and sub-regional rates of change in different parts of the coast and a study of economic and environmental costs and benefits of adopting sea level rise regulations. The evaluation of predictive models and sub-regional rates of change would likely come through the Science Panel's Report Update because they addressed some of those in the first Report. The economic environmental costs and benefits would be a separate exercise. The timeline for the Science Panel's Assessment Report due March 31, 2015, will begin by asking the Science Panel for a draft by late summer or early fall 2014. We would include a three month technical review period. The CRC could seek written public comment for 90 days and a public hearing over the summer. A final report from the Commission would be ready by December 31, 2015. The CRC's report would have the Science Panel's Report within in it and would include the costs and benefits of adopting sea level rise regulations. The cover report from the CRC would need to go out for public comment as well. The package must be submitted to the ERC by March 2016. On October 29 there was a Science Panel meeting in New Bern to review the Bill. We talked about the sea level rise update and the Science Panel is ready to work on this with us. There was good discussion at the meeting about how to do the comprehensive literature review. There was also good discussion about how to use Staff support and how to bring in additional expertise. We want to develop a very specific scope of work for the Science Panel that would be brought to the CRC for review.

Section three of the Bill was ocean setbacks. This has to do with the replacement of single family and duplex residential structures greater than 5,000 square feet in the ocean hazard area AEC. It grandfathered any structures that were built prior to August 11, 2009 when the updated setback factors were effective. The structures cannot exceed their original square footage or footprint. The structures must be able to meet the minimum setback requirement (30 x erosion rate) or a minimum of 60 feet if unable to meet the current setback. The structure also has to be built as far landward on the lot as feasible. This part of the law requires the Commission to adopt temporary rules until a

permanent rule becomes effective. In the meantime, the Division shall not deny a permit. The temporary rule was approved for public hearing in August, a public hearing was held on October 17, and Staff is asking the Commission to adopt the rule language and fiscal note at this meeting. Staff is also asking the Commission to approve the permanent rule and fiscal analysis for public hearing.

Section Four is the Cape Fear River Area of Environmental Concern and directs the Commission to study the feasibility of creating a new AEC for lands adjacent to the Cape Fear River. It asks us to consider the unique coastal morphologies and hydrographic conditions in the region and collaborate with the Town of Caswell Beach and the Village of Bald Head Island and adjacent land owners. The Commission is also directed to consider whether action is necessary to eliminate overlapping AECs in the area and incorporate appropriate development standards into a single unique area of environmental concern for the sub-region. The report would be due December 31, 2013. Chairman Emory and some of the staff at DCM, including myself, met with local officials on October 3 to discuss what we envision the process being for this study. We want to follow a process in the Commission's rules, 7H .0503, which lays out a process for nominating new areas of environmental concern. In accordance with the law, the Commission needs to provide a justification that there are unique conditions in this sub-region. Bald Head Island has concerns about changes in the inlet, navigation projects and impacts on shoreline changes. Caswell Beach was concerned with the potential new inlet hazard areas; Ft. Caswell has experienced some significant beach erosion and is interested in being part of this effort. Caswell Beach and Bald Head Island had consultants at the meeting who discussed some of the unique aspects of the region. We have asked them to draft the justification of the unique conditions. The second part is to describe the regulatory concerns and issues they face in the region. We offered to help put together a public workshop in late winter or early spring of 2013 where staff present how our areas of environmental concern work in the region and how the rules have evolved over time and talk about the regulatory issues and concerns.

Section Five is the Inlet Hazard Area Study and the directive is the CRC shall determine feasibility of eliminating the inlet hazard area AEC and incorporate appropriate development standards adjacent to the state's developed inlets considering eliminating the inlet hazard boxes the Science Panel drafted and look at tailored shoreline management strategies. The CRC should also work in collaboration with local governments and landowners to look at regulatory concerns and strategies for inlet areas. This report is due January 1, 2015. We have discussed this with the Science Panel. We are going to ask them to look at various models for determining long term erosion rates for inlets, the implications for historical and ongoing engineering projects, and looking at the most scientifically defensible methods for looking at erosion related hazards in those zones. We would envision their report going out for technical review and public engagement by January 2014. The best way to look at the regulatory issues and concerns is to hold regional workshops with stakeholders to discuss these issues. The final report will be created by July 2014 and taken out for public comment. At the next Science Panel meeting we will focus on developing a specific scope of work for this study to bring to the CRC for feedback.

The last meeting with the Science Panel was the first meeting since November of last year and there has been a lot of work done through email and conference calls. One of the ideas we talked to them about was taking the by-laws and creating a new charge from the CRC that lays out some of the same types of operating considerations on membership, meeting frequency, public involvement, and consensus building approaches.

Evaluating the Effects of Shoreline Stabilization on Fish Habitat Function and Erosion of Estuarine Shorelines in North Carolina (CRC 12-34)
Rachel Gittman, UNC

Rachel Gittman stated estuarine shorelines, salt marshes, oyster reefs, and sea grass habitats provide valuable ecosystem services. They provide habitat for juvenile fish and crustaceans, they provide filtration for our waters, they can store flood waters during storm events and reduce storm surge, provide stabilization for the shoreline, and they have the ability to sequester carbon in light of global climate change and support socio-economic services. One of the major concerns we have in North Carolina is the effect of sea level rise on the estuarine habitats. Much of our state is at risk for inundation if we see sea level rise at the current projections of one meter by 2100. We have substantial concerns about the estuarine habitats that we may lose if these habitats are not able to keep up with sea level rise through vertical accretion or transgression landward. One of the factors that contribute to the loss of estuarine habitats regardless of sea level rise is coastal erosion. We are losing a lot of our estuarine habitats to this natural process. One of the responses that private property owners have had to erosion problems on their property is to armor their shoreline. There are two common methods that have been used over several decades and those are bulkheads and revetments. A bulkhead is a vertical wall that is placed landward of any wetland vegetation and above the high water line. Revetments are located in the same location and are essentially just piled rocks or concrete against the shoreline. One of the concerns we have with bulkheads is related to sea level rise. As sea level rises, the habitats either have to vertically accrete or transgress landward. In a natural setting as the water rises, the habitats are able to move landward and keep up with the water rise. If you have coastal development with a bulkhead in place, as sea level rises if the habitats are not able to vertically accrete then they will be lost as sea level rises. As salt marsh and deeper shoreline habitats disappear the estuary will become a walled tub. This will have major effects on commercial and recreational fisheries, there will be a loss of habitat for migratory birds, water quality will degrade, and the esthetics of the shoreline will decline. An alternative to bulkheads that has been considered is marsh sills, or living shorelines. Marsh sills are seaward of salt marsh habitat in public trust waters. It can be constructed of granite, marl, or oyster bags. The sills will provide erosion protection, but will still allow the salt marsh to be inundated regularly allowing fish and crustaceans to access this habitat. The North Carolina General Assembly directed the Division of Coastal Management to develop a General Permit for marsh sills. The GP was used to construct several sills within North Carolina. A lot of them were constructed with the help of the NC Coastal Federation. As these sills were constructed, resource agencies and scientists began to raise concerns about the unknown consequences of marsh sills on estuarine habitat function. In 2010, DCM led a permitting based assessment of constructed marsh sills in North Carolina. It consisted of visiting every sill in the state and assessing whether the sill had been constructed according to permit regulations and whether the sill was constructed in a way that the resource agency felt protected the habitats that may be affected. Our main question was, how do different types of shoreline stabilization affect the ecosystem services of estuarine shorelines? We wanted to look at the fish and crustacean use of estuarine habitats with and without stabilization. We looked at salt marsh habitat that is being used by fish and crustaceans at high tide with sills in place and without. Then we wanted to look at the subtidal habitat and sample the fish communities using the habitat with and without sills. Then we looked at an unvegetated habitat and fish use adjacent to bulkheads. Our study area was Pine Knoll Shores. It was an appropriate study area because it has several sills that were constructed on the same shorelines with the same tidal inundations and geomorphology. We sampled fish communities from June to October 2010 and 2011. The results showed that there was a higher abundance and biomass with sills than at the control sites. Sill sites had a higher richness and species diversity. We then moved to subtidal habitat with and without

sills. There was no difference between natural sites and sill sites in the total fish and crustacean abundance. Then we shift and look at the unvegetated habitat corridor. We found that sills had a higher abundance and biomass of fish and crustaceans than bulkheads. Sills also had a higher abundance than natural marshes, but the differences between natural marshes and bulkheads or natural marshes and sills are not significant. The salt marsh associated with sills does seem to have a higher abundance of fish and crustaceans, but the sea grass habitat did not. Some of our theories are that the sill is located directly adjacent to salt marsh and is buffering some of the wave energy that is coming in so it is providing a quiet, lower-flow refuge for juvenile fish and small species. Another potential explanation could be that the hard substrate that the sill has contains a lot of oysters, algae and barnacles growing on it and would be serving as a food resource. The sills could be replacing the intertidal oyster reefs that previously provided these services. With the landfall of Hurricane Irene I was able to assess whether marsh sills provide adequate shoreline stabilization to homeowners. An assessment of the physical site characteristics was taken in 2010. I was able to revisit the sites in 2011 following Irene to take the same measurements and then revisited the sites again a few weeks ago to see the post-year recovery. After Irene we did shoreline damage classification surveys along Bogue Banks. We wanted to ask if different types of shoreline stabilization performed differently during a storm event. We quantified the type and length of shoreline and then assessed whether or not the shoreline was damaged. We focused on armored shorelines because natural shorelines are difficult to tell if there is damage and what it may have been caused by. For the 20 kilometers of Bogue Banks that we surveyed (the back barrier side) we found that about 50% is marsh habitat and 40% is bulkhead. The smaller percentages were riprap, sills and hybrid shoreline. Because bulkheads were the dominant feature we focused on the damage associated with the bulkheads. The riprap, sills and hybrid shorelines showed no visible damage to the shoreline. There were some collapses of bulkheads and some significant land erosion. But it was only about 5% of the bulkheads that we surveyed. In the Rodanthe, Waves, Salvo and Hatteras Village areas we conducted the same surveys. About half of the shoreline is still natural marsh and about 35% is bulkhead. What we found in this region was different than in Bogue Banks. One third of the bulkheads that we surveyed were damaged. On Bogue Banks at a sill site there wasn't any visible damage to the shoreline. After Hurricane Irene we took surface elevation measurements and found that there wasn't much of a change in either the sill or control sites as a result of Hurricane Irene. There was very little loss in elevation. We also looked at the vegetation. There was an initial loss after Irene in the vegetation density, but when resurveyed in 2012 most of the sites seemed to recover their density. From the fish sampling we have done we do have the potential for sills, when designed properly, to enhance fish and crustacean habitat. Some of them may function similarly to oyster reefs. This is particularly true if we start constructing sills out of loose oyster shell. We have some evidence that they may provide better erosion protection from storm events than bulkheads. I didn't see a difference in how natural sites responded than to the sill sites. Marsh planting alone may be all that homeowners need. One of the major issues with shorelines and erosion may be that the slope is off. If you have vegetation in place that is trapping sediment then you don't need extreme structures. Careful sill design and construction is critical. We selected sills to study that were designed appropriately and were for private property. This work does not address the effects of industrial sills that are found on Ocracoke and Cedar Island. More work is needed to understand the long-term effects of stabilization on estuarine habitats in the context of sea level rise.

Sustainable Estuarine Shoreline Stabilization: Research, Education and Public Policy in NC

John Fear, DCM

John Fear stated the CRC has been hearing about this project for the past couple of years and we are finally able to bring the results. Consider me a spokesman as much of the work I am presenting was created by our project partners. We know that estuarine shorelines in North Carolina are eroding. We also know that our coastal population continues to increase. When you put those two things together it tells us the pressure to armor the shorelines is only going to continue. We need to have an appropriate plan in place to deal with it. We know that fringing marsh provides critically important ecosystem services. Ecosystem service is something that we gain from the marsh that we don't have to pay for. The recently completed DCM shoreline mapping project showed that statewide the dominant shoreline stabilization method being used currently is vertical bulkheads. About 87% of our armored shoreline is bulkheaded. There are potential issues with bulkheads that we may want to be concerned about. They cause wave refraction which can lead to scour and potential loss of fringing marsh. They also block the ability of fringing marsh to transgress upslope. Bulkheads separate the upland from the intertidal/subtidal region and change the slope of the shoreline. Is the most widely used form of shoreline stabilization used in North Carolina causing deleterious impacts to our coastal marsh and the ecosystem services provided by that marsh? We designed a project to answer it. As a part of this project we wanted to construct an alternative to a bulkhead to be used as a demonstration project and put a lot of effort into education and outreach. The data collection time period for this project was 2009-2010. This work was done in three regions of the North Carolina coast. Our estuarine systems differ dramatically as you move north to south both in tide range and also in salinity. In order to make the work relevant to the entire state we worked in all three regions. Within each region we had six sample sites that had a natural marsh with no bulkheads, a bulkhead site with differing levels of marsh width in front of them, and a bulkhead that had no marsh in front of it. We looked at the maximum height of the marsh at the sites and did not see any differences. One thing marshes can do to maintain themselves is to grow taller. There was a difference in stem density. There is a decreasing trend in stem density as we move toward narrow marsh and no marsh. The key results from the vegetation elevation work are that the bulkhead sites with no marsh and bulkheads with narrow marsh have much lower elevations in terms of bathymetry and stem density of the bulkhead sites decreased with marsh width. The wave attenuation results were collected during Hurricane Earl. Fringing marsh effectively reduced wave energy. There was no repeatable pattern of infauna at the sites. The key result was that it was extremely variable by site and year and we did not see any impact to the benthic infauna due to either marsh width or bulkhead presence. However, when we move to the nekton we did see an interesting pattern. Wider marshes equaled more nekton. If we are wanting to preserve fisheries then we want wider marshes. We also found narrow marshes had high nekton density. This tells us that the edge of the marsh is important to the fisheries. Despite the narrowness of the marsh it is still providing a valuable habitat. The natural marsh had a much higher bird abundance than any of the bulkheaded sites. Sites with no marsh had the lowest bird counts of all sites. Wider marshes removed more nitrogen than narrow ones. What was not expected was that per unit area, the nitrogen removal rate was the same so narrow marshes were just as efficient at removing nitrogen as the wider marsh.

For the demonstration project we only wanted to go with something that used natural materials. We decided to go with an oyster shell reef with marsh plantings. We also wanted to do it in a location where people would see it so we put it in the Rachel Carson component of the North Carolina National Estuarine Research Reserve. This is an eroding shoreline. We are losing marsh habitat along the edge and the erosion rate was about 20 feet per year. We utilized loose shell for this

project. The main problem with loose shell is it can quickly get blown away if you have a weather event or lots of wave energy. The marsh plantings survived. All monitoring to date suggests that this is working and we will continue to monitor it in the future to see how it is protecting the shoreline in terms of erosion. We also tried to reach out to the homeowners and marine contractors as part of this project. We did that by mailing out almost 900 surveys to the estuarine property owners. We only received 75 back. Although it was a poor response rate, it allowed us to get some useful information. We asked what most influenced their choice in picking a shoreline stabilization method. We thought that cost would be what was most important, but it turned out that protection from erosion was what they cared about. If we can show property owners that something besides a bulkhead will work just as good as a bulkhead then there isn't anything that prevents them from moving toward that option. This opens the door to some education and outreach activities moving forward. We also reached out to marine contractors. We asked them what kind of structures they most commonly recommend. It was not surprising that over 80% of the time they recommend a bulkhead. We have printed products as part of this project as well as online information. Our project was not long enough to equivocally determine if bulkheads lead to marsh loss, but our data are supportive of this model even after just two years. Based on monitoring to date, shoreline stabilization using oyster reef and marsh plantings is a viable, cost-effective alternative.

DENR Living Shorelines Strategy & Modification of Sill GP (CRC 12-35) **Daniel Govoni, DCM**

Daniel Govoni stated this will be an update on the progress on the living shoreline strategy and the General Permit .2700. Since the last update we have had several meetings. We met with the Virginia Institute of Marine Science (VIMS), other agencies, and completed some research studies that we are trying to incorporate into a draft strategy. We also had a meeting with the US Army Corps of Engineers with regards to General Permit .2700. The meeting with VIMS was conducted to compare living shoreline initiatives in Virginia, North Carolina, and Maryland. We learned from them that they have created some online information and training resources. Specifically they have created a decision support tool which is a web-based non-regulatory tool to provide guidance on the preferred shoreline stabilization structure for the property owner. They have also conducted a marine contractors training course. We also held a meeting with other resource agencies including the Wildlife Resources Commission, Division of Water Quality, DMF's Ecosystem Enhancement Program, Community Conservation Assistance Program, Albemarle-Pamlico National Estuary Program and NOAA. We were asked to incorporate into the draft strategy the mapping analysis data, to look at other areas of living shorelines, expansion of CCAP which would be a financial incentive to property owners, CRFL funds could be used to conduct further research, incorporate storm performance, and EEP showed a strong interest in involvement. We will take all the information that has been gathered and draft a final living shoreline strategy. We want to ask the Estuarine Shoreline Biological Processes Workgroup for their recommendations, specifically in the areas of the research result, the mapping results and the outreach plan. We would like to bring the draft strategy before the CRC in 2013 for approval and ask for DENR's endorsement. The implementation of the strategy will focus primarily on advocacy, public awareness, public incentives, monitoring, research needs and short and long-term actions of the plan. The meeting that was held with the Corps of Engineers was to see if we could streamline the General Permit .2700 for construction of riprap sills. Our current permit requires coordination with DMF, DWQ and the Corps. Following meetings with DMF and DWQ their coordination is no longer needed. The Corps explained that they do not have the legal framework for rapid issuance of their General Permit. It was further explained that under our CAMA Major Permit process they have a 291 Programmatic General Permit for CAMA projects that is unique to North Carolina and it is more

efficient than other coastal states. Staff recommends that the General Permit remain in its current form and will implement the other streamlining measures. There is no formal rulemaking proposed for this General Permit.

David Lekson, northeast section chief for the Corps of Engineers, stated we cover 28 northeastern counties of North Carolina. We very much value the relationship we have with CAMA. Raleigh Bland is also here. Some of the Corps' rules go back to 1899. We have a long regulatory history in America. My Commander has some very specific requirements as it relates to protecting the navigable capacity of North Carolina's waters as well as commitments to federal laws that CAMA would not have to deal with. We also cannot be a proponent or an opponent. We started this coordination in 2003 and have talked closely with Congressman Jones in 2004, coordinated with Secretary Freeman in 2011 and laid out the challenges that the Corps has. North Carolina has the quickest process of any other state in America. The Corps has been very involved with the sill strategy for decades, but sills are a hardened structure offshore and my Commander has to be concerned about commercial navigation as well as traditional navigation.

Chairman Emory stated the next step may be to take the shoreline mapping data that we have and pick out an area of the state and focus our outreach activities on the contractors that work in those areas. We could make a pitch to the EEP program for a pilot study where they would provide some incentives to set up a two year project.

PUBLIC INPUT AND COMMENT

No public comments were received.

VARIANCES

Harbour Village Yacht Club (CRC VR 12-08) Pender County, 30' Buffer Christine Goebel

Christine Goebel of the Attorney General's Office represented Staff on this variance request. She stated Petitioner is a corporation which owns property adjacent to Topsail Sound in Hampstead, North Carolina. Mr. Ray Blackburn, counsel for Petitioner is present and will address the Commission. On August 6, 2012, the CAMA Local Permitting Officer for Pender County denied Petitioner's CAMA Minor Permit application for an 8-foot by 16-foot extension to Petitioner's existing 192 square foot deck allowance within the 30-foot buffer as the addition would exceed the 200 square foot deck allowance within the 30 foot buffer 15A NCAC 07H .0209(d)(10)(F). Mrs. Goebel reviewed the stipulated facts for this variance request. Staff and Petitioner disagree on the four statutory variance criteria which must be met in order to grant the variance request. Staff submits that there are no unnecessary hardships resulting from a strict application of the rules to the request because Petitioner has other alternatives available to achieve its goal that are not inconsistent with the buffer rule. Staff denies there are any physical conditions peculiar to the property. In addition, staff submits that Petitioners has caused its own hardship. Even without a variance, Petitioner could redesign the existing deck. It is the Petitioner's design choice that has caused any existing hardship. Staff denies that granting variance request would be consistent with the spirit, purpose or intent of the rules, standards or orders issued by the Commission. Furthermore, the requested variance will not secure the public safety or welfare; and will not preserve substantial justice. If the Commission decided to grant the variance request and conditioned the variance on the requirement that Petitioner shall install a stormwater management system, then the staff agrees that granting the requested variance could be considered consistent with the spirit, purpose and

intent of the rules. Presently there is no existing stormwater management system on the highly developed site.

Ray Blackburn, counsel for Petitioner, reviewed the stipulated facts which he contends supports Petitioner's request for a variance. Petitioner argued that strict application of the rules would cause unnecessary hardship and in support of this position stated that everyone wants to maximize the use of their property. Petitioner was permitted for 200 feet of decking and thought they could request a variance to extend the permitted deck. Mr. Blackburn explained that there is nowhere else to put the deck. Petitioner believes the lot is peculiar due to the size of the lot and the fact that part of the lot is unusable. The Yacht Club bought the property "as is" and the building was built before the rules were effective.

Renee Cahoon made a motion to support Staff's position that strict application of the applicable development rules, standards or orders issued by the Commission do not cause the Petitioner unnecessary hardships. The motion was seconded by Veronica Carter. The motion failed with four votes in favor (Carter, Weld, Webster, Cahoon) and five opposed (Old, Hester, Simmons, Wynns, Peele).

Jerry Old made a motion that strict application of the applicable development rules, standards or orders issued by the Commission cause the Petitioner unnecessary hardships. Joe Hester seconded the motion. The motion failed with three votes in favor (Old, Hester, Wynns) and six opposed (Simmons, Carter, Weld, Peele, Webster, Cahoon).

Jamin Simmons made a motion to table the variance request. Bill Peele seconded the motion. The motion failed with three votes in favor (Hester, Simmons, Peele) and six opposed (Old, Carter, Weld, Wynns, Webster, Cahoon).

Bill Peele made a motion to reconsider the first variance factor and support Staff's position that strict application of the applicable development, rules, standards or orders issued by the Commission do not cause the Petitioner unnecessary hardships. Lee Wynns seconded the motion. The motion passed with seven votes (Simmons, Carter, Weld, Wynns, Peele, Webster, Cahoon) and two opposed (Old, Hester).

Veronica Carter made a motion to support Staff's position that hardships do not result from conditions peculiar to Petitioner's property. Joan Weld seconded the motion. The motion passed with seven votes (Simmons, Carter, Weld, Wynns, Peele, Webster, Cahoon) and two opposed (Old, Hester).

Veronica Carter made a motion to support Staff's position that hardships result from actions taken by Petitioner. Bill Peele seconded the motion. The motion passed with six votes (Simmons, Carter, Weld, Wynns, Webster, Cahoon) and three opposed (Old, Hester, Peele).

Bill Peele made a motion to support Staff's position that the variance request, if conditioned to require a stormwater management system, would be consistent with the spirit, purpose and intent of the Commission's buffer rule. Joe Hester seconded the motion. The motion passed with eight votes (Old, Hester, Simmons, Weld, Wynns, Peele, Webster, Cahoon) and one opposed (Carter).

The variance request was denied.

NCDOT – NC Highway 12 (CRC VR 12-09)
Christine Goebel

Renee Cahoon stated she lives in Dare County and owns property on Hatteras Island but does not have a conflict of interest on this variance request. Jerry Old stated he owns property on Hatteras Island, but does not have a conflict of interest. Joe Hester stated he owns property in Manteo but does not have a conflict of Interest. Jamin Simmons owns property on Ocracoke but does not have a conflict. Lee Wynns stated he is a property owner in Nags Head, but does not have a conflict of interest.

Christine Goebel of the Attorney General's Office represented DCM Staff. Mrs. Goebel stated Mr. Tom Henry of the Attorney General's Office is present and represents NCDOT. Petitioner is the NC Department of Transportation which maintains NC 12 on the Outer Banks within its right-of-way easement, including the Rodanthe "S-Curves" area on Hatteras Island in Dare County near Mirlo Beach. Last year this area suffered a breach and significant damage to NC 12 from Hurricane Irene. Following Irene, DOT received CAMA Major Permit No. 103-11, issued as an Emergency Permit pursuant to G.S. 113A-118(f), to repair the breach in NC 12 including the installation of sandbags along the "S-Curves". On October 27-28, 2012, Hurricane Sandy caused damage to NC 12 in the same location, including significant overwash and buckling of NC 12. On November 7, 2012, Petitioner applied for a CAMA Emergency Permit seeking to modify CAMA Permit No. 103-11 in order to realign NC 12, to increase the total length of sandbags and increase the size of the sandbag structure to dimensions larger than allowed by Commission rules. On November 7, 2012, DCM issued an Emergency Permit modification to CAMA Major Permit No. 103-11, which conditioned the sandbag structure to meet the Commission's size limits. Petitioner seeks a variance to allow the placement of sandbags in the 8 feet high and 25 feet wide configuration proposed in their permit application. Mrs. Goebel reviewed the stipulated facts for this variance request and stated Staff agree with Petitioners on all four variance criteria which must be met in order to grant the variance request.

Tom Henry of the Attorney General's Office represented Petitioners. Mr. Henry reviewed the stipulated facts which he contends supports the granting of this variance request. This site does fall within a plan of a larger, long-term improvement project for NC 12. There is an obvious hardship to the NCDOT, North Carolina's public, and visitors to and from Hatteras Island.

Veronica Carter made a motion to support Petitioner's position that strict application of the applicable development rules, standards or orders issued by the Commission cause Petitioner unnecessary hardships. Jerry Old seconded the motion. The motion passed unanimously (Old, Hester, Carter, Weld, Wynns, Peele, Webster, Cahoon, Simmons).

Jerry Old made a motion to support Staff's position that hardships result from conditions peculiar to the Petitioner's property. Veronica Carter seconded the motion. The motion passed unanimously (Old, Hester, Carter, Weld, Wynns, Peele, Webster, Cahoon, Simmons).

Veronica Carter made a motion to support Petitioner's position that hardships do not result from actions taken by the Petitioner. Jerry Old seconded the motion. The motion passed unanimously (Old, Hester, Carter, Weld, Wynns, Peele, Webster, Cahoon, Simmons).

Jerry Old made a motion to support Staff's position that the variance request will be consistent with the rules, standards or orders issued by the Commission; will secure the public safety and welfare; and preserve substantial justice. David Webster seconded the motion. The motion passed unanimously (Old, Hester, Carter, Weld, Wynns, Peele, Webster, Cahoon, Simmons).

This variance request was granted.

PUBLIC HEARINGS

15A NCAC 07H .0308(a)(2)

15A NCAC 07H .1705

Mike Lopazanski stated the current time limit for sandbags is two years for structures less than 5,000 square feet and five years for structures greater than 5,000 square feet. If you are located in a community that is pursuing a beach nourishment project then you can have a five year time limit and if you are in an inlet hazard area then the time limit is eight years if the community is actively pursuing inlet relocation. Currently sandbags can only protect a structure once if it is in the ocean hazard area. If you are in an inlet hazard area then there isn't a restriction on how many times you can use sandbags. You become eligible for an additional eight years if the structure becomes imminently threatened and the community continues to pursue an inlet relocation project. The changes that we are proposing match the rules adopted for the inlet hazard areas. The time limit for sandbags will be eight years in ocean hazard areas if the community is pursuing a beach fill project. We are removing the one-time per structure limitation if it becomes imminently threatened and the community is pursuing a beach nourishment project. We are also including inlet stabilization as an activity eligible to seek an extension on sandbags in accordance with the changes to CAMA. We are not proposing any timeframe changes for areas that are not seeking beach fill, inlet relocation or inlet stabilization and there are no changes to the provisions requiring removal. In the fiscal analysis we found that NCDOT would benefit from the time extension, the local governments would benefit from the time extension, and the Division would have increased monitoring requirements and some efficiencies derived from the uniform management of sandbags. There would also be an increased compliance with sandbag removal.

Mack Paul stated I am here on behalf of some homeowners on Figure Eight Island on the north end near Rich Inlet. As most of you know, we have been following this very closely and have been involved for almost 4 ½ years. There was a major issue with the rules in May 2008 when sandbags that were expired needed to come out. Since that time there has been a lot of work by Staff to assess the state of sandbags on the coast of North Carolina and come up with a rating system. We held a number of stakeholder meetings and came out with some recommendations. From our standpoint we were looking for a solution that would move away from strict timelines. That was not the will of the CRC and I understand that. At the last CRC meeting where the committee dealt with the rules, there was some discussion to clarify that the changes which allow not restricting sandbags to one time only is positive. It provides incentive to remove sandbags since they won't be fearful that they won't be allowed to put them back. Prior to these rules being proposed the General Assembly had not acted on inlet stabilization or the terminal groin. Now that there is some limited availability in North Carolina, these rules are recognizing that communities that are pursuing it in addition to inlet stabilization or inlet relocation would have the benefit of eight years. From my clients' standpoint once these rules go into effect then they would be able to maintain the sandbags for an additional eight years since their community did not have the opportunity to pursue inlet

stabilization until the legislation went into effect. We would want it interpreted that the eight years would go forward from here.

CRAC REPORT

Ray Sturza stated the CRAC gathered in the hotel lobby for a roundtable discussion about issues pertinent to the North Carolina coast. We plan to develop a summary of our activities for 2012. We want to put together a summary of the work that we have been doing to accentuate North Carolina's positive role in shoreline access and access opportunities for the coast. We will wrap that up with the activities that we foresee will be coming, particularly in terms of partnerships with foundations and public interest organizations to augment public money to further enhance existing facilities and find opportunities for more beach access. We are also going to look at what might be pertinent in 2013. One of the issues we have targeted but didn't get into was the structures on the beach issue and what local governments are able and not able to do in terms of removal. We discussed briefly the ramifications of impacts of super storm Sandy and how it impacted North Carolina.

ACTION ITEMS

Land Use Plan Certifications and Amendments

Brunswick County Land Use Plan Amendment Certification (CRC 12-41)

John Thayer, DCM

Veronica Carter stated she lives in Brunswick County and has reviewed the amendments and finds no conflict of interest.

John Thayer stated the County is requesting the third amendment to the original plan that was certified by the Commission in November 2007. This third amendment has several components to it. Staff has reviewed this request and feels that it meets the substantive requirements and recommends certification.

Renee Cahoon made a motion to certify the Brunswick County Land Use Plan Amendment. Jerry Old seconded the motion. The motion passed unanimously (Old, Hester, Carter, Weld, Wynn, Peele, Webster, Cahoon, Simmons).

Planning Program Review Strategy and Activities (CRC 12-42)

John Thayer, DCM

The memo provides an overview of the strategy and activities of the planning program. It also outlines six of the items that we are involved with. The first item is land use plan assessments. The planners are developing an instrument to review the local land use plans relative to our existing program goals in CAMA. The assessment is not meant to be a qualitative assessment of the strengths and weaknesses of the community's plan, but rather an assessment to provide the Commission with a broader profile of the character of the existing plan. We will begin this review in December and should complete it in April. The next item is local government listening sessions. Staff is developing a strategy for conducting meetings with local governments to discuss concerns they have and how we can assist them related to the planning program or land use plans. This will happen from March – June 2013. The third item is a review of the Community Rating System manual. The planners are working on the changes and how DCM might assist coastal communities in scoring more points or putting themselves in a better position of getting a better insurance rating. The next item is overhauling the Division's webpage related to planning and the public access program. One of the critical components of that is to ensure that the existing actions by the

Commission relative to the certification of land use plans and amendments are listed as well as links to the documents and reports online. The final item on the list is the Access Grant Program. We are in the process of gearing up for another request cycle for proposals for grant money. We will be looking at making the process from application to contract as efficient as possible to ensure that it is user friendly for the local governments. Additionally we are looking at setting up a workshop in the spring relative to applicants that wish to apply for grants. An email is about to go out to local governments regarding their interest in a workshop for routine land use plan amendments.

CRC Rule Development

Amendments to 15A NCAC 07I .0401 & .0406 and Fiscal Analysis – Minor Permit Program (CRC 12-36)

Mike Lopazanski

CAMA authorizes local government to participate in the permitting process by administering implementation and enforcement programs. Minor permits are issued by local governments through local permitting officers (LPO). DCM trains the LPOs at annual regional workshops. LPOs are reimbursed for attendance at these workshops. As part of Executive Order 70, DCM is required to review the CRC rules annually to look for inconsistencies and outdated rules. Since 1993 we have been reimbursing local governments \$200.00 per LPO for up to three LPOs to participate in the training workshops. However, in 7I the reimbursement rate is listed at \$150.00 per LPO. Also in reviewing the Minor Permit program we found that the application fee is wrong. Currently the application fee for a Minor Permit is \$100.00. This fee has been in place since 2000. In 7I .0406 the fee is listed as \$25.00. It hasn't been changed since 1982. We aren't changing any existing policies and procedures. The fiscal analysis has been approved by DENR and we have tentative approval from OSBM.

Renee Cahoon made a motion to approve the rule amendments and fiscal analysis for 7I .0401 and 7I .0406. Veronica Carter seconded the motion. The motion passed unanimously (Old, Hester, Simmons, Carter, Weld, Wynns, Peele, Cahoon, Webster).

Public Comment Summary 15A NCAC 07H .0304(1)(a) AECs Within Ocean Hazard Areas – Erosion Rates (CRC 12-37)

Ken Richardson

In December 2010, we learned that we needed to expedite the next erosion rate update to satisfy FEMA's requirement that we have updated erosion rates so communities could get benefits from the Community Rating System. We wanted to make sure we were consistent with our methodology and the report. When we took it to public hearing, there was a table inside the report that caused a lot of questions. The table was consistent with tables that had appeared in previous reports, so we simply added new data to the old table. The terminology of "setback factor" and "blocked erosion rates" and "erosion rates" are used interchangeably and caused a lot of confusion this time. Our minimum setback is two feet. It appeared as if the entire coast was eroding as there wasn't anywhere to see accretion. The table has now been updated to show a clear comparison of the numbers and to show the accretion. Rudi Rudolph, Carteret County Shore Protection Office, expressed some concern that we call the report "Long-Term Average Annual Erosion Rate Report" and in actuality what we are talking about is just updating the setback factor. Some of the other concerns were the potential changing of the methodology for analyzing erosion rates. We are planning to do that on the next update.

David Webster made a motion to approve the rule amendment for 15A NCAC 07H .0304. Jerry Old seconded the motion. The motion passed unanimously (Old, Hester, Simmons, Carter, Weld, Wynns, Peele, Cahoon, Webster).

**Public Comment Summary and Adoption of Temporary Rules 15A NCAC 07H .0306 – Replacement of Single Family or Duplex Residential Dwellings (CRC 12-38)
Mike Lopazanski**

As part of House Bill 819, the CRC was required to amend 7H .0306 to allow for the replacement of single-family residential and duplex structures greater than 5,000 square feet. This replacement would be allowed if they were constructed prior to August 11, 2009. They cannot exceed their original square footage or footprint and must meet the minimum setback factor. They must also be built as far landward on the lot as feasible. We held a public hearing on October 17 in Morehead City and had two comments which were both in favor of the temporary rules. Staff is asking the Commission to adopt the temporary rule. This rule will remain in effect until the Commission adopts a permanent rule to replace it.

Jerry Old made a motion to adopt temporary rule 15A NCAC 07H .0306. Veronica Carter seconded the motion. The motion passed unanimously (Old, Hester, Simmons, Carter, Weld, Wynns, Peele, Cahoon)(Webster absent for vote).

**Approve 15A NCAC 07H .0306 and Fiscal Analysis – Replacement of Single Family or Duplex Residential Structures–Permanent Rule (CRC 12-39)
Mike Lopazanski**

This is the same rule language for the temporary rule change that was just adopted. We were required to do a fiscal analysis for the permanent rule. This rule change was required by legislation. We found that it would benefit property owners with structures greater than 5,000 square feet that were damaged. It will not have an effect on NCDOT permitting and may preserve the local tax base. Staff is recommending the CRC approve the rule amendment and fiscal analysis for public hearing. The fiscal analysis has been approved by DENR and OSBM.

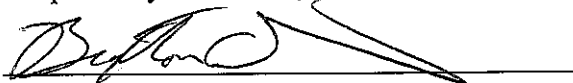
Jerry Old made a motion to approve the rule amendment and fiscal analysis for 15A NCAC 07H .0306 and send out to public hearing. Jerry Old seconded the motion. The motion passed unanimously (Old, Hester, Simmons, Carter, Weld, Wynns, Peele, Cahoon)(Webster absent for vote).

OLD/NEW BUSINESS

Bob Emory stated at the next meeting we should have a discussion on how we handle variances. We should also try to incorporate a way to encourage local government interaction while in Wilmington.

With no further business, the CRC adjourned.

Respectfully submitted,


Braxton Davis, Executive Secretary


Angela Willis, Recording Secretary