

Meeting Summary
Terminal Groin Kickoff Meeting
September 14, 2009 1:00 p.m.
NC Cooperative Extension, New Bern

Jim Gregson began the meeting with the ground rules for the meeting. Bob Emory will moderate the meeting. Comments will be held until the public portion of the meeting. The overall objective of the meeting is to present the project team, scope of work and discuss the study. The contractor is responsible for technical study and the CRC will be responsible for policy recommendations.

House Bill 709 is a two part bill which is “an act to impose a moratorium on certain actions of the Coastal Resources Commission related temporary erosion control structures and to direct the Coastal Resources Commission to study the feasibility and advisability of the use of a terminal groin as an erosion control device.” Section one states relating to the moratorium states ‘there is hereby established a moratorium on certain actions of the Coastal Resources Commission related to temporary erosion control structures. The Commission shall not order the removal of a temporary erosion control structure that has been permitted under Article 7 of Chapter 113A of the General Statutes in a community that is actively pursuing a beach nourishment project or an inlet relocation project on or before the effective date of this act.’”

There are exceptions to the moratorium. The first is permit modifications can be granted to allow the replacement within the originally permitted dimensions of temporary erosion control structures that have been damaged or destroyed. The second is the requiring of the removal of temporary erosion control structures installed in violation of Article 7 of Chapter 113 A of the General Statutes and rules adopted pursuant to Article 7. Another exception is requiring that a temporary erosion control structure that has been modified in violation of Article 7 of Chapter 113A of the General Statutes and rules adopted pursuant to Article 7 be brought back into compliance with permit conditions. The last exception is requiring the removal of a temporary erosion control structure that no longer protects an imminently threatened road and associated right-of-way or an imminently threatened building and associated septic system. Section two of House Bill 709 states “The Coastal Resources Commission, in consultation with the Division of Coastal Management, the Division of Land Resources, and the Coastal Resources Advisory Commission, shall conduct a study of the feasibility and advisability of the use of a terminal groin as an erosion control device at the end of a littoral cell or the side of an inlet channel. For the purpose of this study, a littoral cell is defined as any section of coastline that has its own sediment sources and isolated from adjacent coastal reaches in terms of sediment movement.”

House Bill 709 states that the study shall consider scientific data regarding the effectiveness of terminal groins constructed in North Carolina and other states in controlling erosion. Such data will include consideration of the effect of terminal groins on adjacent areas of the coastline. Scientific data regarding the impact of terminal groins on the environment and natural wildlife habitats. Information regarding the engineering techniques used to construct terminal groins, including technological advances and techniques that minimize the impact on adjacent shorelines. Information regarding the current and projected economic impact to the State, local governments, and the private sector from erosion caused by shifting inlets, including loss of

property, public infrastructure, and tax base. Information regarding the public and private monetary costs of the construction and maintenance of terminal groins. Whether the potential use of terminal groins should be limited to navigable, dredged inlet channels.

Requirements identified in House Bill 709 state the Commission shall hold three public hearings where interested parties and members of the general public will have the opportunity to present views and written material regarding the feasibility and advisability of the use of a terminal groin as an erosion control device at the end of a littoral cell or the side of an inlet to limit or control sediment passage into the inlet channel. No later than April 1, 2010, the Commission shall report its findings and recommendations to the Environmental Review Commission and the General Assembly.

At this time Jim Gregson introduced the moderator of the meeting, Bob Emory. Bob Emory, Chairman of the Coastal Resources Commission, reviewed the agenda for the meeting and turned the meeting over to Moffatt and Nichol.

Johnny Martin of Moffatt and Nichol introduced the panel and stated the project team members will consist of Moffatt and Nichol, Dial Cordy and Associates, Dr. Bill Cleary, and Dr. Chris Dumas.¹ Moffatt and Nichol will be the project lead and provide the coastal engineering analyses. Moffatt and Nichol will also look at the construction, cost and location aspects of the study. Dial Cordy and Associates will conduct the environmental resource assessment. Dr. Bill Cleary will be the coastal geologist. Dr. Chris Dumas will conduct the socio-economic portion of the study.

Johnny Martin stated that a jetty is a structure extending into a body of water which is designed to prevent shoaling of a channel by littoral materials and to direct and confine the stream or tidal flow. Jetties are built at the mouths of rivers or tidal inlets to help deepen and stabilize a channel. A groin is a narrow, roughly shore-normal structure built to reduce longshore currents, and/or trap and retain littoral material. Most groins are of timber or rock and extend from a seawall, or the backshore, well onto the foreshore and rarely even further offshore. A terminal groin is a groin, often at the end of a littoral cell or at the updrift side of an inlet intended to prevent sediment passage into the channel beyond.

As directed in the legislation, the project work plan will consist of eight tasks. There are some important considerations for analysis. The data collection and assessments for existing projects will be site specific, however the applicability to North Carolina individual inlets will not be. Analysis and studies will focus on what can be learned from existing installations and what those lessons mean for applicability in North Carolina (geology, sediment transport patterns, hydrodynamics, natural resources, etc.). Modeling will be done and will also be schematic with desktop level analyses. This will not be site specific and will look to determine relative trends and behaviors but will not be absolutes. Please recall that the purpose of the contractor study is a technical assessment of terminal groins and not a policy recommendation.

¹ Subsequent to this meeting Dr. Bill Cleary was replaced by Dr. Duncan Fitzgerald who will conduct the geological portion of this study.

Task one, coastal engineering analyses, will consist of data collection for terminal groins on the east coast. This will be focused in the southeast, only using northeast sites if needed. We will select eight of the best sites. The richness of the datasets will be the key selection factor. We will try to select a range of projects (length, height, porosity, sediment transport, locations). We will collect raw datasets where possible to limit bias. We will develop procedures to net our nourishment and other project effects on impact calculations. Calculation procedures will be documented for transparency and reproduction by interested parties. Geological factors will also be considered.

Task two, environmental analyses, will be conducted by Dial Cordy and Associates. This task will consist of existing data collection and literature review. Assessments will be made from existing data the effects of terminal groins on the natural environment. This task also includes report preparation.

Task three, construction techniques, will consist of literature review of techniques used to limit impacts on adjacent shorelines. This would include limits on groin height, groin length and porosity of structures. Schematic modeling will be done to assess techniques under average and storm wave conditions.

Task four, economic study, will be conducted by Dr. Chris Dumas of UNCW. The study will include the impacts of shifting inlets to state, local, and private sectors. Three scenarios will be studied including the baseline, terminal groin and unimpeded inlet shifting cases. Current property location and value data will be assembled. Property value losses (current and 50-year) under each case will be projected including property loss, diminished market value and tax base losses. The net economic impact will be compared.

Task five, initial construction and maintenance costs, will review available data on initial construction and maintenance for existing terminal groins including public and private costs. Ranges will be developed of potential costs based on typical expected terminal groin dimensions and typical North Carolina offshore slopes.

Task six, potential terminal groin locations, will review literature of existing locations (dredged, natural inlets and end of non-inlet littoral cell). Average and storm wave conditions will be considered. Specific sites will not be recommended. An assessment of appropriate and inappropriate conditions will be done.

Task seven, public input, will be accomplished through three public meetings. The meeting will coincide with CRC meetings on October 29 at the Sheraton Atlantic Beach, January 13 at the Raleigh North Hilton, and March 24th or 25th at Sea Trail in Sunset Beach. All information will be available on the Division of Coastal Management website under “What’s New” and e-mails concerning the study will be sent to the Director of Coastal Management at Jim.Gregson@ncdenr.gov.

Task eight will consist of the draft report which will be ready by February 1, 2010 and the final report will be ready by March 1, 2010. The total project duration is seven months and the timeline was laid out by Johnny Martin.

The initial site list will be concentrated in the Southeast due to environmental and other similarities. We will utilize northeast sites only if needed. We will select eight of the best sites for coastal analyses. Coastal analyses will overlap as much as possible with environmental analyses for site data diversity. We will provide a final list as soon as possible for review.

Bob Emory stated that public hearings will coincide with CRC meetings. The findings of the study and the CRC's recommendations will be submitted to the Environmental Review Commission for consideration and further action. Jim Gregson will verify that the State has a record of all comments for the study. Everyone is encouraged to send comments by e-mail so there is a record. The CRC and CRAC will provide guidance to Moffatt and Nichol during the study. The CRC and CRAC will be responsible for developing the policy conclusions and recommendations to be supplied to the ERC and ultimately the General Assembly. The Science Panel will be involved in the scoping meeting and peer review of interim documents and draft and final report review. Moffatt and Nichol will provide memos describing methodologies and analyses for review and comment. Everyone was encouraged to provide quick responses due to the schedule and timeframe to complete the study. The Division of Land Resources will be involved with the initial contracting and will have a limited role moving forward. The next steps will include finalizing data collection, developing a list of selected sites, developing methodology statements for analyses, and the first public hearing will occur on October 29 at the Sheraton Atlantic Beach at 5:00 p.m.

At this time the meeting was opened for a question and answer session followed by a public comment session.

Q: Concerns that science panel will not be actively involved. There needs to be a mechanism for communication between Moffatt and Nichol and the science panel

A: Moffatt and Nichol will send everything via e-mail to the science panel.

Q: Is there a conflict of interest? This is a company (Moffatt and Nichol) that is engaged in consulting on these structures.

A: The scope of work is clear. The methodologies will be sent out and information will be available to everyone to reproduce analyses so they can reproduce the results. This will be an unbiased and open assessment of facts. Moffatt and Nichol will be neutral on this project. Moffatt and Nichol are only looking for facts for a fair and honest assessment. Moffatt and Nichol will not make any recommendations. Recommendations will come from the Coastal Resources Commission. Moffatt and Nichol has the knowledge necessary because of their work on the Beach and Inlet Management Plan.

Q: How will the kinds of structures be chosen to evaluate? Proposals in North Carolina are updrift of inlets. Most existing structures are downdrift of inlets. How will sites be selected that are relevant to the study?

A: Case study only allows us to use what exists. We have a starting list to guide judgment for future structures. There are only a certain number of locations to study.

Comment: There are aspects of the legislation that cause concern with the definition of littoral cell. Locations of cells are not fixed and this causes uncertainty. All the example selections of sites are inlets which are appropriate for the study, but we need to look at structures with littoral cells to see if the structure will function as a terminal groin. The Genesis model should not be used. No models should be used. Terminal groins are not solutions and should be built with beach nourishment. These structures are part of a management plan. The study team should go into the field and talk to citizens about access and affects on adjacent properties. The study team should talk to officials with terminal groins and see what problems have occurred.

Response: Moffatt and Nichol can look at other models and they agree that these structures should have nourishment with them. We do not have to dwell on the littoral cell, but it has to be addressed. The study team will talk about the modeling problem.

Comment: Littoral cells do not exist in North Carolina.

Comment: Dr. Cleary, geologist, will create problems. He is currently working for Figure 8 for a terminal groin. Another coastal geologist should be used as it would weaken the credibility of the report.

Comment: Dr. Cleary knows more about inlets than anyone in the state.

Comment: The panel should take a close look at South Carolina projects since their groin rules and beach management act. Projects have been built there and assessments have been done.

Comment: The CRC needs to feel good about the openness of accepting comments from people. The CRC wants to be well informed. At the CRC meeting there will be conflicting information from Dr. Cleary and Dr. Pilkey. CRC findings could be made on bad information. Melvin Shepard requested that he see a copy of all the information received at DCM. March 24-25 are bad dates for public hearings on this issue as the CRC needs to sit down and look at all the information so there will be a clean object to present to the legislature.

Comment: An at-large member of Brunswick County asked to change the March regional meeting to earlier in the process. Moffatt and Nichol needs to include the science panel on everything to increase transparency of Moffatt and Nichol. There should be peer review by scientists. There is a concern about the perception of Dr. Cleary. When the CRC sees it in March, maybe the scientists could have worked out the differences.

Response: The methodologies will go to the science panel.

Q: Is sea level rise being considered? How will the CRC consider SLR?

A: Moffatt and Nichol will consider sea level rise by consulting with weather and climate officials. It will also come up with erosion potential scenarios as laid out in task four.

Comment: There are parallel studies of sea level rise impacts by emergency management. Moffatt and Nichol should be consulting with experts.

Comment: We are not going to arrive at a conclusion that everyone will agree with. We need all the comments. There will be a wide variety of opinions. Dr. Cleary will be objective.

Comment: Dr. Cleary is not in favor of groins in all inlets. Some are prime candidates. The scope did not include science panel input. There is not a lot of peer review literature on terminal groins. Don't compare oranges to apples. There are only about four people in the state who talk about inlets.

Comment: The concern is public perception. We want to ensure that we keeping it transparent.

Q: Will the costs of engineering be compared to a buyout program in high hazard areas?

A: We will look at several scenarios and consult with different groups and policy groups that play a role in the costs. We will model the best estimate of what may happen.

Comment: An appeal was made to the CRC to be objective. We have find something that is a viable solution. The media uses examples that are not accurate. There is a war between environmentalists and developers. The CRC has to be objective as the public will be the louder voice and disenfranchise the CRC.

Q: Will the economic impact if the terminal groin works be tested?

A: This is an engineering question. We will evaluate what information is provided by the scenarios.

Comment: Have to look at dredged versus undredged inlets. Have to look at stable inlets and sediment transport. The legislation states that the study is limited to navigable dredged inlets.

Comments: There is no way to predict the economic impact. We can only look at the potential impact. Drop the timeframe from 50 to 30 years as with the setback within inlet hazard areas.

Comment: Don't spend a lot of time looking at non-inlets. There isn't any information available. Beyond the requirements in the bill, the CRC needs to know if it is possible to build a groin with no impact. The CRC also needs to know if something goes wrong how will it be taken out or can you take it out.

Comment: A groin is for sediment management and does not control navigation or sediment management. The economic study should focus on the economic evaluation of the four best candidates. Look at these four inlet locations and make reasonable predictions.

Comment: Economic data for four locations would be great information with an economist under contract. Genesis is abstract. Use real world, hard data.

Comment: The environmental analysis – use pre-project documents and look at actual data. Identify a level of certainty while looking at abstract versus specifics. Things change and specific inlets should not be studied today. CRC policy statements should not be site specific.

Response: Rules would not be developed to address specific locations.

Q: As pieces come together, how do we draft policy recommendations?

A: At the March meeting the CRC will look at the February 1 update from Moffatt and Nichol and construct policy recommendations.

Q: Will the February 1 draft be available to the public?

A: Yes.

Comment: The recommendations need to be made assuming that the legislation is a reality. This is a proposal that may or may not move forward after the CRC makes recommendations. The economic analysis is still not clear. We need to have projections of costs to build and maintain these structures. Go into the analysis thinking that you going through with everything to construct mitigate impacts. The Shell Island revetment would be a case study.

Comment: We will have to make assumptions one way or another. During the economic analysis we will consult with groups that know about the best assumptions.

Comment: At these eight study sites are we examining the need for beach nourishment downdrift and the benefits and costs downdrift?

Comment: A failed terminal groin will need to be removed. Will Moffatt and Nichol provide guidance of failure from a technical perspective? The CRC could use the guidance.

Comment: It is difficult to define failure. It is important to define failure ahead of time.

Comment: The science panel will provide peer review, but Moffatt and Nichol should come to the science panel meeting for detailed discussions.

Comment: If we don't have eight sites to use, don't use eight sites. The legislation does not specify eight. If the site is not relevant do not use it.

Public Comment

The following oral comments were received during the September 14 meeting:

Andy Sayre, Village Council of Bald Head Island, stated much of what I have read about terminal groins refers to them as an added tool for beach renourishment or stabilization. For Bald Head Island this is a gross understatement. A terminal groin or terminal groin field may be essential for the sustainability of Bald Head Island. If this is not a perfect terminal groin, we do not want to see Bald Head Island on the cutting room floor. This is an issue that is very important to us.

Marty Cooke, Brunswick County Commission, stated I am not here as a scientist or an expert. I am a county commissioner and as a commissioner I have some concerns. We were discussing terminal groins and the stability of beaches at a meeting in Hickory at the North Carolina Association of County Commissioners meeting. We were talking about the stability of beaches and I stated that terminal groins are something that I am concerned about because I think that it has a viable answer. There was an effective study regarding coastal resources dynamics of terminal groins presented in June. The Pea Island example at Oregon Inlet was shown and the only way to save the bridge was to put in a terminal groin. After seeing this and other studies about six months earlier it made me a believer. I went from a disbeliever to a believer after I saw that a terminal groin has sand that you put around it and it causes stability. If you look at Oregon Inlet in the twenty year study, every two months they were able to show that there was no erosion except for two years which were not back to back. They went down mile by mile for six miles and showed that there was no impact for six miles. I am a layman, not a scientist, I don't know if there is global warming or global cooling. I hear there is global warming and then I hear there is global cooling. Then I see pictures and they say that we will be under water in ten years and then I talk to another geologist and they say that it means two inches. I can't tell. But what I can tell is that there seems to be stability at Fort Macon and at Oregon Inlet. I know we keep pouring money into trying to renourish these islands, the infrastructure, roads, the electrical, and sewage. While I was at the NCACC in Hickory, I had two other county commissioners say to me that they own property down there too. We built based upon the guidelines of the thousand year flood, we had to have all these permits, jumped through all of the hoops and did everything they asked us to do and they act like we have stuck our property on the end of the beach and expected it to erode out. If you look at Bald Head Island on the south end they have a three hundred foot parallel soft groin. When the COE turned on their dredge back in February they eroded out 300 feet. I am not an expert but I do know there is cause and effect. When they turned on the pump they ended up losing 300 feet of sand. We have to find a way to make it stable. The other thing about it is there is a mischaracterization. They are termed as jetties and they are not jetties. My undergraduate was at the Citadel and I do know about Folly Beach. I went down to Folly all the time and I know all those perpendicular to the shoreline are not what we are talking about. We are looking for something that will be viable. As public servants and individuals that are involved in the State's matters we have to be able to show everybody, regardless of whether they are experts or of the scientific community or anything else for that matter, that there is a level playing field. I have heard environmentalists say that there shouldn't be any development any further east than Charlotte, North Carolina. Actually, I have literally heard that it should be a mile from the beach. I am not saying whether it should or shouldn't, but what I am saying is that there must be objectivity and a level playing field or we will be disenfranchised by the general public.

Frank Iler, North Carolina Representative for Brunswick County, stated that I may be one of the guys that has to vote on this next May. This process today will take a lot of mystery out of what goes around Raleigh. I am very impressed with the brain power that I have seen in the room that will be brought to bear on the subject. This is something that we need to look at and the interest is there. There were four mayors from Brunswick County that I thought would be here today, there are some council members that are part of the process today and I appreciate them coming. There is a lot of interest in this. The study bill passed 40-1 in the Senate and 92-21 in the House. The permitting bill, which has floated around in Raleigh for months and is in the environmental

committee, passed the Senate 37-10. It has been stalled in the House for reasons that we will not go into today. Take the politics out of it and it is something that needs to be looked at. We appreciate all of the effort that will go into this. It will give me and my colleagues the guidance down the road. This will give the CRC another tool to solve some of our problems. All we are asking is to look for another tool to solve some of the things that we run into in Brunswick County and all up and down the coast of North Carolina. To do nothing, which some folks don't want to do, no dredging, no shipping channels, no Intracoastal Waterway, loss of state roads on land, loss of beach assets and access for loss of tourism and tourism dollars. In today's Wilmington paper there is an article with the word "terminal groins" and then the picture is of the 200-foot soft groin on Bald Head Island which is not a terminal groin. It also talks about trapping sand and robbing sand from downdrift. This is all misinformation. I am not a scientist, but I have been told that you can pump sand in there and not take any sand from other sources. It will just hold sand in. We need a lot of guidance and I thank everyone involved in the process.