Internal NCDENR Technical Working Group and External Advisory Committee: Membership and Meeting Minutes

N.C. Beach and Inlet Management Plan Advisory Committee

Committee Members | Meeting Minutes

Advisory Commitee Members

Pete Benjamin
Field Supervisor
US Fish and Wildlife Service

Christine Brayman
Deputy District Engineer
US Army Corps of Engineers

Rick Catlin
New Hanover Ports, Waterways, and Beach Commission
Richard Catlin & Associates

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CWO Chris Humphrey
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Dr. Margery Overton
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Town of Caswell Beach

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Project Planning Engineer
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Jim Stephenson
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NC Coastal Federation

Mayor Ray Sturza
Kill Devil Hills

Marlise Taylor
Director of Research
Division of Tourism, Film & Sports Development

BIMP ADVISORY COMMITTEE MEETING
May 31, 2007
1:00 pm
Duke Marine Lab, Beaufort, NC

COMMITTEE MEMBERS

Mr. Greg "Rudi" Rudolph, Carteret County Shore Protection Office
Mayor Harry Simmons, Caswell Beach
Mr. Spencer Rogers, NC Sea Grant, CRC Science Panel
Mr. Layton Bedsole, NC Ports
Dr. Margery Overton, NC State University, CRC Science Panel Chair
Mr. Howard Hall, USF&WS (filling in for Pete Benjamin)
Mayor Butch Parrish, Topsail Beach
Dr. Michelle Duval, Environmental Defense
Mr. Jim Stephenson, Coastal Federation
Mr. Rick Catlin, New Hanover County Ports, Waterways and Beach Commission
Dr. David Mallinson, ECU
Mr. Allan Sandoval, NC Dept of Commerce
Mr. Ron Sechler, National Marine Fisheries Service
Ms. Christine Brayman, USACE Wilmington District

OTHER ATTENDEES

Dr. Jeff Warren, DCM
Mr. Steve Underwood, DCM
Ms. Michele Walker, DCM
Mr. Patrick Limber, DCM
Mr. John Morris, DWR
Mr. John Sutherland, DWR
Mr. Darren England, DWR
Ms. Diana Kees, DENR
Mr. Johnny Martin, Moffatt & Nichol
Mr. Jeff Sheldon, Moffatt & Nichol
Mr. Mike Street, DMF
Dr. Courtney Hackney, CRC Chairman
Dr. Mike Orbach, Duke University
Ms. Sarah van der Schalie, NOAA
Mr. Bob Simpson, freelance writer

MEETING SUMMARY

Dr. Mike Orbach, professor and former chair at Duke Marine Lab, provided welcoming comments and briefly explained the green nature of the Ocean Sciences Teaching Center.

John Morris asked panelists to introduce themselves and to identify the concerns they will bring to the discussion.

Harry Simmons – sat on an ad hoc committee 5-6 years ago (with Mike Street, Michelle Duval) that discussed beach and inlet mgmt issues and developed a document (maybe that document should be re-introduced?)

Spencer Rogers – look at issues from state level and not as individual communities

John Morris and Steve Underwood – brief intro of legislative mandate related to beach and inlet management plan (BIMP) et cetera

John Morris – discussed next steps for negotiating contract, finalizing work plan and schedule. It's important that we're having this meeting today to help guide DWR/DCM prior to starting these tasks. DENR will have a technical advisory committee comprised of representatives from affected divisions to work with and guide the contractor, Moffatt & Nichol (M&N).

Johnny Martin and Jeff Sheldon – introduced Moffatt &Nichol (M&N) and their national and local experience; also mentioned that Land Management, Inc. will be a sub-contractor.

John Morris – What are the most important things from the BIMP advisory committee's perspective that should be addressed by the BIMP effort?

Mike Street – provided a brief overview of Coastal Habitat Protection Plan (CHPP) and its outline for beach and inlet mgmt plans (a comprehensive approach with diverse stakeholders to address sand, fish, tourism, infrastructure and property protection issues and how these diverse issues fit together). State should be (and is) taking lead on this effort to make sure that there is a consistent approach along the coast and to keep locals from competing with each other.

CHPP Goal 3, second item
"prepare and implement a comprehensive beach and inlet management plan that addresses ecologically based guidelines, socio-economic concerns and fish habitat."

Rick Catlin – also include AIWW and inlet issues and harbors

Layton Bedsole – Also consider controlling sediment influx from inland areas draining to coast (e.g., High Point, Raleigh) and make it truly "comprehensive."

Mike Orbach – A lot of these sediments flow out of these rivers. Would like to see this group look ahead (i.e., 50-100 years) to issues such as sea level rise that will make our coast and estuaries look very different – tough issue but part of the reason you all are here.

Dave Mallinson – I'll second that. To determine long-term management, you have to have a good understanding of the natural system and the processes within that system.

What about tropical storm intensification (potential collapse of portions of islands)? not sure how far you want to go with this effort

Harry Simmons – agrees that sea level rise (SLR) has got to be a part of the BIMP. Maybe there are both short- term (up to 30 years) and long-term (40 – 80 years) goals (and long-term may not need to be addressed in the near term but at least identify issues for the next generation).

Butch Parrish – In the Town of Topsail Beach, our horizons are much shorter. We need a better funding and budgeting process to know how towns can execute nourishment projects in a non-cumbersome way. Need to resolve issue to better use local and state funds to execute federal permits (e.g., Topsail Beach is surrounded by federally maintained Banks Channel and the US Army Corps of Engineers, or USACE, has permits to allow disposal of dredged sand on the beach. Right now, USACE doesn't have money but Topsail Beach does and wouldn't it be easier to use that money to execute USACE permit rather than spending years applying for separate permits to do the same thing that already is permitted?). It also seems that so much work is repeated from an environmental point of view so it would be nice to have an overall statewide plan in order to gather data more cost effectively and to generate a statewide environmental assessment that would allow local beach nourishment projects to go forward in a less time-consuming manner.

Steve Underwood – The five steps identified by DWR/DCM in BIMP work plan are critical, especially the first step of identifying and acquiring all of these coastal data that could help the overall EA/EIS process because there is a level of confidence in the data that have been collected as well as having these data in one central location (and these data could then be plugged into the EA/EIS needs to expedite development).

Harry Simmons – What kind of data?

Rudi Rudolph – worried a little bit about the timeline in the BIMP scope of work (SOW). What really can be done in 18 months? Step 1 (data collection) could easily take more than 18 months. Also, sand on the beach is recycled from offshore (continental shelf) and not coming from rivers. How do we manage that sand versus other sediment in estuaries (and the relationship to fish habitat).

John Morris – What we're going to try and do in 18 months is the best job possible to have a product for the public but we don't feel this will be the end of the effort.

Mike Street – This needs to be a comprehensive data gathering process along entire coast (biological, engineering, etc.). Data need to be identified in a common database but don't necessarily need to reside there. Should the state step forward with local governments and make policy plans that assume limited to no involvement of the federal government (i.e., USACE)?

Rick Catlin – goal-oriented data that would help local governments design projects and obtain / execute permits (e.g., engineering and geological data), what do you want the data to be used for? Possible answers: expedite permits, reduce costs, protect environment, and set policy.

Mike Orbach – Make sure you have economic and social data about coast as well as other scientific data. It is people's attitudes, perceptions and interests that drive things (i.e., policy) in the end.

Margery Overton – This is an excellent conversation about data. Is DCM prepared to take this project and keep it alive after it's turned over by M&N at the end of 18 months? There needs to be a strong "yes" answer from DCM.

John Morris – noted how the Division of Water Quality improved permitting process by going to a river basin approach in which all NPDES permits are updated at same time. Do the same with BIMP (or update the BIMP one major one region at a time - suggestion by Sutherland after the meeting)

Jim Stephenson –There are a lot of data on environmental impacts that have been collected by beach communities. It would be interesting to pull those data together (pre- and post-construction data to see what it shows on a coast-wide basis). If you put a beach fill project through a series of monitoring requirements, is it useful data to collect? What protocols should one follow in the type and amount of data one collects on beach projects?

Butch Parrish – When we talk about environmental monitoring, maybe there simply should be a formula (e.g., you have to pay a certain amount of money per cubic yard into an environmental research fund) and then the environmental community (agencies?) could make the decisions as far as the best studies and data per each project.

Rudi Rudolph – What about setting up a biological mitigation fund to repopulate nourished beaches?

Harry Simmons – Although you don't want to see $5.00 per cubic yard to move the sand and $6 per cubic yard to monitor.

John Morris – We'll be working with M&N on a weekly if not daily basis and there will be mid-course corrections during the project (related to data identification and database construction)

Christine Brayman – We've contracted out with firms and with the USACE in Vicksburg to gather data (formatting, location of where it is, acquiring it). USACE requires monitoring plans for their projects.

Allan Sandoval – Commerce has tourism and economic data such as lists of water-dependent companies, population forecasts and population migration numbers (commuters) that can be provided.

Mike Orbach – Data on the governance structure itself would be useful (how do other people in other locations make decisions about beach and inlet mgmt issues?). What is the governance mgmt structure that we're dealing with here? A lot of these questions cannot be answered without these data.

Butch Parrish – With respect to management regions, one question that could be answered is that "Do these beaches need to be nourished or is there a better way to manage the beach (moving houses, etc.)?" If those macro issues are not addressed, then something has been left off the table.

Mike Orbach – State made a policy of retreat in the mid 1980s. This group may be involved with answering the question, "What is the new policy?" For example: "Are we going to nourish all the beaches?" That would be a policy of defense and not retreat.

Harry Simmons – CAMA (Coastal Area Management Act) land use planning (LUP) forces us to plan, but it is an extra layer of decision making that is above and beyond the elected officials of local jurisdictions, so planning and zoning is not completely a local issue, as it is elsewhere in the State.

TEN-MINUTE BREAK

Rudi Rudolph – What does DENR expect from the BIMP advisory committee?

John Morris – We're not asking advisory panel to vote or to take responsibility for decisions. What we anticipate is to ask this group to meet periodically and help us (DWR and DCM) review program and guide the project (next meeting probably after we have a contract in place with Moffatt & Nichol). We'll stick with the advisory committee through the 18-month project.

Harry Simmons – What does meeting periodically mean?

John Morris – We'll get together when we feel there is new information or an undiscussed issue to present to you.

Harry Simmons – or when we have something to show you

John Morris – Fair enough, let us know when that happens.

Steve Underwood – There is a danger with a goal of what can be accomplished in 18 months. For example, DCM always tries to define where they can get the most bang for their buck to maximize funding and data priorities. It seems like there is a lot of interest within the panel to look at EIS's or maybe that is too global. If this is an effort to fulfill

all of the old statutes, there's a lot to cover. I'm afraid we're going to collect too much and not say too much about anything in specific. This effort likely is more of a beginning.

Jim Stephenson – How wedded is this contract to the 2000 legislation. For example, public beach access does not appear to be part of the contract.

John Morris – This is not the actual contract but rather the request for qualifications. We need to pay attention to both legislative mandates. M&N had a strong proposal on both the economic and environmental side so we're going to try and have a balanced product. We intend to include a summary of the current state of public access.

Harry Simmons – NC Sea Grant did an extensive survey of beach access.

Jeff Warren – DCM was part of that.

Harry Simmons – Maybe that is something that needs to be re-visited (e.g., there are new access sites that are not in the current database and also street side parking was not identified).

Margery Overton – Stephenson asked a question about the thirteen points in the 2000 legislation but those points aren't necessarily part of the BIMP tasks. All of these points can't be addressed in the next 18 months.

Spencer Rogers – I've got a question on the end product we are expecting and telling the contractor what we're looking for. It's pretty clear that the monitoring efforts for beach fill in particular are being done with blinders (some issues are being ignored and not enough data are being collected and other cases there are too much data being collected). There definitely needs to be a comprehensive look at this. What are we expecting to be in this final report?

John Morris – That's a little hard to answer at this point.

Ron Sechler – It would be nice to comment on data and assessing the biological/ecological impact perspective.

John Morris – Maybe we could identify a monitoring effort that could be held up as the gold standard for future monitoring efforts?

Spencer Rogers – The issue is generic (i.e., not necessarily monitoring per se). There needs to be guidance for the contractor. To me, the benefit of this effort is the establishment of a plan on where we need to be headed rather than just a data collection effort.

John Morris – It would nice if Rogers could summarize his ideas in a 2-3 page document and provide it to us (DWR/DCM).

Mike Street – This is an advisory committee to the process. The important question is, "Are the agencies going to do specifically what the CHPP said (i.e., prepare a comprehensive BIMP…)?" That's broad and not something that will be accomplished in 18 months. DWR/DCM need to ask what is going to be accomplished and how the panel can help get this accomplished as well as give their input on what they feel should be included. This process is worth doing for the long term and not just be a project that is completed and placed up on a shelf.

Michelle Duval – One of the goals of the BIMP effort is economic and some of this research has already been done. Could there be a comparison of how the different cost/benefit studies have been done and if there is any way to try and include concrete methods for resource evaluation? For example, have results from some of the older studies (e.g., 25 years ago) turned out the way they were predicted?

Harry Simmons – The USACE does not use oceanfront houses to do their economic analysis (e.g., Caswell Beach) they take a conservative approach (because losing an oceanfront home makes the adjacent row oceanfront so there is no net loss or net gain).

Christine Brayman – Also, there are no regional benefits included in the analyses.

Harry Simmons – It's a very conservative approach.

Butch Parrish – At the end of section 3 (BIMP RFQ SOW), there's nothing there on reviewing the State's polices on some of these beach and inlet mgmt issues. We need to be results oriented. Are we trying to expedite processes, continue to have a retreat policy, etc.?

Rick Catlin – We very often write out a table of contents of what will be produced for the client to see if that is what they are expecting. There seems to be a lot of confusion as to what the BIMP deliverables will be.

Jeff Warren – Remember that this work plan is not the end-all, be-all plan but rather the beginning of an ongoing philosophy on how to manage NC beaches and inlets. Also, developing a comprehensive stakeholder group is part of this initial effort. However, at the end of 18 months, there will not be a final comprehensive plan, it will only be the start of the effort.

Layton Bedsole – That's a good point. I think this group got hung up on the 18-month deadline too early on. Rather, we should say this 18-month period is merely the first 18 months.

John Morris – One thing to consider is the major uncertainty of federal involvement in beach fill projects. There's a huge unknown on what kind of funding will be in place to carry on this program into the future. This is something that the General Assembly will have to consider.

Mike Orbach – You need to collect data to show the actual cost per taxpayer of putting sand on the beach (locally and federally funded projects).

John Morris – One thing this project can do is to capture these data for the historic beach fill projects in NC.

Layton Bedsole – By putting this info together, we'll be better prepared to address the issues at the state and federal level (i.e., funding).

Rudi Rudolph – is the CHPP a legislative mandate?

Mike Street – it's my understanding that the three commission have adopted the CHPP (i.e., what is "supposed" to happen), I think the authority is more within DENR than anything else. However, the commissions (CRC, MFC, EMC) report annually to the General Assembly.

Mike Orbach – NC is fairly unique in that a lot of the policymaking resides within the commissions. These BIMP recommendations get funneled through the staff members of DENR's respective agencies to their respective commissions.

John Morris – The BIMP will be a set of recommendations to the commissions and the General Assembly. We only have a few minutes left. We will send out a summary of the meeting and I invite everyone to follow up with emails and written statements on your ideas to John Sutherland. We also look forward to getting back together with this group after we meet with the contractor (M&N), maybe in a few months later this summer.

CLOSE OF MEETING

NC BEACH AND INLET MANAGEMENT PLAN
ADVISORY COMMITTEE MEETING
Nov 27, 2007
1:00 pm
Archdale Building, Ground Floor Hearing Room
Raleigh, NC

COMMITTEE MEMBERS

Ms. Christine Brayman, USACE Wilmington District
Mr. Pete Benjamin, USF&WS
Dr. David Mallinson, ECU
Dr. Margery Overton, NC State University, CRC Science Panel Chair
Mayor Butch Parrish, Topsail Beach (outgoing mayor)
Mr. Spencer Rogers, NC Sea Grant, CRC Science Panel
Mr. Greg "Rudi" Rudolph, Carteret County Shore Protection Office
Mayor Harry Simmons, Caswell Beach
Ms. Beth Smyre, NC DOT
Mr. Jim Stephenson, Coastal Federation
Mayor Ray Sturza, Kill Devil Hills

OTHER ATTENDEES

Mayor Howard Braxton, Topsail Beach (incoming mayor)
Mr. Coleman Long, USACE
Mr. Boyd Devane, DWQ
Mr. Peter Elkan, Moffatt & Nichol
Mr. Darren England, DWR
Mr. Frank Folger; Helms, Mullis & Wicker
Ms. Ann Green, NC Sea Grant
Mr. Jim Gregson, DCM
Mr. Howard Hall, USF&WS
Ms. Leanne Madre, DENR
Mr. Johnny Martin, Moffatt & Nichol
Mr. John Morris, DWR
Mr. Jeff Shelden, Moffatt & Nichol
Mr. Guy Stefanski, DCM
Mr. John Sutherland, DWR
Ms. Lauren Theodore, DCM
Dr. Paul Tschirky, Moffatt & Nichol
Mr. Steve Underwood, DCM
Mr. Steve Wall, DENR
Dr. Jeff Warren, DCM
Mr. Matt Willoughby, NC News Network

MEETING SUMMARY

John Morris introduced himself and opened the meeting at 1:10 by welcoming the attendees. He provided a brief overview of the NC Beach and Inlet Management Plan (BIMP) and addressed "Why we are all here." DWR and DCM formed a partnership to prepare one plan to fulfill legislative mandates to develop a BIMP. Funding has been obtained and the engineering firm Moffatt & Nichol has been contracted to assist DCM and DWR with the initial phase of the BIMP. Morris introduced Jim Gregson who also welcomed the attendees and thanked them for their participation. Gregson asked the participants to introduce themselves.

Johnny Martin first gave an overview of Moffatt & Nichol as well as the M&N management team. He then provided a status report of the work to date. The original 13 legislative mandates were boiled down to a few major issues: characterize vulnerability, develop a conceptual regional sediment budget, foster a transparent process (stakeholder involvement), and prioritize sediment management regions. The five tasks to achieve these goals were also defined (data ID, define mgmt regions, stakeholders, mgmt strategies, final report). Martin provided examples of rich data sources already in existence such as the US Army Corps of Engineers (USACE) and Bogue Banks (Carteret County Shore Protection Office). Socioeconomic and political variables will also be considered among the scientific data used to define the sediment budgets (sediment volumes, coastal processes, fish habitat) and the prioritization of future beach fill projects. This portion of the BIMP will reflect current NC coastal policy (i.e., only consider management options available under current NC rules and laws). The strategies offered will meet the following standards: physics-based, environmentally responsible, politically viable, financially feasible and fundable and constructible. The strategies will also understand the importance of CHPP integration. Martin summarized by reminding the Committee that this is intended to be a living document that should be improved upon in the years to come.

Jeff Warren spoke about collaborative efforts between DCM and the USACE. He started by giving a brief overview of the relationship between the US Army Corps of Engineers (USACE) and the BIMP project. An initial collaboration dealing with regional sediment management (RSM) began in 2005 when the Wilmington District was developing a RSM demonstration project for the Morehead City region. DCM contributed almost $120,000 for high-resolution bathymetric surveys at Bogue and Beaufort inlets to assist with the USACE's modeling efforts to better understand the active coastal processes and determine a quantifiable sediment budget. DCM and DWR continue to have meetings with the USACE about RSM and beach and inlet management; however, the USACE (Wilmington District) has been without available resources to direct towards the efforts. Warren recounted the trip that DCM and Moffatt & Nichol recently made to the Mobile District to talk about RSM and the eCoastal enterprise GIS as part of the data gathering effort of the NC BIMP. The Mobile District was the first to develop a comprehensive RSM plan and program for the Gulf Coast states. As part of the process, the eCoastal

platform was developed and is a combination of database architecture, data formatting and labeling as well as an interface into ArcGIS with additional software tools. DCM and Moffatt & Nichol decided that it would be appropriate to adopt the USACE's eCoastal framework for numerous reasons, including efficiency of fiscal and human resources as well as cross-platform compatibility with the USACE. From these talks, DCM worked with the USACE in Mobile and Wilmington to prepare a RSM proposal for funding that will allow personnel from Mobile to come to Wilmington and start collecting and digitizing priority data as the first steps in getting Wilmington online with eCoastal. The proposal requests $72,000 for 12 weeks of data mining as well as work back in Mobile to format and create the Wilmington database. Warren pointed out that although 12 weeks and $72,000 may not seem like a lot, it represents successful leveraging of resources that is making NC the poster child for RSM and beach and inlet management. In addition, 12 weeks of having USACE personnel work in the Wilmington office probably translates to six months of an outside contractor trying to gain access to files, maps and computer data. Similarly, the $72,000 likely translates to $200,000 to $300,000 worth of work if performed by non-USACE personnel. Warren thinks this proposal is likely to be funded in early 2008 by USACE's RSM program.

Warren introduced Lauren Theodore, DCM's NOAA Coastal Services Center Fellow, who will be working with DCM from August 2007 to 2009 primarily on the BIMP. Warren mentioned that this Fellowship was another example of trying to pull together as many resources as possible to assist with the BIMP. Theodore briefed the Committee on her literature review. All the documents to which she has copyright access are available on DCM's BIMP website (www.nccoastalmanagement.net/bimp.htm). Eventually, Theodore will prepare a final report that will discuss all of the documents found in the literature review. Theodore also mentioned the other states working on similar efforts (TX, FL, CA and ME) in order to understand the hurdles they faced as well as the accomplishments. Simmons asked if there was information that was needed but currently was not accessible. Theodore felt that there was a lot of documentation out there that wasn't published and not a lot of peer-reviewed documents had been published. Theodore confirmed that she was still able to access many online resources through the University of Michigan.

Paul Tschirky briefed the Committee on data ID and acquisition. The focus was on datasets that would help to understand how sediment moves in order to establish the sediment budget. How the sediment is being used is also helpful (i.e., dredging volumes and locations, etc.). The eCoastal database hopefully will provide a lot of these records online at some point in the future. The sediment budget is the sum of the losses and gains of sediment in the cross-shore and alongshore littoral system (sediment "accounting"). No new modeling is being done for this sediment budget but it is more of a statewide conceptual budget that will use data already in existence.

Peter Elkan expanded on the sediment budget update by adding that vulnerability classifications were also a goal of the BIMP and, similarly, such analyses would use existing data rather than new modeling efforts (e.g., literature review). Characterization of physical risks as well as socioeconomic considerations will be included. Results will

be used to help prioritize funding and beach fill projects in the future. Howard Hall asked about how long-term sea level rise would be included in the vulnerability analyses and if the extremes of the models (best- and worst-case scenarios) would be included. Elkan responded that they will be considered and Martin also added that recommendations of management strategies likely will also include a discussion on how these strategies may need to be adjusted in the future based on sea level rise.

Steve Underwood discussed the prioritization of beach projects. He stressed that this first 18-month effort was only the first phase of a long-term project. Therefore, the final methods of how prioritizations would occur were currently unknown, although variables such as habitat and socioeconomic factors would be necessary. Underwood commented that stakeholder involvement is crucial to this effort. In the end, whatever methods are developed to prioritize projects, they need to be flexible (i.e., a set of guidelines and/or a list that may change in the future).

Morris asked if there should be a break and the Committee seemed to want to press on, ask questions and discuss the BIMP. Dave Mallinson wondered about the development of a sediment budget and how such a budget would be developed for large expanses where data were either scant or non-existent. Martin stated that there might be some techniques that could be used to come up with best-guess approximations to fill in the gap. (NOTE: It is also a goal of the BIMP to identify data gaps and potentially prioritize future work or funding for future work to fill these gaps). Underwood commented that it would be easy to spend all 18 months of this initial phase solely on data acquisition, but in absence of these more detailed efforts (and more detailed data) there are still some general conclusions that can be developed for a conceptual sediment budget. Mallinson also wondered how the existing vulnerability data may be improved upon. Margery Overton also wondered what "vulnerability" would mean (i.e., Vulnerability to storm surge? Erosion? Wind?). Elkan stated that the initial phase would be vulnerability to erosion. Martin stated that the focus would be on the beach face. Elkan also commented that the challenge is to come up with a uniform methodology for vulnerability definition. Underwood referenced the DOT "hot spots" along the Outer Banks as one method of characterizing vulnerability. Harry Simmons wondered if there would be more efforts put on lower magnitude storms with higher frequencies (categories 1 and 2) rather than high magnitude storms with low frequency (category 4 or 5). Better management of category 1-3 storms might be better than worrying about the high storms that are so strong and infrequent that everything is vulnerable. Butch Parrish wondered if it would be easy to look at something as simple as the distance of a structure to the high tide line and its vulnerability to erosion in the future. Complex analyses including economic analysis of beach fill is complex; stick to simple.

Simmons wondered if it would be more effective to call this an inlet and beach mgmt plan. Underwood mentioned that FL had removed their inlets from the entire system and the NC approach was to understand the entire system (how the inlets interacted with the oceanfront). Howard Braxton voiced his concern about the complexities of trying to achieve the goals of the BIMP. Morris commented that the first round of this effort was reliance on existing data and analyses. In addition, the BIMP will create a coast-wide

picture to put the controversial, coastal management issues that society is discussing and facing into context. Mallinson commented that it also can't be so simple as to be useless as a management tool.

Simmons stated that the BIMP needs to be helpful to local elected officials as well as the academics that will run with it and continue to add to it. Jeff Shelden commented that another important point is that a lot of these data are so fragmented that a BIMP can help bring it all together. Ray Sturza mentioned that he was concerned that the stated goal was to have all BIMP strategies conform to existing coastal policy in NC. Given the challenges of the complex issues facing NC and the country, Sturza is concerned that some of the benefits of engineered solutions that might be helpful in NC won't be available for discussion in the BIMP and, therefore, won't be available for elected officials to discuss when they reference the BIMP for information. Sturza wanted to make sure that he was not suggesting a confrontation between these issues that currently were being discussed, but there should at least be a section of the BIMP that talks about other alternatives. Without the whole range of perspectives, the document would not really be viable to future decisions makers. Pete Benjamin commented that the BIMP can build off of the CHPP in order to address what the stakeholders want the future beaches of NC to look like. The CHPP did a good job at providing some general desired outcomes related to habitats, however, something needs to be done to come up with more specific ways to achieve sustainability (e.g., How much habitat must be preserved?). If the BIMP can set a similar goal then the BIMP can address how to get where the State wants to go. Morris commented about this issue and gave an example of some projects that might be introduced by the General Assembly that could answer the questions as to other options for coastal management. However, Morris felt that the issues between hard structures versus soft structures were so complex, this document didn't want to set up a tug-of-war on what's right and what's wrong. Hopefully, the BIMP can provide a tool that will be useful to all parties who are trying to grapple with future coastal management issues.

Dave Mallinson commented that the literature review by Lauren Theodore was going to be very helpful. Knowing what other states are doing can provide a lot of information on results of numerous coastal management approaches. Theodore commented that what she noticed most in other states' plans was how to do regional sediment management and balance RSM with an array of coastal management tools (beach fill, engineered structures, etc.). Jim Gregson felt that, because it was a DENR project, the BIMP should not spend a lot of time looking at structures that were banned by law.

BREAK from 2:23 until 2:48

John Morris reconvened the meeting at 2:48 by restating the purpose: answer the Committee's questions and continue the dialogue about beach and inlet management issues. One thing DCM and DWR need to do is stay in synch with other agencies. Christine Brayman provided a brief update on USACE activities related to the BIMP. Brayman commented that Col. Pulliam still gives his total support towards the BIMP. However, the USACE is operating under a lot of constraints, one of them being financial.

Hopefully a funding bill will be passed by Congress before their Christmas break is scheduled to begin (December 14th). For now, the USACE is operating under a continuing resolution. Brayman mentioned that a few line-item funds exist. For example, there is $1 million plus in the President's budget allocated for RSM. Warren and Greg Williams (USACE) have worked with the RSM program manager at the national level (Dr. Jeff Waters) to obtain funds to support the NC BIMP endeavor (NOTE: proposal for data mining in Wilmington is $72k). In addition, there is additional money in the energy bill ($1 million for NC) but this bill is only in the early conference reports stage. WRDA 2007 was enacted last month and allows beneficial use of sediment from navigation channels in order to provide storm damage protection to property through placement of "suitable" sediment on the beach (i.e., sand). If you've got sand but don't have ecosystem justification or economic justification, funding will be provided (not at 100%) to place that sediment on an adjacent beach (65 to 35 cost split). There is a limit of $5 million for these efforts but they could make a big difference through a series of baby steps towards RSM.

Morris thanked Brayman and requested that she keep the group posted on funding. Beth Smyre asked about how specific this final BIMP document would be. Would this be a full plan for implementation or just a partial plan? How complete will this (18-month effort) be? Morris stated that the goal was for every coastal community to be able to find something in the BIMP about its beaches and inlets; every coastal community should have had a chance to make comments about beach and inlet management. However, the BIMP would not be a plan that would tell everyone what to do. There is a lively debate at the local level on what to do about beach and inlet issues and that is a very significant part of the process. John Sutherland mentioned that DENR is authorized by state law to provide cost-sharing money for beach projects. DWR would hope that the BIMP would provide some direction on funding of projects that currently do not have federal funding. Also, DWR is directed by law to prepare a water resources development plan (including navigation and nourishment projects) so DWR would hope that guidelines in the BIMP will help with those decisions. It would be nice to have a prioritized list for such projects, but the BIMP may or may not get that detailed (NOTE: at least in this first phase). Butch Parrish felt that it would be interesting to know what the cost of maintaining the beaches would/could be.

Morris joked that no meeting would be complete without hearing from Greg Rudolph. Rudi passed on making comments. Mallinson asked what the plan was for extending this project beyond 18 months (knowing that 18 months was not enough time to achieve all of the goals). Morris responded that the coastal issues are only getting more complex and the issues are huge. It was not hard to get the General Assembly to provide the funds to get the BIMP going. We have to use these funds to produce a first product. As we approach that horizon, we can reassess what needs to be done and funding could/would be pursued accordingly. Simmons asked what fiscal year this would be. Morris felt that the next fiscal year would probably be appropriate for such a request. Underwood commented that DCM/DWR were not trying to build an empire but it would be a shame if DCM/DWR couldn't further the effort for at least another 18 months to ensure we are meeting the needs of the communities and the habitats. If the BIMP could be fashioned

in such a way that it can provide assistance in making other coastal management decisions more efficient (such as the permitting and reporting processes because all of the data were included in one location). By being open and getting feedback (from the stakeholders), there will be more positives than negatives and we can keep the effort going. Overton had some questions about the adoption of the eCoastal framework, notably that if it were available on the DCM website at the end of 18 months there would be a lot of interested users. Warren commented that there was some uncertainity as far as the location of the database server due to DENR's IT consolidation discussions; however, regardless of where the server existed, the data would either be housed on it or on other servers to which links would be provided. The eCoastal modules run on an ArcGIS framework but Ken Richardson at DCM is also playing around with a Google Maps interface for easier accessibility for the general public. Warren also mentioned that Rudi Rudolph was developing a coastal data website for Carteret County that would be up and running and similar to what DCM is trying to achieve. Rudi commented that it would go live sometime in March and that the datasets would be eCoastal compatible (and reminded the group that eCoastal was more than just a program or group of programs but rather a database architecture and naming convention).

With no further comments, Morris adjourned the meeting at 3:20.

NC BEACH AND INLET MANAGEMENT PLAN
ADVISORY COMMITTEE MEETING
Sept 11, 2008
1:00 – 3:30 pm
NC State University McKimmon Center
Raleigh, NC

COMMITTEE MEMBERS

Ms. Christine Brayman, USACE Wilmington District
Mr. Pete Benjamin, USF&WS
Mr. Rick Caitlin, New Hanover County Ports and Waterways Commission
Sarah Hagedorn, Environmental Defense
Mr. Spencer Rogers, NC Sea Grant, CRC Science Panel
Mr. Ron Sechler, NOAA NMFS
Ms. Beth Smyre, NC DOT
Mr. Jim Stephenson, NC Coastal Federation

OTHER ATTENDEES

Mr. Mickey Sugg, USACE
Mr. Boyd Devane, DWQ
Mr. Peter Elkan, Moffatt & Nichol
Mr. Darren England, DWR
Mr. Jim Gregson, DCM
Mr. Howard Hall, USF&WS
Mr. Jeff Harbour, Environmental Services
Mr. Jamie Kritzer, DENR
Mr. Johnny Martin, Moffatt & Nichol
Mr. Ken Richardson, DCM
Mr. Jeff Shelden, Moffatt & Nichol
Mr. Guy Stefanski, DCM
Mr. John Sutherland, DWR
Dr. Paul Tschirky, Moffatt & Nichol
Mr. Steve Underwood, DCM
Ms. Michele Walker, DCM
Dr. Jeff Warren, DCM
Dr. Greg Williams, USACE

MEETING SUMMARY

John Sutherland opened the meeting at 1:15 and welcomed the attendees. Introductions were made around the room. Johnny Martin provided an overview of the meeting based on the agenda and introduced Greg Williams as the first presenter.

Williams' gave a presentation on Regional Sediment Management (RSM) and identified sediment not only as a resource but also as an asset. Williams gave a quick overview of the collaborative efforts between the USACE and other NC agencies that were a

testament to the State's commitment to the development of an overall beach and inlet management plan (BIMP) based on RSM concepts. Williams reviewed the USACE's RSM efforts for the current fiscal year with the $590k congressional earmark awarded for RSM in the USACE Wilmington District. The three main areas of this RSM project are: 1) data mining, 2) Brunswick County, and 3) MHC/Bogue Banks.

The data mining effort includes developing an eCoastal enterprise GIS database that includes District survey data from 2000 to present (1st priority) and 1995-2000 (secondary priority), implementation of coastal GIS tools for both the District and State (NC DCM has adopted the eCoastal format for the BIMP GIS data). The data mining effort is using approximately one third of the $590k RSM budget and is being heavily coordinated and prioritized with DCM and DWR. An enterprise GIS approach using eCoastal will help digitize and centralize coastal datasets and result in quicker data access. Currently, it takes a great deal of time to answer outside requests for coastal data because the datasets are not in one central location. Indeed, sometimes the datasets cannot be found because the employees who had them retired or resigned.

The Brunswick County portion of the RSM project was a priority because the area is data rich due to the Wilmington Harbor Deepening and the Brunswick County shore protection projects. The Field Research Facility at Duck has been involved with data collection (wave gauges, sediment sampling, beach profiling) in Brunswick County. Ocean and Coastal Technologies, Inc. is under contract through the RSM project to assist with spatial analysis and develop a conceptual sediment budget for coastal Brunswick County. Other funds were provided to USACE ERDC (Nick Kraus) to use the CASCADE model to then develop a detailed sediment budget. The CASCADE approach is a USACE computer model that looks at regional longshore transport and reach change and that incorporates offshore contours and how those contours change, sediment sources and sinks, navigation maintenance, storm protection projects, wave transformations, and longshore currents. It is essentially a mass balance approach to develop a quantifiable sediment budget.

The third part of the FY 2008 RSM project focuses on the Morehead City and Bogue Banks region. The study area encompasses the area between Cape Lookout and Bogue Inlet. The USACE would like to employ the CASCADE model as was done for Brunswick County. A survey contract with Geodynamics will be awarded for bathymetric surveys of Bogue, Beaufort and Barden Inlets in order to help with the CASCADE model input. Similar to Brunswick County, the MHC area is data rich.

The FY 09 budget has $600k allocated for the USACE Wilmington RSM efforts (at least in the Senate version of the appropriations bill). The USACE would like to use these monies to continue coordination with DCM and DWR with the BIMP, continue to support eCoastal, expand the project to other regions and fill many of the data gaps needed to eventually develop sediment budgets to understand the system.

Rick Caitlin wondered how easily it would be to capture the data collection efforts of private consulting firms and other state and federal resource agencies. Williams agreed

that the eCoastal database needed to eventually incorporate data beyond what the USACE (and in some cases DCM) collected.

Johnny Martin then described the status of Moffatt & Nichol's efforts on the BIMP contract. Martin identified the project team (M&N, Environmental Services, Geodynamics, Dr. Bill Cleary for coastal geology, and Dr. Chris Dumas for socioeconomics). Martin reviewed the legislative mandate to develop a beach management plan as well as the CHPP directive to prepare a comprehensive beach and inlet management plan to address fisheries habitat protection. Martin reviewed the M&N project work plan (data ID and acquisition, define beach and inlet mgmt regions, develop preliminary beach and inlet mgmt strategies, hold stakeholder meetings, and develop draft and final plan).

Martin introduced Paul Tschirky from M&N who spoke about spatial coastal data and the development of a GIS platform and database. Tschirky summarized the detailed activities that went into the first service of the work plan (data ID and acquisition). Datasets that have been acquired include beach profiles, USGS erosion rate data, sea level rise data, wave data, storm surge / flood data (ADCIRC models updating those data), and tidal data as well as a history of dredging / navigation maintenance ~~projects,~~ and beach nourishment projects along with locations and histories of temporary and permanent coastal structures. Tschirky also reviewed the socioeconomic data that can be used to quantify the determination of assigning values to beaches. Values can be classified by beach business economic output, beach property value, inlet and waterway use, and nature preservation value.

Tschirky introduced Jeff Harbour from Environmental Services who was sub-contracted to work with M&N on the BIMP contract. Harbour talked about the identification and acquisition of data on ecological habitats. These data primarily focused on the six habitats identified by the CHPP: 1) water column, 2) shell bottom, 3) submerged aquatic vegetation (SAV), 4) wetlands, 5) soft bottom, and 6) hard bottom. In addition, Harbour's group is also collecting information on endangered and threatened species found in NC such as the five marine sea turtles found in NC, manatees, shortnose sturgeon, and birds (wood stork, piping plover, roseate tern).

Martin resumed his presentation on the BIMP project by discussing how the management regions were defined (numerous datasets were used such as geologic features, developed/undeveloped reaches, and erosion/accretion patterns). Four regions were identified (SC to Cape Fear, Cape Fear to Cape Lookout, Cape Lookout to Cape Hatteras, and Cape Hatters to VA). Region 1 (SC to Cape Fear) was not subdivided into subregions but the rest of the regions were. Region 2 (Cape Fear to Cape Lookout) was divided into three subregions (2a, 2b, 2c), Region 3 (Cape Lookout to Cape Hatteras) was subdivided into two subregions (3a and 3b), and Region 4 (Cape Hatteras to VA) was divided into three subregions (4a, 4b, 4c). After showing images of each of the regions and subregions and explaining why the boundaries were placed where they were, Martin reviewed the general criteria to be used in the development of draft management strategies. First the strategies must be allowable within the State's current coastal

policies. Then the draft strategies for each of the sub-regions will be based upon knowledge of local sediment movement, vulnerability, socioeconomic issues, likelihood of sustainable shoreline management, possibility of federal funding (past, present and future), and local environmental issues and constraints (strategies to be compatible with CHPP to maximum extent practicable). The suite of alternative strategies will be physics based, environmentally responsible, politically viable, and financially feasible. Funding strategies will also be incorporated into the strategy alternatives.

Martin stated that stakeholder meetings would be occurring concurrently over the next 3-4 months with the development of beach and inlet management strategies. Two meetings will be held in each management region defined earlier as well as a central meeting (perhaps in Raleigh). The first set of meetings will take place in Oct/Nov and the second set in Jan/Feb. The final report will be finished by April 2009.

Mickey Sugg asked if the management strategies were to be limited to nearshore within the State's 3-mile limit or out into federal waters. If the latter, the Minerals Management Service would have interests in resource allocation and use (primarily sand for nourishment). Martin responded that M&N had not limited the offshore extent but, rather, took the data where they could find it.

Caitlin asked about how private islands within the regions would be handled within the BIMP. Sutherland responded that beach access would be an issue and that it might be a situation where private use of public sand sources would require some type of public access component to the private island.

Sutherland asked about Region 1 (Brunswick County) and wondered if that region should be subdivided any further. There are three main areas between the three inlets although the whole region was only about 30 miles. Martin commented that M&N discussed this but one reason they didn't was that there was little sand offshore and the inlets were being used as the primary sand sources in that area. Therefore, all the islands would be very interested in what all the other islands were doing. Williams commented that Jay Bird shoals was the original borrow source for Caswell Beach, Oak Island and Holden Beach. It may not be economical today to take sand from Jay Bird to all of these locations. Economics drives USACE projects. However, it might be economically viable in 15 years because the resource protection might justify that type of cost. With regard to not subdividing the region, Williams felt that all the parties would want to be in the same subregion and for the most part they already are (that's how the USACE is handling the county-wide project).

Sechler commented on sand sources related to inlets. Was that dredged material from navigation maintenance of inlet channels or mining of the ebb delta? Martin responded that the BIMP report will not be detailed enough to answer the question, "How much sand can be mined out of a specific inlet without causing environmental impacts?" At this point, we're looking at all potential sand resources and strategies rather than identifying the best strategy for a particular area. Instead, the data and analysis provided by the BIMP will help assemble future EIS and EA documents that can help determine

acceptable environmental impact. Underwood commented that inlet mining was a huge issue and potentially there was a percentage or a location that might be utilized but if you start mining the inlet there could be major issues. At this point, it would be a huge (and inappropriate) leap to have a BIMP that says you can use the inlets for all your sand resource needs.

Rogers noted that Williams mentioned grabbing low-hanging fruit for data acquisition. Rogers wondered if M&N had acquired the survey reports and datasets from the Mason Inlet relocation project. M&N stated that they had the reports and had requests into New Hanover County to get copies of the data. Rogers noted that he probably had most of the data.

Hall mentioned the CoBRA zones because, in general, there has been a position that you would not go into the CoBRA unit and dredge and remove the sand from the zone. Hall said there had been some legal disputes that likely were not yet resolved that dealt with sand in the areas around Lea/Hutaff Island and Rich Inlet (as far as removing sand from a CoBRA zone). Hall asked Sugg if the USACE followed that no-removal policy? Brayman responded that federal dollars couldn't be used on a project in CoBRA zones (such as using inlet sediments for a source). A comment was made that this CoBRA policy wouldn't apply to private funds. Martin reminded folks that the BIMP was not going to be a policy document but, rather, would recommend management strategies. Underwood wasn't sure if a CoBRA zone extended offshore. Hall thought ~~stated~~ that it extended offshore to –30 feet. Sugg thought the zone was the island itself (landward of MHW). Brayman noted that the CoBRA zones don't migrate but the islands do and that has created problems at North Topsail. Hall wondered if the federal CoBRA zone policy~~,~~ would be factored into suggested management strategies. Brayman noted that the CoBRA zone boundaries should be a dataset that is included in the database. Williams wondered if upland sand sources had been considered in the datasets? It would be challenging but it might be that communities get to a point where there is no other sand source choice but to search upland.

Sutherland asked if the USACE had finished the AIWW Dredged Material Management Plan. Brayman stated that they were ready to contract with a firm to do some preliminary sco~~o~~ping to identify where the extreme shoaling was occurring (i.e., where was the priority dredging). This project was addressing the AIWW from up in VA down into Florida. Brayman noted that she and Caitlin had been talking about the many different data sources that exist for the AIWW navigation channel and adjacent and connecting channels and whether these channels contained beach compatible sand that should/could be utilized for beaches.

Williams referenced Little River Inlet in SC and how it was a natural boundary to Region 1 that coincided with the state borders. However, Williams wondered how the northern boundary of Region 4 was defined. Although the border of VA was the boundary, the natural system certainly straddled the state border and operated in both states. Williams wondered if there were differences on how the two states might handle beach and inlet

management strategies. Were there similarities or difference? Potential conflicts with resource utilization?

Brayman asked if the M&N presentation was going to be the same for the upcoming stakeholder meetings. Tschirky responded that there likely would be less detail provided (would be focused on the proposed management region geographically specific to each meeting). Underwood noted that the CRC and CRAC always wanted to be updated on the BIMP and related issues. Now that the regions were defined, Underwood felt that is was appropriate to start showing this to stakeholders for their input. Martin noted that the presentation would also be put out on the internet so that other people could get hold of it for review. Brayman felt it was a logical presentation from a coastal engineering and technical perspective but wondered how non-technical citizens would respond. Rogers commented that the closer you got to the boundaries of the subregions, the less it mattered. For example, if you were looking at management strategies at Rodanthe (which straddles the line), you would look on both sides of the line. Underwood then asked the question: why then did we develop the subregions? Rogers said the value was in the center point of the subregions. The philosophical question was posed, "Why do you draw lines?" Elkin noted this was, in part, a scale issue – there were project scales and management regions. The lines don't really matter on a project scale as much as they do on a regional scale. Warren pointed out that the DOT currently is trying to obtain a permit to take sand from the Oregon Inlet groin (subregion 4b) to the sandbags in front of the sandbags protecting Highway 12 in Rodanthe (subregion 4a). Sheldon commented that the lines were just to help people focus on sand management within a particular area. Rogers said the lines were reasonable and that micromanaging the lines wasn't the point of the BIMP. Underwood felt these regions might help prioritize funding and move funding around if necessary and potentially change the single-project-funding mentality. Williams asked if there would be a detailed description on the data and rationale used for determining the regional and subregional boundaries. Maybe a map with a brief description to hand out at the meetings?

Sutherland led a wrap-up discussion and noted that there would be an attempt to re-convene the BIMP Advisory Committee later in the fall after the first round of public hearings for the BIMP project (but prior to the meetings in early 2009).

The meeting was closed at 3:40 pm.

NC BEACH AND INLET MANAGEMENT PLAN
ADVISORY COMMITTEE MEETING
February 23, 2009
1:00 – 3:30 pm
Archdale Groundfloor Hearing Room
Raleigh, NC

ATTENDEES

Mr. Peter Elkin, Moffat & Nichol
Mr. Howard Hall, US Fish & Wildlife Service (Adv Comm member)
Mr. Jamie Kritzer, DENR PIO
Mr. Johnny Martin, Moffatt & Nichol
Mr. Peter Ravella, Ravella Consulting
Mr. Jeff Shelden, Moffatt & Nichol
Ms. Beth Smyre, Department of Transportation (Adv Comm member)
Mr. Guy Stefanski, Division of Coastal Management
Mr. John Sutherland, Division of Water Resources
Dr. Paul Tschirky, Moffatt & Nichol
Mr. Tom Reeder, Division of Water Resources
Mr. Harry Simmons, Caswell Beach Mayor and CRAC member (Adv Comm member)
Mr. Jim Stephenson, NC Coastal Federation (Adv Comm member)
Mr. Steve Underwood, Division of Coastal Management
Ms. Michele Walker, Division of Coastal Management
Dr. Jeff Warren, Division of Coastal Management
Mr. Ken Willson, Coastal Planning and Engineering
Dr. Greg Williams, USACE (sitting in for Christine Brayman, Adv Comm member)

MEETING SUMMARY

John Sutherland opened the meeting at 1:10 pm and welcomed the attendees. Introductions were made around the room. Johnny Martin provided an overview of the meeting based on the agenda.

Johnny Martin described the status of Moffatt & Nichol's (M&N) efforts on the Beach and Inlet Management (BIMP) contract. Today's presentation will focus on draft management strategies for the BIMP including environmental considerations. There is not time to go through each and every region, although that will be the focus of the regional meetings occurring later this week and next. Vulnerability and beach prioritizations will be discussed in general.

Martin reviewed the legislation that defines the BIMP as well as the five services defined in the work plan / scope of work / contract with DENR. The first round of public meetings in each of the regions was reviewed. These locations will be the same for the upcoming meetings (except Carteret County, which will now be in the PKS Aquarium).

The draft strategies being developed operate within the current policy framework of the State (i.e., beach nourishment, sand bypassing, inlet management or structure relocation). When developing new strategies, historical beach and inlet management strategies have been considered from the perspective of gathering the data and making it available for review and planning purpose (primarily, the amount, frequency, and extent of beach fill – including dredge disposal, habitat restoration, and storm protection). For example, about $10M per year has been spent for Region 1 (Brunswick County), although a large portion of that is tied with the Wilmington Harbor project(s). For the past five years, approximately $8M per year has been spent ($6M without considering material placed in the ODMDS). Although Martin explained that any sand placed on the beach was being considered "nourishment" by the public, Williams wondered if there was a cost difference that should be addressed when comparing dredge disposal from navigation versus other projects (storm protection and habitat restoration). Martin said M&N would follow up and try to parse those data out. Williams also wondered if other market factors were being considered (e.g., cost of dredge mobilization during times when dredge equipment is scarce such as after Hurricane Ivan, Katrina and Rita). Williams gave the example of getting dredge contracts in place in October versus December and getting a better unit price. Martin noted that these issues were some of the challenges in looking at the historical numbers – in many cases the data are limited and some details are hard to tease out. Martin also noted that, when discussing historical data, some data are not available such as historical volumes and locations. There are numerous data gaps in the historical record. However, where the data do exist, M&N worked on as many trends as possible (including sediment sources and distance to target beach).

Three dredging scenarios were developed: 1) inlet dredging with a pipeline ($4.50-11.50/cy), 2) offshore dredging with a pipeline ($6.70-14.75/cy), 3) and offshore dredging with a hopper ($7-16.5/cy). Mob/demob adds another $1.5-2.75/cy plus adding an in/place factor of 10%. Outside of 6 miles, it is no longer cost effective for pipeline dredges. In addition, statewide volume needs were assessed to see how it affects cost looking at, in part, USGS and DCM erosion rates, which was then converted to a volume based on USACE beach profiles from Brunswick County and Dare County as well as profiles from Carteret County Shore Protection Office. On average, for every 1 foot of shoreline change equaled 1.3 cy of volume. The effect of beach fill on the adjacent shorelines and the inlet hazard area were also analyzed. As a sanity check, these assumptions were compared to actual data, including detailed USACE sediment budget calculations for Brunswick and Carteret counties. Based on this comparison, the assumptions appear to line up with USACE volumes and projections for needed volumes and are, therefore, valid. From these assumptions, dollar amounts were generated (which are also consistent with USACE project trends). Looking at all shorelines, 7M cy for beach fill is needed to offset calculated erosion. For developed shorelines, M&N presented a calculated approximation of about 2.8M cy of sand or $30M per year. Based on other studies, the State may need to add about 25-50% for potential storm impacts. Sea Level Rise (SLR) may require up to 20% of funding (to offset beach loss through beach fill) if the SLR rate approaches 2 ft/century. If one looks only at the inlet hazard areas, that represented 15-20% of the total needs for beach fill, and these areas might be a focus for other types of hazard mitigation (buyouts, relocation) other than beach fill.

M&N also looked at the needs for dredging of inlets and adjacent waterways. An overall total is about 1.9M cy/yr for dredged material that could be used for beach fill (lloking at the last 10 years). Over the last five years, that number increase to almost 3M cy/yr (again, tied to the Wilmington Harbor project). Looking at the whole dataset (last ten years), $22M spent. A total needed for the future would be about $65-75M per year for dredging inlets. Federal interest may continue to cover $20M of this ($10.5M for nourishment and $9.5 for dredging).

Martin turned the talk over to Tschirky who talked about the environmental considerations (SA waters, open shellfish waters, AIWW salt marsh, hard bottoms <1 mile from beach) – all elements of the CHPP (Coastal Habitat Protection Plan. Other issues include protected species and wildlife elements (Federally protected species such as green sea turtle, piping plover, and colonial waterbird nesting) as well as primary nursery areas. Martin talked about how much projects have cost, but the BIMP will also consider the socioeconomic input of the beaches and inlets (including beach recreation, for-hire fishing, marine recreation services, private and commercial boat traffic, shore and pier fishing, marinas, boat builders). This component was being spearheaded by Dr. Chris Sumas from UNC Wilmington (under contract with M&N). SLR will also be taken into account (regionally but not statewide). Tschirky gave numerous examples of economic numbers segregated by beach communities (although the economic data is aggregated into different groups – some data are community by community, some are countywide, etc.). The two major data points were based on actual expenditures (marine and beach recreation) and consumer surplus (beach recreation, pier and shore fishing) numbers. Sutherland pointed out that the beach recreation value captures only day and out-of-state visitors and not the value for citizens that live at the beach. Dumas' economic modeling looked at the economic impact of doing nothing versus being proactive. For example, what is the economic impact of beach width loss and inlet shoaling and closure of navigational channels from this shoaling. After looking at the cost, the BIMP will provide examples of funding strategies on how this will be funded.

Tschirky turned it over to Ravella to discuss some of the details of the funding strategies being considered for the BIMP. Ravella noted that he was in NC this week to interview local officials (approximately 25 people) to find out what is working and what is not working for coastal funding strategies. The second part of Ravella's task will focus on developing strategies for achieving the funding needs. Assuming the Federal component will remain the same, Ravella uses the $50M per year need presented by M&N for beach projects. Ravella also pointed out that the NC coast represents $12 billion. The Outer Banks draws the same amount of people every day during the summer on par with attendance of a professional NFL football game. So, while $50M is a lot of money (especially in the current economic downturn), it's important to show the necessity and consider the value of the coastal resources to the State. Each county has its own approach for its beach funding issues but, currently, there is no statewide approach or strategy – there is no single template. One thing Ravella will do is to identify what has worked well in the past. Two things jump out – New Hanover and Carteret County both have strategies that have worked. New Hanover, unfortunately, is atypical for how the

other beach communities might be able to achieve their beach management goals. There is a need to continue pushing the Federal involvement in these projects, but also step back into the real world and discuss what is going to happen if this funding is not maintained. Carteret County is also a great example as far as governmental structure, tax structure (specifically accommodation taxes) and funding and solid financial management, and the Carteret County Shore Protection Office (i.e., Rudi). This approach has proven to be effective. When there is a town that has a yearlong population of 2,500 but a daily population during the summer of 75,000, there has got to be a way to capture those taxes and direct it towards shoreline management. Some counties dedicate a large portion of these taxes to the beach while others rely on this for other needs (e.g., tourism marketing). One of the greatest attractions in the state does not have an entrance fee (i.e., the beach is free) and you never will have one. The challenge, then, is to extract sufficient resources to fund and maintain the attraction. This certainly is one goal of the BIMP. Florida has a program that is fairly effective based on real estate transfer taxes ($30M per year program) that finances about 110 miles of beach projects. This tax has proven to be tricky – currently, the fund is stagnant and declining owing to the current economic situation. However, FL has flexible tools for governments to utilize. TX has a statetwide revolving fund based on a wastewater fund. Ravella is interested in exploring the NC Clean Water trust fund. We need to look at shared responsibility – state, county, and municipal/local property owner contributions. Funding ideas need to be structured, predictable, and flexible. One size won't fit all because each community is so unique but the lack of a uniform structure is a challenge to the coast. This balance certainly will be tricky but is necessary. Ravella was happy to see the CRC passed a resolution in February 2009 for dedicated State funds for beach management. Frank Rush and Dara Royal have discussed rental taxes being used for beach funding. Sutherland has discussed a statewide fund, but the challenge of developing such a fund and applying it on a regional scale is challenging. What if the State were to set aside its share of the sales tax on coastal rentals – a dedicated funding source from the coastal region to be directed back to the beach (a rough approximation of revenue of about $17M per year so it cannot carry the whole burden)? Ravella finished up his comments and defined his group's two-phase approach with a first-phase report in March and a second-phase report dur in time for the release of the BIMP in April (review existing system and develop of funding strategies). This week in NC is an exploratory trip to gather data and hopes to touch base with DCM and DWR when he returns to TX at the end of the week.

Ravella noted that M&N had provided him with numerous datasets to review. He was hoping to look more into the NC Tourism region reports to better assess the economic input. Why can't the State look at the eight oceanfront counties as a distinct economic engine along the coast. Visitorship and tourism is probably the largest economic contributor to these eight counties. Ravella was hoping to get people to view beach management from a perspective of economic development. Certainly, there is a technical and engineering approach that needs to be considered. However, an economic development perspective shows that a $50 million investment annually into beach management in the coastal eight counties is small when compared to the annual $12 billion economic input these counties provide. It's worth considering this philosophy to

make the cost of investment politically viable because the net result of jobs and economic input needs to be considered.

Simmons asked if Ravella had seen Dara Royal's email from last night and he responded he did. Ravella was hoping to better understand the financing requirements for the local governments (specifically to a specific example of projects at Bald Head Island). Generally, beaches ought to be financed for the engineered lifetime of the beach and not an arbitrary timeframe of say five years. The problem with some economic models is collateralizing the nature of the beach. Current models can't always be applied to the beaches, inlets and waterways. Stephenson noted that Emerald Isle received some USDA rural development funding (Salter Path?) under the premise that the county is still rural overall. Ravella noted the TX rural development fund that could be used at the Governor's discretion. The idea of looking at beach management as rural development and economic development is a good way to consider these projects. The coastal region industry could be supported at multiple levels of government rather than a fault- or a technical-based approach as a financing philosophy. Ravella was excited to continue working with Dara Royal and Frank Rush to run with some of these ideas they have been discussing.

Ravella turned it over to Elkin who shifted gears back to beach fill and discuss M&N's systematic approach to vulnerability determination that feeds into prioritization of projects. Two steps – 1) what's out there already based on developed and undeveloped beaches and 2) look at historical erosion rates. Using an example from Region 4 (northern Outer Banks), Elkin showed the development patterns along the coast as well as the distance of said development to the first line of stable vegetation, the long- (DCM) and short-term (DCM) erosion rates as well as historical beach fill (limited in this area). The vulnerability is based on the potential long-term damage to infrastructure, development or historic/cultural resources (long-term erosion rate) as well as the potential for storm damage to infrastructure (which might need a more robust approach). Dedicated funding sources were also reviewed (i.e., existing federal projects) as well as the likelihood of success/effectiveness of any beach fill project (demonstrated prior success, dedicated long-term sand resources, regional coordination and project extent).

Elkin turned the meeting back over to Martin who outlined what the final report will look like. It will contain introductory chapters, separate chapters on strategy development process, stakeholder process, vulnerability prioritization and funding. There will be separate region chapters summarizing available datasets, potential strategies, costs, etc. An internal draft will be released to DCM and DWR by the end of April with a planned public release at the end of May. Preliminary plan recommendations likely will include: 1) regional boards being set up to manage projects (i.e., the Carteret County model), 2) have additional State staff to assist these local boards with prioritization and funding (DWR) as well as EIS and regulatory issues (DCM), 3) creation of a dedicated funding source to be allocated by the General Assembly through taxes/fees for State portion of beach project funding requirements (30-40% of these requirements?), and 4) plan for future BIMP updates to focus on current data gaps (e.g., sediment resources/budgets, vulnerability/prioritization criteria, improved estimates of funding requirements and

resources). The estimates made by M&N to date are only based on our current state of knowledge and these numbers may change as data gaps are filled (so it is necessary to revisit the BIMP as the datasets are updated).

The group took a break at 1:25 and reconvened at 1:40.

Stephenson asked if overfill ratios had been used with the beach nourishment numbers presented in the meeting. Martin stated that his numbers just assumed volume loss and that no overfill factors were used because the sand was assumed to be compatible. Martin's estimate as volume loss with a 10% error factor (volume loss). The USACE's historical volumes were placed volumes and not dredged.

Hall asked about a comment that talked about developing a regional environmental impact statement. The BIMP could provide pieces to be used in that process but not necessarily create a regional EIS, although the regional boards (if they were set up) could look at development of such a tool as a management option. Hall's comments were based on the endangered and threatened species. Maybe if there was a general biological opinion or guidelines (similar to a Habitat Conservation Plan or HCP) that would help the Federal permit process. If there was a regional EIS, perhaps there would be a regional endangered species analysis along the same lines.

Ravella mentioned that it was difficult to account for a cumulative impact of a small, two-mile project in a regional perspective, so a regional or programmatic EIS might be able to take care of issues in a better way by making individual projects easier to digest as long as they were considered in the regional framework (i.e., consider all of the projects on a regional scale). Underwood noted that a regional approach was being embraced by most stakeholders. Martin commented that this was a good first step in that process.

Stephenson mentioned that one concern from the Coastal Federation was that currently there is a situation where the money is not in place (for coastal management programs). The issue appears to be that, if there is money to be spent, people will find a way to spend it. For example, citing Indian Beach (a town of 54 people), beach renourishment seems to have spawned development that is not sustainable. With the Federal program, there is a cost-benefit analysis where the greater development makes it more likely to get a beach protection project. Is there a way to reverse that trend and keep NC beaches family oriented so we don't look like Myrtle Beach as a result of expending millions of dollars of funds.

Warren mentioned the fact the new CRC setback rules presented a new philosophy for beach management wherein communities with long-term, large-scale beach fill didn't have to have the larger setbacks. However, towns that did not, for whatever reason, have these beach projects, the larger structures would require larger setbacks. Warren referred to the SC and FL approach of only allowing state funding to go to communities on the "critically eroded beach list" which, at best, was a short term approach. NC, on the other hand, could take an approach where State funds could only be used for communities NOT on a critically eroded beach list, thereby clustering development on the lowest

vulnerability beaches rather than the higher vulnerability portions of the coast. Simmons noted this was similar to the hazard rating of the National Flood Insurance Program. Ravella commented that there were ways the State could incentivize the receipt of the State funds for beach fill by only providing certain funds to certain development patterns. Towns with beach management plans in place could potentially receive more funds for beach fill. Other communities could receive similar funds for other management strategies (retreat or diminished density). Ravella noted that points could be assigned for lower density development and create an incentive for keeping that density. Simmons has always seen the BIMP to not increase developmental opportunities but, rather, keep what we've got.

Stephenson was glad to see that the group was thinking in this direction of development density and beach fill funding disbursement. Maybe a set of minimum standards (for development) that applicants for State funds would have to meet? Maybe something along the lines of minimum public access standards? Some rules and regulations are already out there but they don't really say much so this joint partnership between DRW and DCM might help improve such regulations. Ravella gave an example of a community that might be able to get a $1 million beach project credit for putting in 145 parking spaces would strive to do just that.

Simmons changed the subject to sea level rise (SLR). Has the 20% factor in the economics presented by Martin taken into account accelerated SLR? Martin felt that the historical long-term DCM rates took into account the background SLR. Martin noted that it would probably be 50 years into the future when the full 20% cost/volume factor would be necessary. Martin admitted it might be a conservative approach but he thought being conservative was better at this point in the project.

Underwood wondered about a $20 million figure from the Federal component of beach projects. Was that factoring in the current cost share (e.g., 65 Fed and 35 State)? Is that what the $20 million figure reflected, because it seems like it would be more than $20M. Martin was going to go back and check the figures and see how it was specifically calculated. Shelden commented that the number is the amount the Feds currently are spending (spending on all projects – navigation, storm protection, 933), it's not accounting for cost share. Martin added that's one reason they broke the numbers into a worst-case scenario as far as what if the USACE abandoned everything but their deep draft projects and ODMDS disposal (Wilmington and Morehead City ports) and the four storm protection projects at Ocean Isle, Carolina, Kure, and Wrightsville Beach.

Stephenson asked about the preliminary recommendations presented. Would there be more? Martin answered yes there would be but he wanted to present some of the initial ides to this group to gauge response. The ones listed here is not an exhaustive list. Stephenson noted that relocation was mentioned during the presentation. Martin felt it was definitely in the suite of strategies that people should consider. One example is for the homes that were condemned at North Topsail Beach. A local board could come to the State with a request to buy out certain high-risk properties as a mitigation technique.

Simmons asked if M&N had looked at the TX model to use funds to not buy lots but assist a homeowner in moving the structure to a new lot (a limit of $50k).

Ravella provided some additional information about the TX model in that the litigation cost of filing suit against these homes being in the easement was astronomically higher than just assisting with funds to help these homes move. Plus, it didn't give the appearance of kicking these oceanfront homeowners when they were down. This dropped the number of legal cases from 162 down to less than 20 homeowners who fought the State. It was an economically smart decision for TX. Shelden wondered that, if people moved, was there a way that the owner could get a tax credit along the lines of granting a conservation easement. Maybe that would be an additional incentive. Simmons noted that Caswell Beach allows people to donate such lots to the Town. Stephenson followed up saying his concern as that he hoped for a suite of options for coastal management – this currently does not exist. Stephenson felt that it should be easy for people to move and that it would be tough if these folks had to compete for beach nourishment funds that would be very competitive. Simmons was concerned that this would place a priority on a handful of homes versus the thousands that could benefit from beach fill. Ravella commented that you could look at the cost of relocation (moving the physical structure) and the value of the remaining lot in order to come up with a price. However, once that price is reached, what portion of that price should be subsidized by the State. Is the State best served by moving a few homes versus mitigating hazards along a longer portion of shoreline? Could you do it one-by-one or look at portions of a shoreline such as Nags Head where you have 10 homes in a row that would benefit from a wholesale buyout/retreat project? Warren wondered what the court costs would be for the 10 structures at Nags Head with illegal sandbags. Would this be a similar situation to TX where it is cheaper for the State to just offer a partial buyout and help the structures move or fight it out in court? Shelden asked what FEMA pays for moving structures and Simmons thought that FEMA does not pay for mitigation.

Stephenson sensed that local governments get caught holding the bag with condemnation procedures when the structure has encroached onto the public beach. How could the State be more involved? Simmons felt that there just wouldn't be enough money to pay market value to provide an incentive for people to move. Ravella said that this is where it might be helpful to outline what a condemnation procedure would cost on a regional scale and use that value to justify beach restoration strategies. These figures might show that it is indeed cheaper to restore the beach rather than retreat on a regional scale.

Sutherland asked about the number presented for the costs associated with total miles of beach versus total miles of developed beaches. Martin noted that some of those areas were accreting that would not need nourishment.

With no further comments, the meeting was adjourned at 3:45.

N.C. Beach and Inlet Management Plan Technical Work Group

Group Members | Meeting Minutes

Technical Work Group Members

Division of Water Resources
- John Sutherland, Chief, Water Projects
- Darren England, Engineer
- Jeff Bruton, Environmental Specialist, GIS specialist
- Charlie Theobald or Lee Queen, IT

Division of Coastal Management
- Steve Underwood, Assist. Dir. For Policy & Planning
- Dr. Jeff Warren, Coastal Hazards Specialist
- Lauren Theodore, NOAA Fellow
- Ken Richardson, Coastal Hazards GIS Manager or
- Josh Shepherd, IT Supervisor

Division of Marine Fisheries
- Anne Deaton, Wilmington Regional Office
- Wayne Mobley, Shellfish Sanitation

Division of Water Quality
- Bradley Bennett, Stormwater
- Boyd Devane, Wetlands

Division of Land Resources
- Jeffrey Reid, State Geologist
- Dr. Ken Taylor, Geological Survey
- Dr. Dean Carpenter, APNEP

Division of Parks and Recreation
- Brian Strong, Engineer
- Linda Pearsall, Natural Heritage

Wildlife Resources Commission
- Susan Cameron, Waterbird Biologist
- Gordon Myers, Engineer
- Dr. Matthew Godfrey, Turtle Expert

NC BEACH AND INLET MANAGEMENT PLAN
DENR TECHNICAL WORKING GROUP COMMITTEE MEETING
Nov 27, 2007
9:00 am
Archdale Building, Ground Floor Hearing Room
Raleigh, NC

ATTENDEES

Mr. Jeff Bruton, DWR
Ms. Ann Deaton, DMF
Mr. Boyd Devane, DWQ (wetlands)
Mr. Darren England, DWR
Mr. Peter Elkan, Moffatt & Nichol
Mr. Jim Gregson, DCM
Dr. Matthew Godfrey, Wildlife Resources Commission
Ms. Jean Lynch, Parks and Recreation (sitting in, and likely replacing, Brian Strong)
Mr. Johnny Martin, Moffatt & Nichol
Mr. Pat McClain, Land Resources
Mr. John Morris, DWR
Mr. Jeff Shelden, Moffatt & Nichol
Mr. John Sutherland, DWR
Dr. Ken Taylor, Land Resources (NC Geological Survey)
Mr. Charles Theobald, DWR
Ms. Lauren Theodore, DCM
Dr. Paul Tschirky, Moffatt & Nichol
Mr. Steve Underwood, DCM
Dr. Jeff Warren, DCM

MEETING SUMMARY

John Morris opened the meeting at 9:10, introduced himself and thanked the participants for their attendance. Jim Gregson also expressed his gratitude to the working group members for coming to the meeting. Introductions were made around the room.

John Morris introduced the meeting by providing a brief summary of the events that are driving the BIMP – the first being the Appropriations Bill (NOTE: 2000) and the second being the CHPP (NOTE: authorized by Fisheries Reform Act of 1997). He noted that this was a massive task and little progress was made due to lack of resources. The partnership between DCM and DWR began over a year ago and the two agencies have worked together to develop one plan to meet the mandates; $750,000 has been provided for the effort. Moffatt & Nichol has been contracted to assist with the work on the plan. The most obvious purpose of a BIMP for DCM is to assist with the decisions and review associated with beach nourishment activities. For DWR, one of the primary purposes will be to help develop funding priorities for beach nourishment projects. Also it will provide information for the General Assembly to put many of these complex coastal management issues into their correct context within a comprehensive framework. The

purpose of the DENR working group is twofold. First, what kind of data can you provide to the effort? Second, what program needs do you have that can be addressed by the BIMP?

Johnny Martin introduced himself as the BIMP project manager for Moffatt & Nichol. Martin began by providing a background of the company. Primarily, he reviewed the scope of work that had been distributed to the working group members. He also mentioned the three other members of the Moffatt & Nichol team that will assist in the completion of the BIMP: Chris Freeman of Geodynamics will be involved in the development of sediment budgets; Dr. Bill Cleary of UNC-Wilmington will provide information and expertise on coastal geology and its relationship to beaches and inlets; Dr. Chris Dumas of UNC-Wilmington will provide data on and further assess the economic value of beaches and inlets. The scope of work was reviewed and the services being provided were listed: 1) data identification and acquisition, 2) defining management regions, 3) stakeholder involvement, 4) development of alternative management strategies by region and sub-region, and 5) final report. Moffatt & Nichol already has many pertinent databases in house (e.g., shallow draft inlet study for General Assembly, CHPP data). Martin underscored that there will be data gaps that need to be filled in (identifying these gaps are part of this project) and the BIMP needs to be a living project with continued funding.

Jeff Warren gave a brief overview of the relationship between the US Army Corps of Engineers (USACE) and DCM's involvement with the BIMP project. An initial collaboration dealing with regional sediment management (RSM) began in 2005 when the Wilmington District was developing a RSM demonstration project for the Morehead City region (primarily because it is a data-rich environment). DCM contributed almost $120,000 for high-resolution bathymetric surveys at Bogue and Beaufort inlets to assist with the USACE's modeling efforts to better understand the active coastal processes and determine a quantifiable sediment budget. DCM and DWR continue to meet with the USACE about RSM and beach and inlet management, however the USACE (Wilmington District) has been without available resources to direct towards the efforts.

Warren recounted the trip that DCM and Moffatt & Nichol recently made to the Mobile District to talk about RSM and the eCoastal enterprise GIS as part of the data gathering effort of the NC BIMP. The Mobile District was the first to develop a comprehensive RSM plan and program for the Gulf Coast states. As part of the process, the eCoastal platform was developed and is a combination of database architecture, data formatting and labeling as well as an interface into ArcGIS with additional software tools. DCM and Moffatt & Nichol decided to adopt the USACE's eCoastal framework for numerous reasons, including efficiency of fiscal and human resources as well as cross-platform compatibility with the USACE. From these talks, DCM worked with the USACE in Mobile and Wilmington to prepare a RSM proposal for funding that will allow personnel from Mobile to come to Wilmington and start collecting and digitizing priority data as the first steps in getting Wilmington online with eCoastal. The proposal requests $72,000 for 12 weeks of data mining as well as work back in Mobile to format and create the Wilmington database. Warren pointed out that although 12 weeks and $72,000 may not

seem like a lot, it represents successful leveraging of resources that is making NC the poster child for RSM and beach and inlet management. In addition, 12 weeks of having USACE personnel work in the Wilmington office probably translates to six months of an outside contractor trying to gain access to files, maps and computer data. Similarly, the $72,000 likely translates to $200,000 to $300,000 worth of work if performed by non-USACE personnel. Warren thinks this proposal is likely to be funded in early 2008 by USACE's RSM program.

Lauren Theodore mentioned that she had done a literature review as part of this project. The BIMP website has many of these documents available (documents where there are no copyright issues).

Paul Tschirky from Moffatt & Nichol provided an overview on the types of data that are being acquired for the BIMP as well as how these data can be used to develop a sediment budget. Tschirky defined sediment budgets as net gain and net loss (sand either enters system, leaves system or remains in system) via alongshore and cross-shore processes. The more data that can assist with defining these numbers, and getting these data early on, will greatly assist these efforts. The first step will be development of a conceptual budget for the entire NC coast (but broken down into regions). No new modeling will be done as part of this initial effort; rather, the gathering of existing data and placement of that data into a conceptual framework. One question he posed to the working group, "Do you know of any datasets that exist that could help with developing this budget?"

Peter Elkan from Moffatt & Nichol discussed defining the erosion rate for the coast to help determine coastal vulnerability (i.e., How does erosion threaten coastal resources such as development and habitat?). A lot of work has already been done by DCM and other agencies, and documenting these data and methods is part of the BIMP effort. The USGS and NC Geological Survey have done projects that are statewide vulnerability analyses, and DCM has a digital shoreline database. Moffatt & Nichol is challenged with identifying areas with critical erosions and vulnerabilities.

Steve Underwood introduced the topic of development of beach prioritizations. This is the part of the project where all of the aforementioned data come together in addition to being a stakeholder-intensive process. The stakeholders need to understand that the BIMP might not be a rigid, cookbook-type of plan. The BIMP might be more similar to DCM's beach access program by providing a broad range of guidelines to develop priorities and letting these priorities remain fluid through time (priorities may shift circumstantially).

BREAK (9:55 to 10:07)

John Morris re-opened the meeting by stating to the work group members that now it was their turn to make comments. Matthew Godfrey introduced himself and Morris asked what kind of sea turtle nesting and stranding data was available through the Wildlife Resources Commission (WRC). Godfrey needed to check on the availability of the WRC's data and that most of the data were geo-referenced, however, he felt that

providing these data to this group and the BIMP effort would be no problem. Morris asked if there were any obvious issues that would affect turtle habitat. Godfrey said the biggest issues were placement of sediment on the beach. Is it compatible with sea turtle and bird reproduction? Turtles need to dig deep into the beach and different sediments have different properties for things such as gas exchange and color (color affects temperature of sand which affects gender of turtle). The timing of beach nourishment is also crucial to protect nesting. Morris stated to Johnny Martin that this was obviously a key issue in the BIMP. Godfrey also noted that Sue Cameron is the bird biologist for the WRC and she will likely have bird data to contribute; she was, however, unable to attend today's meeting.

Ken Taylor commented that the NC Geological Survey (NCGS) was working with DOT to look at sand resources along the NC coast. The datasets include USGS seismic data, core samples, sidescan sonar. NCGS has issues with how data are archived, especially older projects because the concept a decade ago was about publishing documents (i.e., the figures in a report were most important rather than how you got to the pretty picture). Taylor wants to focus on the data. The NCGS has a dedicated server they share with the NC Soil Survey with about 2 terabytes worth of data. NCGS also just finished up with a detailed geomorphic study for the National Park Service (Cape Hatteras and Cape Lookout National Seashores). A topic for discussion will be the sand resources that are being identified by the NCGS. The question will be, where are the best places to place this sand (i.e., Do the offshore sand resources match up with the beach based on the DCM sediment criteria). Taylor was enthusiastic about the collaboration with the USACE to mine the Wilmington office for the purpose of data inventory and acquisition. He also mentioned the vulnerability study NCGS did for NC Emergency Management. A lot of these data were generated from the HAZUS program based on census data and these data are available. Morris asked if NCGS had close ties with the US Minerals Management Service. Taylor responded to the affirmative and that MMS used some of the NCGS data because of limited federal funding. The NCGS is also finishing up 5-year collaboration with the USGS and other academic institutions to study the young geology of the coast (Quaternary). Lots of neat science was done with lots of data but the challenge of the BIMP is applied science. Morris asked Taylor if the federal policies were clear on where MMS had jurisdiction and Taylor answered in the affirmative giving examples from FL and TX. MMS permits come after lease sales and MMS is mandated to other things than search for sand. Underwood asked about the USGS-ECU-NCGS coop in the context of understanding how the subsurface geology was affecting the surface coastal processes. Taylor answered that he would provide everything he could. He also expressed his desire to get at the data early on instead of waiting for the final, published data (draft reports and gray literature can provide a lot of info for management decisions). Taylor also stated that he was the contact at the NCGS shop for BIMP-related data. NCGS is good at writing their metadata and confirmed that Moffatt & Nichol wanted coordinates in State Plane (they do, and that's what NCGS uses already).

Taylor felt it was important to get enough data to make the BIMP believable to the public. In many instances, lots of aerial photos exist but many important storm events and other processes happened between the datasets. Underwood was concerned about the

short, 18-month time window to complete the initial phase of the BIMP (i.e., the entire 18 months could be spent playing with data collection). Taylor understood and felt it was important that the plan should include prioritized items on what studies / data collection could be funded after certain events (e.g., if a storm occurs, what resources would be available, what data would be collected and who would collect it). Taylor also mentioned that many of the USGS datasets that were provided to NCGS have additional data fields entered by NCGS so the USGS might not know what was added or why. Make sure that people call the NCGS instead of the USGS.

Jean Lynch commented that State Parks does not collect a lot of data, however, the State Heritage folks do. The data include occurrences of state and federal rare species, plant and animal. The data include a wider range of species than those collected by the WRC sea turtle and shorebird programs. Heritage records are less detailed than WRC records; for example, WRC might have records for all loggerhead sea turtle nests on a 5-mile stretch of beach every year. The Heritage data for the same 5-mile stretch might have one point indicating that a loggerhead occurrence has been recorded there. Lynch mentioned the Pilkey's shoreline studies group has data that may be useful, including a compiled list of all known N.C. beach renourishment projects that have occurred throughout the years. Parks would have data from dredging events at Cow Channel and Carolina Beach marina. Lynch provided a list of the DPR's coastal properties: Jockey's Ridge State Park, Ft. Macon, Theodore Roosevelt Natural Area, Hammocks Beach, Carolina Beach, Ft. Fisher, and Bald Head Island (natural area). Morris mentioned that all of these areas should be shown in the BIMP data, and Lynch said they could provide the boundaries. Lynch pointed out that there are many more conservation lands than those owned by the state DPR: for example, federal, TNC, and town lands that are in conservation. Elkan mentioned that the CHPP process identified State-owned lands. Lynch commented that Parks continues to buy land so they could update those data.

Morris introduced Boyd Devane from DWQ, who stated they had numerous datasets that could be useful including information on buffers and setbacks, water quality designations, water quality issues associated with dredging events, maps of wetlands. Gregson asked about ocean outfall datasets. Devane had heard about some type of dataset and said he could find out more information. Sutherland commented that DENR has a project inherited from DOT to study and implement measures to reduce pollution from 8 ocean outfalls in Dare County. Moffatt and Nichol is also doing that project for the State. Johnny Martin said Moffatt & Nichol had data on those outfalls that are state maintained. Morris asked about the extent of the wetlands maps. Devane had not seen the maps in years. Morris mentioned that Environmental Health was doing water quality sampling on the beach related to water quality. Martin identified J.D. Potts and that we were in contact with them (Shellfish Sanitation).

Pat McClain (regional supervisor from Wilmington) had an interest in water quality and sand mine locations, however NCGS (Taylor) probably could provide most, if not all, of these data. McClain mentioned that his agency might have an interest in the location of sand dunes (let them migrate or hold them in place). Whatever is done, how does it

affect "downstream"? Morris asked about regulatory control on beach nourishment activities. McClain stated that they really didn't have regulatory control on nourishment issues. Since erosion is an ongoing process, they just try and keep man-made erosion and water quality issues at the level of what nature does. McClain was happy to help the BIMP project in any way possible.

Morris asked Deaton to comment for Marine Fisheries. Deaton mentioned that the BIMP needed to keep the CHPP's goals in mind (habitat impact). As far as data, if there are any maps or datasets that the BIMP needs, she would work with the group to make an official request to get the data or maps in whatever format was needed. Deaton commented that she hadn't heard any comments about fish resources. That's not really a "habitat" but something that should be considered in the BIMP so at least some info should be included. DMF had fish landing data that could be included. Deaton was also curious as to how the habitat info/issues/concerns could be incorporated into the analyses. Habitat should be a key part of management decisions instead of just being mentioned and taking a back seat to sediment and erosion. Underwood commented that sediment being removed and placed had potential habitat impacts and communities needed time to recover. The CHPP has been a fantastic achievement for the State. It has also helped the agencies leverage new positions based on the threats to fish habitat that came out of the CHPP, so habitat needed to be a big part of the BIMP. Underwood agreed with Deaton's concerns.

Theodore stated that it seemed like priorities were also needed for borrow sites as well as beaches. Taylor reiterated the need for detailed sediment data to assess habitat conditions. Martin mentioned that one thing that could be done with the CHPP is to integrate strategies and use habitat as part of the strategy-building process. Morris asked if there were any additional concerns about what other DENR agencies needed. Morris commented that the USACE historically has been the leader in beach projects but the drying up of federal funds is pushing local communities to start developing their own strategies. The BIMP can help with these strategies and put a lot of the data and issues within context. Martin commented that they had already been in touch with numerous local governments such as Emerald Isle and they had indicated that they are willing to work and assist with the BIMP project. Morris asked the group if there were additional State agencies that should be within the working group. Jean Lynch wondered what the role of the work group was. Morris hoped that the group could meet periodically to discuss data, collaboration and progress towards the BIMP. Morris stated that informal discussions could occur with this group but that the members here could come to the BIMP Advisory Committee meetings to make comments (and hear other comments) in the broader context. Jeff Bruton mentioned that CGIA might have some applicable data. Taylor reminded the group that CGIA was a pay-for-service group. They could have been involved in building the database but the USACE eCoastal database has been chosen. CGIA might be able to tap into the final product (link their portal to any BIMP data). Underwood thought that including them at some point could still be helpful. Underwood also commented that the power of eCoastal was that it was already out there and the USACE was using it. However, additional soft money might be available to

NC BEACH AND INLET MANAGEMENT PLAN
INTERNAL NCDENR WORKING GROUP MEETING
Sept 11, 2008
9:00 – 11:30 am
NC State University McKimmon Center
Raleigh, NC

ATTENDEES

Ms. Susan Cameron, NCWRC
Ms. Ann Deaton, DMF
Mr. Darren England, DWR
Mr. Jim Gregson, DCM
Mr. Jeff Harbour, Environmental Services Inc.
Ms. Julia Harrell, NCDENR-GIS
Mr. Johnny Martin, Moffatt & Nichol
Mr. Ken Richardson, DCM
Mr. Jeff Shelden, Moffatt & Nichol
Mr. John Sutherland, DWR
Dr. Ken Taylor, Land Resources (NC Geological Survey)
Dr. Paul Tschirky, Moffatt & Nichol
Mr. Steve Underwood, DCM

MEETING SUMMARY

John Sutherland and Steve Underwood opened the meeting at 9:15 and welcomed the attendees. Introductions were made around the room. Johnny Martin provided an overview of the meeting based on the agenda.

Johnny Martin then described the status of Moffatt & Nichol's efforts on the BIMP contract. Martin identified the project team (M&N, Environmental Services, Geodynamics, Dr. Bill Cleary for coastal geology, and Dr. Chris Dumas for socio-economics). Martin reviewed the legislative mandate to develop a beach management plan as well as the CHPP directive to prepare a comprehensive beach and inlet management plan to address fisheries habitat protection. Martin reviewed the M&N project work plan (data ID and acquisition, define beach and inlet mgmt regions, develop preliminary beach and inlet mgmt strategies, hold stakeholder meetings, and develop draft and final plan).

Martin introduced Paul Tschirky from M&N who spoke about spatial coastal data and the development of a GIS platform and database. Tschirky summarized the detailed activities that went into the first service of the work plan (data ID and acquisition). Datasets that have been acquired include beach profiles, USGS erosion rate data, sea level rise data, wave data, storm surge / flood data (ADCIRC models updating those data), and tidal data as well as a history of dredging / navigation maintenance and beach nourishment projects along with locations and histories of temporary and permanent coastal structures. Tschirky also reviewed the socioeconomic data that can be used to

quantify the determination of assigning values to beaches. Values can be classified by beach business economic output, beach property value, inlet and waterway use, and nature preservation value.

Tschirky introduced Jeff Harbour from Environmental Services Inc. (ESI) who was sub-contracted to work with M&N on the BIMP contract. Harbour talked about the identification and acquisition of data on ecological habitats. These data primarily focused on the six habitats identified by the CHPP: 1) water column, 2) shell bottom, 3) submerged aquatic vegetation (SAV), 4) wetlands, 5) soft bottom, and 6) hard bottom. In addition, Harbour's group is also collecting information on endangered and threatened species found in NC such as the five marine sea turtles found in NC, manatees, shortnose sturgeon, and birds (wood stork, piping plover, roseate tern).

Martin resumed his presentation on the BIMP project by discussing how the management regions were defined (numerous datasets were used such as geologic features, developed/undeveloped reaches, and erosion/accretion patterns). Four regions were identified (SC to Cape Fear, Cape Fear to Cape Lookout, Cape Lookout to Cape Hatteras, and Cape Hatters to VA). Region 1 (SC to Cape Fear) was not subdivided into subregions but the rest of the regions were. Region 2 (Cape Fear to Cape Lookout) was divided into three subregions (2a, 2b, 2c), Region 3 (Cape Lookout to Cape Hatteras) was subdivided into two subregions (3a and 3b), and Region 4 (Cape Hatteras to VA) was divided into three subregions (4a, 4b, 4c). After showing images of each of the regions and subregions and explaining why the boundaries were placed where they were, Martin reviewed the general criteria to be used in the development of draft management strategies. First the strategies must be allowable-within the State's current coastal policies. Then the draft strategies for each of the sub-regions will be based upon knowledge of local sediment movement, vulnerability, socioeconomic issues, likelihood of sustainable shoreline management, possibility of federal funding (past, present and future), and local environmental issues and constraints (strategies to be compatible with CHPP to maximum extent practicable). The suite of alternative strategies will be physics based, environmentally responsible, politically viable, and financially feasible. Funding strategies will also be incorporated into the strategy alternatives.

Martin stated that stakeholder meetings would be occurring concurrently over the next 3-4 months with the development of beach and inlet management strategies. Two meetings will be held in each management region defined earlier as well as a central meeting (perhaps in Raleigh). The first set of meetings will take place in Oct/Nov and the second set in Jan/Feb. The final report will be finished by April 2009.

Comments and questions were taken from the working group participants:

- Dr. Ken Taylor remarked that nor'easters should be considered in addition to hurricanes since these storms can greatly impact sediment movement and may have different cycles than hurricane events.
- Discussion with respect to sand sources occurred as to where there is potential and whether the existing data was clear with respect to the difference between

where no suitable sand was available and where there were just no studies done and hence no information one way or the other.

- For nourishment strategies, the intervals are important and must be considered with ecological impacts.
- Counties will have to update hazard mitigation plans by 2010 (FEMA).
- Julia Harrell questioned the interface of the BIMP data with existing state databases. Other agencies are not going to be using eCoastal. Ken Richardson said it was only the intent of the BIMP to put coastal data in eCoastal so that easy interface with the USACE could occur as the Corps is the main coastal data collector.
- Dr. Taylor asked about the comfort level with the policy of erosion rates and the metadata associated with data sets. Steve Underwood replied that these rates receive vetting through the science panel.

Sutherland led a wrap-up discussion and noted that there would opportunity for the working group to attend the public meetings for the BIMP project (one of which is likely to take place in Raleigh).

The meeting was closed at 11:40 pm.

CGIA for linking data in the future. At the least, Morris thought it would be helpful to have a planning meeting with CGIA.

With no further comments or suggestions, Morris again expressed his gratitude for everyone's participation and that he looked forward to seeing everyone again at future team meetings. The group was adjourned at 11:07.

NC BEACH AND INLET MANAGEMENT PLAN
INTERNAL NCDENR WORKING GROUP MEETING
February 23, 2009
8:30 – 11:45 am
Archdale Groundfloor Hearing Room
Raleigh, NC

ATTENDEES

Dr. Dean Carpenter, APNEP
Mr. Boyd Devane, Division of Water Quality
Mr. Peter Elkin, Moffat & Nichol
Dr. Matthew Goodfrey, WRC
Mr. Keith Harris, Harris Consulting
Ms. Jean Lynch, Division of Parks and Recreation
Mr. Johnny Martin, Moffatt & Nichol
Mr. Peter Ravella, Ravella Consulting
Mr. Jeff Shelden, Moffatt & Nichol
Mr. John Sutherland, Division of Water Resources
Dr. Ken Taylor, Land Resources (NC Geological Survey)
Dr. Paul Tschirky, Moffatt & Nichol
Mr. Tom Reeder, Division of Water Resources
Mr. Steve Underwood, Division of Coastal Management
Dr. Jeff Warren, Division of Coastal Management
Mr. Ken Willson, Coastal Planning and Engineering
Dr. Greg Williams, USACE (attending for Christine Brayman)

MEETING SUMMARY

John Sutherland opened the meeting at 8:45 and welcomed the attendees. Introductions were made around the room. Johnny Martin provided an overview of the meeting based on the agenda.

Johnny Martin then described the status of Moffat & Nichol's (M&N) efforts on the Beach and Inlet Management Plan (BIMP) contract. Today's presentation will focus on draft management strategies for the BIMP including environmental considerations. There is not time to go through each and every region, although that will be the focus of the regional meetings occurring later this week and next. Vulnerability and beach prioritizations will be discussed in general.

Martin reviewed the legislation that defines the BIMP as well as the five services defined in the work plan / scope of work / contract with DENR. The first round of public meetings in each of the regions was reviewed. These locations will be the same for the upcoming meetings (except Carteret County, which will now be in the PKS Aquarium).

The draft strategies being developed operate within the current policy framework of the State (i.e., beach nourishment, sand bypassing, inlet management or structure relocation).

When developing new strategies, historical beach and inlet management strategies have been considered from the perspective of gathering the data and making it available for review and planning purpose (primarily, the amount, frequency, and extent of beach fill – including dredge disposal, habitat restoration, and storm protection). For example, about $10M per year has been spent for Region 1 (Brunswick County), although a large portion of that is tied with the Wilmington Harbor project(s). For the past five years, approximately $8M per year has been spent ($6M without considering material placed in the ODMDS). Although Martin explained that any sand placed on the beach was being considered "nourishment" by the public, Williams wondered if there was a cost difference that should be addressed when comparing dredge disposal from navigation versus other projects (storm protection and habitat restoration). Martin said M&N would follow up and try to parse those data out. Williams also wondered if other market factors were being considered (e.g., cost of dredge mobilization during times when dredge equipment is scarce such as after Hurricane Ivan, Katrina and Rita). Williams gave the example of getting dredge contracts in place in October versus December and getting a better unit price. Martin noted that these issues were some of the challenges in looking at the historical numbers – in many cases the data are limited and some details are hard to tease out.

Martin also noted that, when discussing historical data, some data are not available such as historical volumes and locations. There are numerous data gaps in the historical record. However, where the data do exist, M&N worked on as many trends as possible (including sediment sources and distance to target beach). Taylor asked about the compatibility of the sources of sand. That is, are the sources listed in the historical data "compatible"? Martin explained that, after looking at the D50 (median grain size diameter) values that they were assumed to be compatible, especially noting that the sites had been used for beach fill in the past.

Three dredging scenarios were developed: 1) inlet dredging with a pipeline ($4.50-11.50/cy), 2) offshore dredging with a pipeline ($6.70-14.75/cy), 3) and offshore dredging with a hopper ($7-16.5/cy). Mob/demob adds another $1.5-2.75/cy plus adding an in/place factor of 10%. Outside of 6 miles, it is no longer cost effective for pipeline dredges. In addition, statewide volume needs were assessed to see how it affects cost looking at, in part, USGS and DCM erosion rates, which was then converted to a volume based on USACE beach profiles from Brunswick County and Dare County as well as profiles from Carteret County Shore Protection Office. On average, for every 1 foot of shoreline change equaled 1.3 cy of volume. The effect of beach fill on the adjacent shorelines and the inlet hazard area were also analyzed. As a sanity check, these assumptions were compared to actual data, including detailed USACE sediment budget calculations for Brunswick and Carteret counties. Based on this comparison, the assumptions appear to line up with USACE volumes and projections for needed volumes and are, therefore, valid. From these assumptions, dollar amounts were generated (which are also consistent with USACE project trends). Looking at all shorelines, 7M cy for beach fill is needed to offset calculated erosion. For developed shorelines, M&N presented a calculated approximation of about 2.8M cy of sand or $30M per year. Based on other studies, the State may need to add about 25-50% for potential storm impacts.

Sea Level Rise (SLR) may require up to 20% of funding (to offset beach loss through beach fill) if the SLR rate approaches 2 ft/century. If one looks only at the inlet hazard areas, that represented 15-20% of the total needs for beach fill, and these areas might be a focus for other types of hazard mitigation (buyouts, relocation) other than beach fill.

M&N also looked at the needs for dredging of inlets and adjacent waterways. An overall total is about 1.9M cy/yr for dredged material that could be used for beach fill (lloking at the last 10 years). Over the last five years, that number increase to almost 3M cy/yr (again, tied to the Wilmington Harbor project). Looking at the whole dataset (last ten years), $22M spent. A total needed for the future would be about $65-75M per year for dredging inlets. Federal interest may continue to cover $20M of this ($10.5M for nourishment and $9.5 for dredging).

Martin turned the talk over to Tschirky who talked about the environmental considerations (SA waters, open shellfish waters, AIWW salt marsh, hard bottoms <1 mile from beach) – all elements of the CHPP (Coastal Habitat Protection Plan. Other issues include protected species and wildlife elements (Federally protected species such as green sea turtle, piping plover, and colonial waterbird nesting) as well as primary nursery areas. Martin talked about how much projects have cost, but the BIMP will also consider the socioeconomic input of the beaches and inlets (including beach recreation, for-hire fishing, marine recreation services, private and commercial boat traffic, shore and pier fishing, marinas, boat builders). This component was being spearheaded by Dr. Chris Sumas from UNC Wilmington (under contract with M&N). SLR will also be taken into account (regionally but not statewide). Tschirky gave numerous examples of economic numbers segregated by beach communities (although the economic data is aggregated into different groups – some data are community by community, some are countywide, etc.). The two major data points were based on actual expenditures (marine and beach recreation) and consumer surplus (beach recreation, pier and shore fishing) numbers. Sutherland pointed out that the beach recreation value captures only day and out-of-state visitors and not the value for citizens that live at the beach. Dumas' economic modeling looked at the economic impact of doing nothing versus being proactive. For example, what is the economic impact of beach width loss and inlet shoaling and closure of navigational channels from this shoaling. After looking at the cost, the BIMP will provide examples of funding strategies on how this will be funded.

Tschirky turned it over to Ravella to discuss some of the details of the funding strategies being considered for the BIMP. Ravella noted that he was in NC this week to interview local officials (approximately 25 people) to find out what is working and what is not working for coastal funding strategies. The second part of Ravella's task will focus on developing strategies for achieving the funding needs. Assuming the Federal component will remain the same, Ravella uses the $50M per year need presented by M&N for beach projects. Ravella also pointed out that the NC coast represents $12 billion. The Outer Banks draws the same amount of people every day during the summer on par with attendance of a professional NFL football game. So, while $50M is a lot of money (especially in the current economic downturn), it's important to show the necessity and consider the value of the coastal resources to the State. Each county has its own

approach for its beach funding issues but, currently, there is no statewide approach or strategy – there is no single template. One thing Ravella will do is to identify what has worked well in the past. Two things jump out – New Hanover and Carteret County both have strategies that have worked. New Hanover, unfortunately, is atypical for how the other beach communities might be able to achieve their beach management goals. There is a need to continue pushing the Federal involvement in these projects, but also step back into the real world and discuss what is going to happen if this funding is not maintained. Carteret County is also a great example as far as governmental structure, tax structure (specifically accommodation taxes) and funding and solid financial management, and the Carteret County Shore Protection Office (i.e., Rudi). This approach has proven to be effective. When there is a town that has a yearlong population of 2,500 but a daily population during the summer of 75,000, there has got to be a way to capture those taxes and direct it towards shoreline management. Some counties dedicate a large portion of these taxes to the beach while others rely on this for other needs (e.g., tourism marketing). One of the greatest attractions in the state does not have an entrance fee (i.e., the beach is free) and you never will have one. The challenge, then, is to extract sufficient resources to fund and maintain the attraction. This certainly is one goal of the BIMP. Florida has a program that is fairly effective based on real estate transfer taxes ($30M per year program) that finances about 110 miles of beach projects. This tax has proven to be tricky – currently, the fund is stagnant and declining owing to the current economic situation. However, FL has flexible tools for governments to utilize. TX has a statetwide revolving fund based on a wastewater fund. Ravella is interested in exploring the NC Clean Water trust fund. We need to look at shared responsibility – state, county, and municipal/local property owner contributions. Funding ideas need to be structured, predictable, and flexible. One size won't fit all because each community is so unique but the lack of a uniform structure is a challenge to the coast. This balance certainly will be tricky but is necessary. Ravella was happy to see the CRC passed a resolution in February 2009 for dedicated State funds for beach management. Frank Rush and Dara Royal have discussed rental taxes being used for beach funding. Sutherland has discussed a statewide fund, but the challenge of developing such a fund and applying it on a regional scale is challenging. What if the State were to set aside its share of the sales tax on coastal rentals – a dedicated funding source from the coastal region to be directed back to the beach (a rough approximation of revenue of about $17M per year so it cannot carry the whole burden)? Ravella finished up his comments and defined his group's two-phase approach with a first-phase report in March and a second-phase report dur in time for the release of the BIMP in April (review existing system and develop of funding strategies). This week in NC is an exploratory trip to gather data and hopes to touch base with DCM and DWR when he returns to TX at the end of the week.

Ravella turned it over to Elkin who shifted gears back to beach fill and discuss M&N's systematic approach to vulnerability determination that feeds into prioritization of projects. Two steps – 1) what's out there already based on developed and undeveloped beaches and 2) look at historical erosion rates. The vulnerability is based on the potential long-term damage to infrastructure, development or historic/cultural resources (long-term erosion rate) as well as the potential for storm damage to infrastructure (which might need a more robust approach). Dedicated funding sources were also reviewed (i.e.,

existing federal projects) as well as the likelihood of success/effectiveness of any beach fill project (demonstrated prior success, dedicated long-term sand resources, regional coordination and project extent).

Elkin turned the meeting back over to Martin who outlined what the final report will look like. It will contain introductory chapters, separate chapters on strategy development process, stakeholder process, vulnerability prioritization and funding. There will be separate region chapters summarizing available datasets, potential strategies, costs, etc. An internal draft will be released to DCM and DWR by the end of April with a planned public release at the end of May. Preliminary plan recommendations likely will include: 1) regional boards being set up to manage projects (i.e., the Carteret County model), 2) have additional State staff to assist these local boards with prioritization and funding (DWR) as well as EIS and regulatory issues (DCM), 3) creation of a dedicated funding source to be allocated by the General Assembly through taxes/fees for State portion of beach project funding requirements (30-40% of these requirements?), and 4) plan for future BIMP updates to focus on current data gaps (e.g., sediment resources/budgets, vulnerability/prioritization criteria, imporved estimates of funding requirements and resources). The estimates made by M&N to date are only based on our current state of knowledge and these numbers may change as data gaps are filled (so it is necessary to revisit the BIMP as the datasets are updated).

The group took a break at 10:10 and reconvened at 10:40. Martin asked the attendees for comments. Harris asked about trends in the economic data for recent storm events. Martin noted they tried to address that with the five- and ten-year timeframes and the overall trends were still comparative. Williams wondered how mob and demob was incorporated into the costs. The USACE has a fixed, upfront cost and that can be rolled in to the total figure. Sometime that fee can be all over the place based on market factors so that's one of many market factors that is hard to consider in economics. Martin noted that M&N had tried to address this with the USACE's data. One area where the assumptions were tough was Topsail Island because the overall erosion rates from DCM were two feet per year and less. Sutherland pointed out that the initial cost of a nourishment project was much greater than subsequent maintenance and wondered how that might be factored in. Martin felt that this had to be a fluid process since this was the first time the State had tried to develop these types of datasets so it would need to continue to be updated and analyzed.

Taylor felt the BIMP needed to address the hurricane history of the State and just brutally and frankly discuss the issue – primarily, where there were periods of quiescence followed by numerous hurricanes over a five- to ten-year cycle. How do the erosion rates and vulnerabilities tie in to these storm event cycles? This is especially important with the twin hurricanes that have historical hit (e.g., Dennis and Floyd). Also, upland locations of sand also need to be addressed because mining permits have been obtained for these areas (particularly at Holden Beach). Also, is this a viable approach to beach restoration (one dump truck at a time)?

Warren offered a comment about the critically eroding beach report developed by FL and SC. These beaches cannot receive state monies unless they are critically eroding. Warren felt this was a short-term approach and NC might want to come up with an alternate plan where State funds were only used on beaches that were NOT critically eroding. This is a longer-term approach that clusters development in the lowest vulnerability areas (that are made even less vulnerable with continued beach fill) and then provides state funding for the higher vulnerability areas in forms other than for beach fill construction (retreat and other types of development patterns).

Taylor also commented about the sand compatibility and noted Land Resources offers upland mining permits but it is not their job to determine sand compatibility.

Willson felt there was a lot of fluff in the M&N numbers but that's a conservative approach that might not be bad. He wondered about the SLR numbers and thought they might be too stringent. Also, the cost of environmental monitoring is not insignificant, which could turn out to be 15 to 20% on top of construction (e.g., Topsail Island). Are these numbers included in the economic projections? Martin noted that his SLR numbers were more focused on the flat beaches.

Sutherland wondered how the BIMP would address significant fish habitat. M&N is providing the CHPP critical habitats more to give guidance on what areas may need to be avoided or at least approached with caution. Underwood felt that many of these issues have already been addressed with existing projects (e.g., Wrightsville Beach and Carteret County) so, hopefully, some of this is already in the process or existing documents can be used to address future maintenance projects in the same area. Underwood also pointed out that beach fill was only one strategy for beach management and conservation and was hoping that individual communities would be able to put together other options that might be appropriate under numerous scenarios.

Martin noted the inclusion of the inlet hazard areas in their numbers. Warren asked if these were the proposed inlet hazard boxes or the existing one. Underwood stated that is something we would need to look at.

Ravella asked about future sand sources and what a percentage might be from State versus Federal waters. All of the current sites (except the ODMDSs) are in State waters but some of the proposed sites are outside the 3-mile line (e.g., Topsail Island and Dare County). Ravella underscored the importance of analyzing and protecting the State sand resources (even if they are taken outside the 3-mile limit). Underwood also mentioned the Ocean Policy Study Committee report that addresses ocean zoning.

Warren pointed out the viability of the cape shoals for beach sand in that it would put sand back into the system and also avoid inlet mining. Williams noted that current USACE studies were looking at Frying Pan shoals and staying within State waters.

Lynch noted that the report was focused on nourishment and wondered how many other strategies were being considered. Martin responded that the report was weighted to

beach fill but M&N felt that cost of land buyouts was so high that it was not a large-scale option. Martin felt they did not have a dataset that would let them put a cost on that as a statewide strategy. Based on what has been seen so far, beach fill is the primary approach to coastal erosion. Warren pointed out that the initial HB 1840 defined completion of a sand management plan for beaches and this is reflected in the Scope of Work to M&N.

Willson though that the regional sand investigations could look at sand resources that could be utilized within the inlets. For example, they are trying to permit utilization of the relict ebb tidal delta at New Rivers Inlet. There seems to be a popular belief that anytime sand is taken from near an inlet than you're going to disrupt the processes. However, if a good monitoring program is in place, these projects can be suitably analyzed for any impacts of dredging. If they can be shown to work, then it needs to considered as a sand resource. In addition, channel realignment within an inlet might also be an approach. Holding a channel in a predetermined location to mitigate adjacent shoreline erosion, then you have an approach that addresses erosion and has a future sand source in place through maintenance dredging of that inlet channel. Using the inlets as a sand resource without damaging the system appears to be possible (or at least the opportunity to study this and determine the viability is an option).

The placing of monitoring data online (current and future datsets) was discussed to make it easier to view and analyze these data. It was also discussed to have State develop cross-sectional monitoring of non-engineered beaches so there are some data for FEMA post storm so the State can show how much sand has been lost from a storm. Williams noted FL's beach monitoring system with concrete monuments put in place for monitoring sites.

Martin showed ODMDS in Wilmington as a possible sand source and Williams commented that that particular ODMDS has a lot of Cape Fear mud and the good sand is not segregated. The Morehead City ODMDS is different and most if not all that sand is beach compatible. Williams thought that the BIMP should show a what-if scenario of different Federal funding strategies (especially if the Federal component is diminished or eliminated altogether).

Williams wondered if the BIMP becomes part of the official Federally approved Coastal Zone Management Program, would that help or hurt funding? Underwood thought it would be good because it would show NC being proactive in regional beach management.

The meeting ended around 11:45.

CRC Science Panel Membership

Coastal Hazards & Storm Information :: Science Panel on Coastal Hazards

The Science Panel on Coastal Hazards provides the Coastal Resources Commission (CRC) with scientific data and recommendations pertaining to coastal topics.

If you have questions about the panel's work, contact Jeff Warren, Coastal Management's coastal hazards specialist, at 919-733-2293, ext. 251.

Science Panel on Coastal Hazards	
Dr. Margery Overton, Chair	Department of Civil Engineering N.C. State University
Steven Benton	Division of Coastal Management (retired) Raleigh
Dr. William Cleary	Center for Marine Science University of North Carolina at Wilmington
Tom Jarrett, P.E.	U.S. Army Corps of Engineers (Retired)
Dr. Charles "Pete" Peterson	Institute of Marine Sciences University of North Carolina at Chapel Hill
Dr. Orrin Pilkey	Department of Earth and Ocean Sciences Duke University
Dr. Stan Riggs	Department of Geology East Carolina University
Spencer Rogers	North Carolina Sea Grant Wilmington
Dr. John Wells	Virginia Institute of Marine Science, College of WIlliam and Mary
Dr. Gregory Williams	U.S. Army Corps of Engineers Wilmington

Last Modified: June 20, 2008

Public Meeting Example Questionnaires

NC Beach and Inlet Management Plan Comment Sheet

Please help us make the NC Beach and Inlet Management Plan as complete as possible. Your participation is greatly appreciated.

Name: _____

Address: _____

_____

Are there any other datasets that you are aware of that have been missed to date? _____

If yes, what type of data and where is it housed? Is it available electronically? Please be as specific as possible.

_____

_____

Do you have any other specific comments on proposed procedures outlined within the study? If yes, what are they?

_____

_____

_____

Do you have any other specific comments on proposed beach and inlet management strategies, prioritization and funding options outlined within the study? If yes, what are they?

_____

_____

_____

_____

NC Beach and Inlet Management Plan Comment Sheet

Please help us make the NC Beach and Inlet Management Plan as complete as possible. Your participation is greatly appreciated. (Name, address, email and representing are optional)

Name: _____

Address: _____

Email: _____

Representing: _____

Do you have any other specific comments on proposed procedures outlined within the study?

_____

_____

Do you have any other specific comments on proposed beach and inlet management strategies and estimated costs?

_____

_____

_____

Do you have any other specific comments on proposed vulnerability assessments and how projects should be prioritized?

_____

_____

_____

Do you have any other specific comments on how projects should be funded?

_____

_____

_____

What additional information on beaches and inlets would be helpful to you or your community?

_____

_____

Please email additional comments to: DENR.NCBIMP@lists.ncmail.net

Thank you for your input!

Public Meeting Handouts and Press Releases

North Carolina Beach and Inlet Management Plan

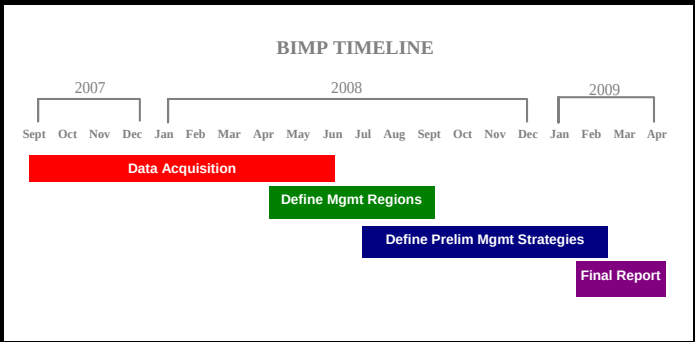
Comprehensive Plan for Conservation and Management of North Carolina's Beaches and Inlets

Joint Project Between the NCDENR Division of Water Resources and Division of Coastal Management

Creation of the BIMP was a Recommendation of the General Assembly HB1840 and the Coastal Habitat Protection Plan (CHPP)

MAJOR PROJECT TASKS – FIRST 18 MONTHS

1. Identify and acquire coastal datasets relevant to beach and inlet management
2. Define beach and inlet management regions based on the natural coastal processes affecting each region
3. Develop preliminary beach and inlet management strategies for each region
4. Schedule and facilitate stakeholder meetings in each proposed management region
5. Prepare a final report



Short Term Goals:

1. Provide a central clearinghouse for coastal datasets to facilitate research and streamline the preparation of environmental assessments and environmental impact statements
2. Identify data gaps to guide and/or prioritize future data collection and monitoring
3. Inform and engage the public during the development of the beach and inlet management strategies
4. Ensure that all beach and inlet management strategies are compliant with current state policies with an understanding that policies shall be periodically reviewed and/or updated as appropriate
5. Recommend priorities for state funding of beach and inlet management projects such as beach nourishment and navigational dredging as well as identify additional possible funding mechanisms for beach and inlet management strategy implementation

Long Term Goals:

1. The implementation of a consensus-based regional strategy for the state, federal and local governments to manage beaches and inlets over a large geographic area encompassing many projects
2. Build stronger partnerships among coastal stakeholders to improve data sharing and project cooperation
3. Encourage the natural functions of all beach and inlet ecosystems and their associated habitats
4. Recognize the value of sand as a resource - identifying and making the most effective use of the state's limited, beach-compatible sand resources
5. Achieve an effective balance between beach and inlet management projects (beach nourishment, storm protection and storm damage mitigation, maximization of navigational efficiency), socio-economic concerns (tourism, commerce, and recreation) and the environmental functions of North Carolina's beaches

Stay Up to Date! ***www.ncbimp.net***

General Assembly HB 1840 Mandate

The Department of Environment and Natural Resources shall develop a multiyear beach management and restoration strategy and plan that does all of the following:

(1) Utilizes the data and expertise available in the Divisions of Water Resources, Coastal Management, and Land Resources

(2) Identifies the erosion rate at each beach community and estimates the degree of vulnerability to storm and hurricane damage

(3) Uses the best available geological and geographical information to determine the need for and probable effectiveness of beach nourishment

(4) Provides for coordination with the U.S. Army Corps of Engineers, the North Carolina Department of Transportation, the North Carolina Division of Emergency Management, and other State and federal agencies concerned with beach management issues

(5) Provides a status report on all U.S. Army Corps of Engineers' beach protection projects in the planning, construction, or operational stages

(6) Makes maximum feasible use of suitable sand dredged from navigation channels for beach nourishment to avoid the loss of this resource and to reduce equipment mobilization costs

(7) Promotes inlet sand bypassing where needed to replicate the natural flow of sand interrupted by inlets

(8) Provides for geological and environmental assessments to locate suitable materials for beach nourishment

(9) Considers the regional context of beach communities to determine the most cost-effective approach to beach nourishment

(10) Provides for and requires adequate public beach access, including handicapped access

(11) Recommends priorities for State funding for beach nourishment projects, based on the amount of erosion occurring, the potential damage to property and to the economy, the benefits for recreation and tourism, the adequacy of public access, the availability of local government matching funds, the status of project planning, the adequacy of project engineering, the cost-effectiveness of the project, and the environmental impacts

(12) Includes recommendations on obtaining the maximum available federal financial assistance for beach nourishment

(13) Is subject to a public hearing to receive citizen input

Coastal Habitat Protection Plan Mandate

"Prepare and implement a comprehensive beach and inlet management plan that addresses ecologically based guidelines, socio-economic concerns, and fish habitat"

NCDENR
North Carolina Department of Environment and Natural Resources

N.C. Department of Environment and Natural Resources

Release: Immediate
Date: Nov. 17, 2008

Contact: Michele Walker
Phone: (919) 733-2293, ext. 229

Public Meetings Planned as part of Beach and Inlet Management Plan Development

RALEIGH – The N.C. Department of Environment and Natural Resources will conduct public meetings in December on the first phase of the state's Beach and Inlet Management Plan, a strategy for managing certain coastal areas.

Meetings will be held during the first two weeks of December at the following locations and dates:

Region	Location	Date	Time
1	Supply - *Brunswick Electric*	Dec. 3	6-8 p.m.
2a, 2b	Wilmington - *NE Branch Library*	Dec. 2	5-7 p.m.
2c, 3a	Beaufort - *East Carteret High School*	Dec. 4	6-8 p.m.
3b, 4a, 4b, 4c	Manteo - *NC Aquarium*	Dec. 9	6-8 p.m.
All regions	Raleigh - *NCSU M^{c}Kimmon Center*	Dec. 11	6-8 p.m.

The divisions of Coastal Management and Water Resources are developing the state's first comprehensive Beach and Inlet Management Plan, a systematic management strategy for North Carolina's 326 miles of oceanfront barrier islands and 19 active tidal inlet complexes. The plan, or BIMP, divides the state's coastal area into management regions and sub-regions.

Creation of the BIMP was a recommendation of the Coastal Habitat Protection Plan that was adopted in 2004 and a directive from the General Assembly's 2000 Appropriations Bill. The General Assembly appropriated $750,000 to the state Division of Water Resources for the initial phase of the BIMP development.

In September 2007, DENR hired the engineering firm, Moffatt & Nichol, to help the state with data identification and acquisition of existing datasets, definition of beach and inlet management regions, scheduling and facilitation of stakeholder meetings, development of draft beach and inlet management strategies, and preparation of a final report. The firm was to complete the tasks during an 18-month period.

The regions and sub-regions were delineated using natural features as well as existing county lines. The next step will be developing management strategies for each region and sub-region. As management strategies are developed, the state divisions of Coastal Management and Water Resources will attempt to incorporate the ecological, economic and socio-political factors affecting beach and inlet management.

# # #

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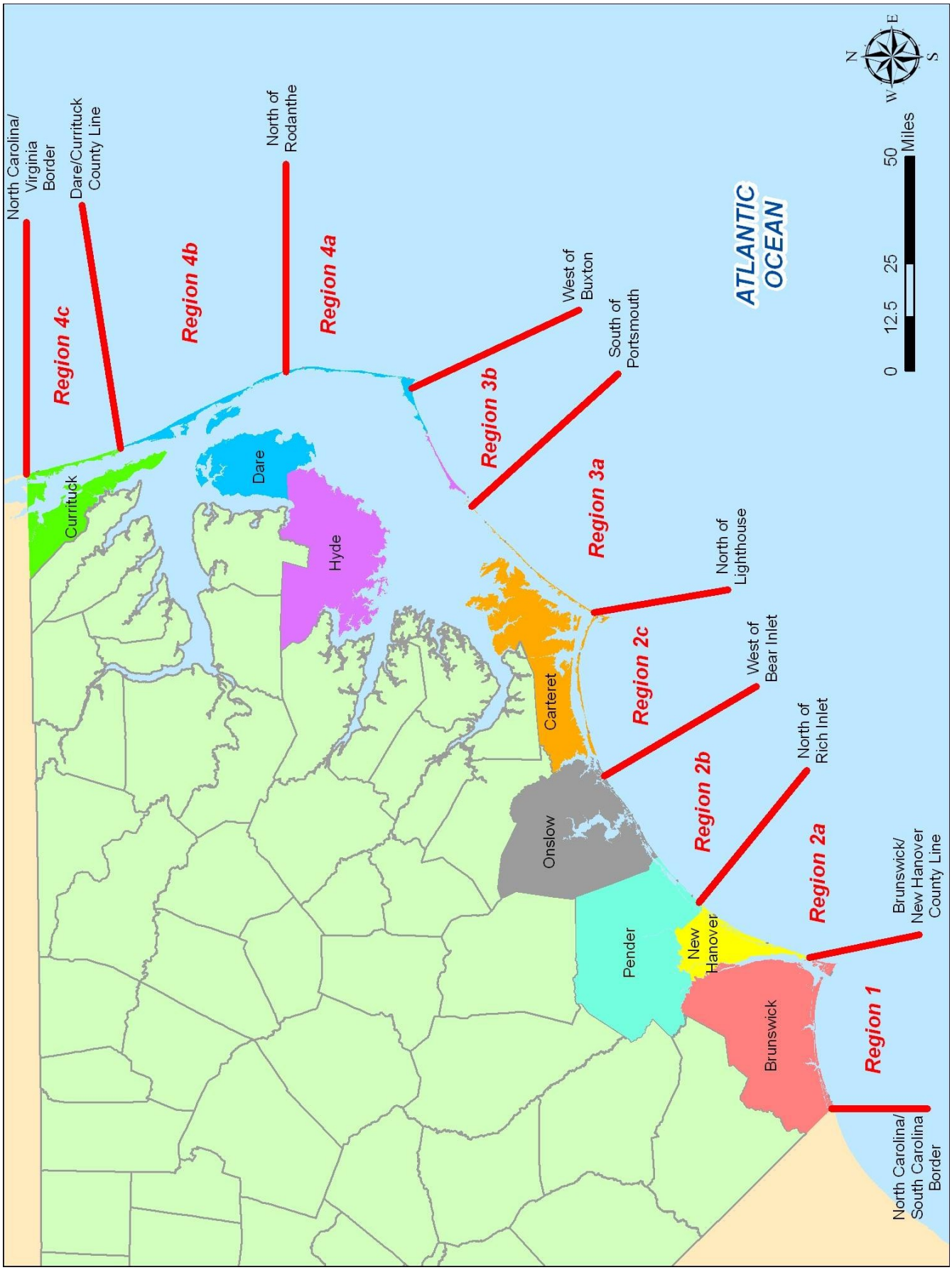

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N.C. Department of Environment and Natural Resources

Release: Immediate
Date: Feb. 17, 2009

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PUBLIC MEETINGS PLANNED FOR DRAFT BEACH AND INLET MANAGEMENT PLAN

RALEIGH – The N.C. Department of Environment and Natural Resources will conduct a second set of meetings in March to update the public on the progress of the state's Beach and Inlet Management Plan, a strategy for managing certain coastal areas.

Meetings will be held during the first two weeks of March at the following locations and dates:

Region	Location	Date	Time
1	Supply, N.C. - Brunswick Electric, 795 Ocean Highway West	Tuesday, March 3	6-8 p.m.
2a, 2b	Wilmington, N.C. - Northeast Branch, New Hanover Co. Library, 1241 Military Cutoff Rd.	Wednesday, March 4	5-7 p.m.
2c, 3a	Pine Knoll Shores, N.C. - N.C. Aquarium, 1 Roosevelt Blvd.	Thursday, March 5	6-8 p.m.
3b, 4a, 4b, 4c	Manteo, N.C. - N.C. Aquarium, 374 Airport Rd.	Monday, March 9	6-8 p.m.
All regions	Raleigh, N.C. - NCSU M^{c}Kimmon Center, 1101 Gorman St.	Thursday, March 12	6-8 p.m.

The DENR divisions of Coastal Management and Water Resources are developing the state's first comprehensive Beach and Inlet Management Plan, a systematic management strategy for North Carolina's 326 miles of oceanfront beaches and 19 active tidal inlet complexes. The plan divides the state's coastal area into management regions and sub-regions.

The first set of public input meeting were held in early December and covered the collection of available relevant data, discussion of existing management strategies, and delineation of the management regions and sub-regions. The presentations and public comments from the December meetings are available on the project website, **www.ncbimp.net.**

The current meetings will highlight the management strategies being further developed for each region and sub-region together with economic valuation and funding options. As part of these strategies, Coastal Management and Water Resources will attempt to incorporate the ecological, economic and socio-political factors affecting beach and inlet management.

The meeting agenda and presentation summary will be available on the project website in the week prior to each meeting. This will be the last set of public meetings prior to the scheduled release of the BIMP in May 2009.

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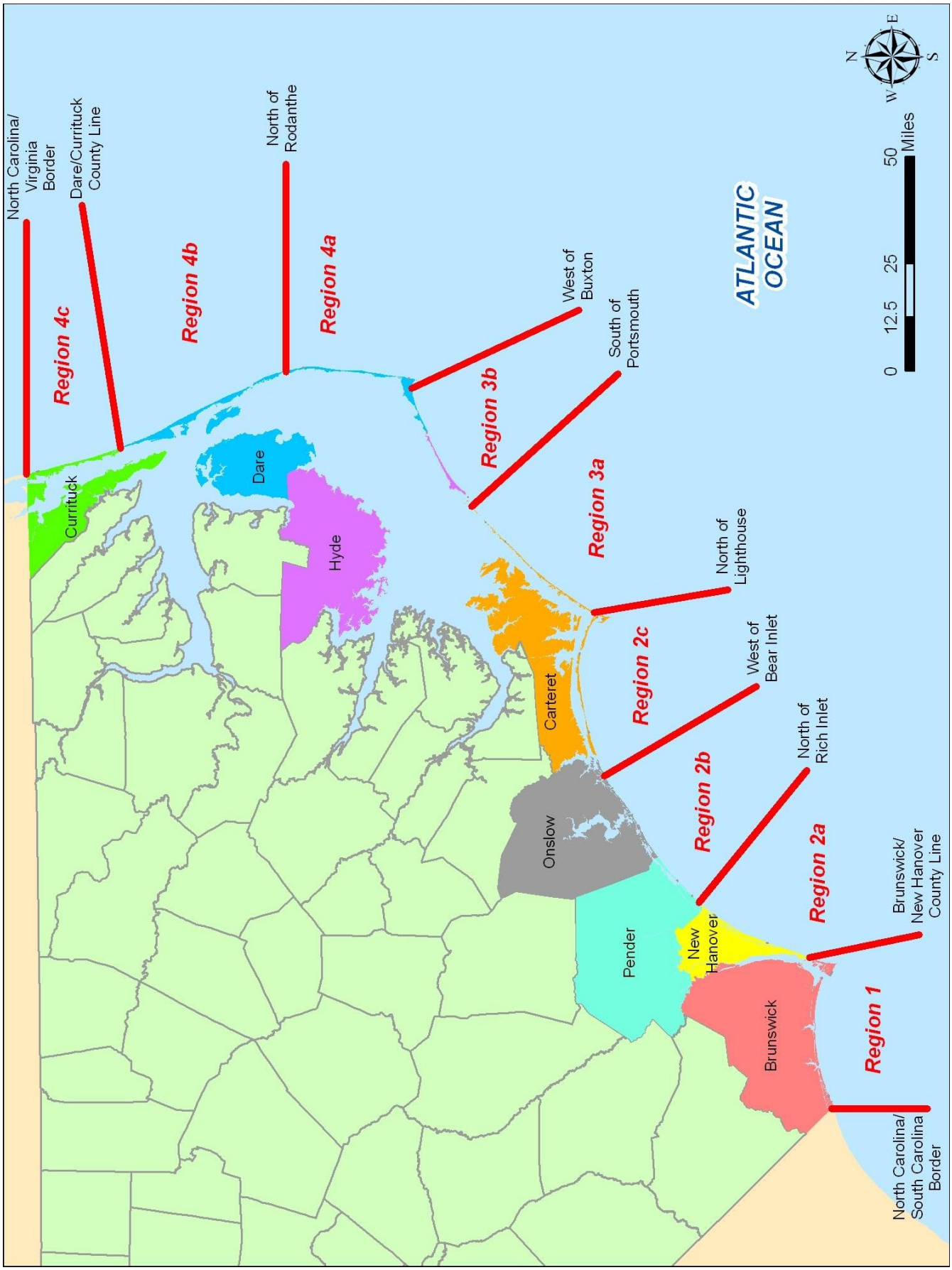

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Public Meeting
Comment Summaries

First Round of Public Input Meetings

Five meetings were held during the period of December 2 through December 11, 2008 to outline the ongoing development of the North Carolina Beach and Inlet Management Plan (BIMP). These provided opportunities for members of the public and communities to be informed of the progress to date and to provide valuable input and comments.

The meeting consisted of two main parts. The first part was a presentation on the BIMP and the second involved interactive breakout sessions where maps and flip charts were available to document comments, questions, and concerns during the session. The presentations are available for viewing on the project website www.ncbimp.net. The comments from the meeting break out sessions are summarized in this document. Additional opportunities for comment are the questionnaires provided at the meetings and email feedback at DENR.NCBIMP@lists.ncmail.net . Public input and participation in the process is greatly appreciated.

Summary of Public Comments at Each Meeting

Region 1 Meeting – Held December 3, 2008 from 6-8:00 pm at Brunswick Electric Membership Corporation, Supply NC

Discussion in the break-out sessions ranged from data availability to strategies and priorities of the BIMP. The following list summarizes the comments made:

General

- All alternatives should be on the table. The BIMP discussion should not be limited to current policy but also consider things not currently allowed under rule or statue such as terminal structures.
- There is a difference between using structures for sediment control vs. shoreline armoring

Data

- The current sandbag structures database should be updated
- Current NCDCM erosion rates use “end point” method. Rates should be calculated more scientifically.
- Complex analysis may not be as accurate as gut feel
- The current USACE GRR- considering nearby inlets and limited offshore
- Include most recent data in erosion rates – 1998 is a bit dated
- Tidal Prism data and hydrography needed at inlets
- Systematic data standard for gathering data needed

Strategies/Priorities

- Use dredge material nearshore if not beach quality (find beneficial uses when possible)

    - wetland creation
    - do not dispose offshore
- Prioritize where sand is needed
- Standardized defendable approach to prioritization is key (keep it simple)
- Frequency of nourishment is an environmental issue (turbidity, etc.)
    - Big projects less often
    - Also, mobilization and cost potentially reduced with larger projects
- Sediment compatibility criterion – is this limiting potential sand resources in sand starved areas?
- Holden Beach has received limited sand from inlets- any other options? Relying now on upland sources
- Don't ignore the inlets as a sediment source
- Maybe increasing depths and widths of channels should be considered
- Sediment budgets needed
- Funding sources – room occupancy taxes – statewide- county by county

Regions 2a and 2b Meeting – Held December 2, 2008 from 5-7:00 pm at New Hanover County Northeast Regional Library, Wilmington NC

The attendees were divided into six break-out sessions where discussion ranged from data sets to BIMP strategies, vulnerability indexes, and funding. The following list groups and summarizes the comments made:

General

- Regions as shown are OK
- BIMP needs to be holistic/comprehensive with human component, natural system, and ecosystem all included
- Statewide plan
- Promote better cooperation between stakeholders and regulators
- Sand as a resource maybe not just as an "asset"
- If BIMP goes beyond currently allowed state policy, where would it stop?
- How can you consider something not allowed?
- Differing opinions among break-out groups with some wanting to keep within scope of General Assembly mandate while others wanted to include all options in strategies; don't limit your project by current state policy (for example, terminal structures at inlets should be considered)
- Ease local project EA/EIS through development of "To-Do" guide for permitting
    - i.e. flow charts, etc
- Have local shoreline protection officers
- Increase channel dimensions for inlet dredging
- Inlet management
- Inlets should be used as sources of sand for nourishment and not declared off limits by NMF (National Marine Fisheries)
- In cases where beach disposal is not the least cost alternative, state should make up the difference so that beach quality sand is not wasted

- Do not move environmental goal posts as far as permitting is concerned
- Biological impacts of various projects and what are the recovery rates are of beaches – How long does it take?
- Frequency of nourishment projects should be looked at to allow biological community to recover from nourishment impacts
- Look at innovative ways to hasten the ability of the beach to recover from a nourishment event, such as seeding beaches with mole crabs, ghost crabs, small clams as you would fine in abundance on natural beaches
- Work on united message to General Assembly through a variety of groups, NCBIWA, Coastal Resources Advisory Council (CRAC), North Carolina Coastal Federation, NC Port Authority and others…What should the message be?
- Merge staff from DCM, DWR and others to implement the BIMP – don't develop another group - afraid of the BIMP being just another bureaucracy nightmare to get projects through
- Need to understand what information that each regulatory agency needs ahead of time when planning these projects –too many surprises after the fact.

Data

- Data should include a biological database as well as geophysical database
    - Historic reports, PhD dissertations
    - Monitoring data
- Set up a panel to review the data (especially monitor data) to provide a summary or QA/QC
- Recommend on what monitoring data needs to be collected, instead of just a stock list
- Data that is being collected and assembled for the BIMP should be the "right type" for looking at any future alternative strategies
- Research prior to policy/regulations
- Science/Biological/Oceanographic Panel to report to CRC?
- Data gaps identified?
- How can public access EIS/EA data or permit data?
- Recognize importance of inlet systems (e.g. Caveats of inlet "mining")
- Don't just "get" data but also analyze/synthesize data
    - Let science drive decisions
- Sediment budgets/naturally what is happening, background is needed
- Monitoring before and after any projects

Vulnerability

- Vulnerability index:
    - "human factor" of a panel supplementing hard variables in formula (i.e. ERs, sand, etc.)
- Coastal Avoidance Hazard Fund
- Subjective data are tough for vulnerability decisions
- Scientific data and objectivity may be better variables for a vulnerability index
- Vulnerability index data should only be used to determine availability of state funding for beach fill.

- Vulnerability index could affect coastal land uses instead of just addressing funding
    - Must be objective
- Vulnerability – needs to be detailed and up to date
    - 2004?
    - Otherwise do more harm
- Inlet Hazard Areas
    - Stabilize inlets
    - Insurance will go up
    - Property values will go down
- Vulnerability should take into account historic nourishment

Funding

- Money to build a project should not be the driving force
- Look at room occupancy tax and the laws and regulations around that, since it can vary from County to County and between Municipalities –it would be competing with the Regional Concept of sharing funds and resources
- Should be various dedicated pot of money for the BIMP and their associated projects – money from potential oil and gas revenues, money raised through Local Governments with regional concept, annual money from the State Legislature through Division of Water Resources, allow for greater tax tools for Local Governments, reward Local Government's for doing the right thing when prioritizing projects.
- Instead of just beach fill money how about money for buybacks of property (Specifically in IHAs)
- Use the "Funding availability" as one way to prioritize projects, that is local government's ability to fund projects, because they have raised the money, should be one of the priorities that would qualify for State and other Federal Funding
- Incentive to build smaller, higher, farther back (tax breaks, cash payment, etc)
- If a community can get non-public money maybe project should still not be feasible due to environmental impact
- Should BIMP recommend funding sources from local taxation (occupancy tax, impact fees) where they don't currently exist?
- BIMP can show value of a particular management scheme to the local/county/state
- Folks in western NC need to remember that its their beach too
- If an area shouldn't be touched (e.g. sand mining) then show cost/benefit
- Show values of management away from beach – upstream, out west
    - Natural asset/capital
    - Fiscal asset
    - Weigh together to compare and contrast
- Encourage state legislature to set up permanent funding source; future oil/gas exploration
- Will CBRA zone designations impact State funding of projects under the BIMP? (for example, stretches of beach along North Topsail)

- Beach nourishment should be the function of the US government supplemented by state and local
- What are identified sources of funding for beach nourishment?

Regions 2c and 3a Meeting – Held December 4, 2008 from 6-8:00 pm at East Carteret High School, Beaufort, NC

Discussion in the break-out sessions ranged from data sets to strategies and BIMP funding prioritization. The following list summarizes the comments made:

General
- Implementation plan – what is the role of NCBIMP
- Plan -> Action
- Adhere to state law. No hard structures!
- What about terminal groins?

Data
- In planning and management understand limits of NHP (Natural Heritage Program) - need to capture this
- Species data from Carteret County
- Expand to species of special concern, not just Federal and State protected
- SAV (2007) survey
- Analysis methods needed to utilize/apply data to understand system.
- Focus first on understanding system based on existing data and studies
- Symposium to collaborate or exchange knowledge
- USGS to report on Core Banks
- Clearly identify gaps that are important
- Data should be readily available to the public
- Keep links active
- NC One Map – clearinghouse for spatial data
- Overlooked? Renourishment - definition may be different among users
    - How far back does data go?
- ICW first time dredged? Sand should be used for renourishment.
- More robust monitoring, e.g. shoreline is 1998

Strategy Issues
- Beneficial use of material
- For non-beach grade sediment- other beneficial uses? Build up other eroding areas? (estuarine)
- Can it be used to build up new areas of upland to build houses?
- Sea walls - like at Pine Knoll Shores – if it falls, can it be rebuilt?
    - What about buried wooden sea walls like at Atlantic Beach?
    - Virginia Beach (ca. 1970's) large X structures set as breakwaters for off shore appeared to work?
    - What about going offshore and finding sand to pump back onshore?

- Sea level rise needs to be important consideration policies to day that will have significant implications in the future (setbacks could take into account)
- Inlet management needs to address catastrophic changes (breaching, closure) – Inlet Hazard Areas
- Inlet maintenance – is it better to go deeper?

Vulnerability
- How would other people use this data? (for example insurance companies and overwash vulnerability/erosion data)
    - Data already public. Information is already available.
- Rather than "vulnerability" – call it an Assessment Index and needs to be updated

Prioritization and Funding
- Prioritization- something that has additional value in addition to beach renourishment.
    - Multiple benefits
    - More groups in favor, more $$
    - Figure out how many people you can attract to the beach
    - Look at economic impact of maximum congestion
    - Economic stimulation up to 50 miles from beach - attracts business
- Funding?
- Economic analysis needs to be detailed to capture to use value – example wading bird population.

Regions 3b and 4 Meeting – Held December 9, 2008 from 6-8:00 pm at NC Aquarium, Manteo NC

Discussion in the six break-out sessions ranged from procedures of keeping public/communities informed to funding. The following list summarizes the comments made:

General
- Consider frequency of updating BIMP plan
- Too many state agencies involved
- Are we adequately addressing sea level rise?
- Clarify how plan will be used in policy development
- Important to capture value of commercial fisheries
- No oversight of beach pushing
- Publicly owned seashores should be allowed to function naturally – no nourishment
- Beach policies should benefit all homeowners equally
- Socio-economics should weight smart growth of Dare county
- Weigh considerations of desire of citizens versus political drivers
- Remember Currituck Sound Restoration Project "New Inlets"
- Needs to be clarification of who owns what part of the beach

- Does BIMP address sound-side beaches?
- BIMP should not be narrowly defined to how we do beach nourishment
- Opposed to hard structures
- What happens to a property when someone chooses to retreat or does not rebuild?

Data

- Would like to see data on number and location of condemned or threatened homes
- Need data on storm effects: North-Easters do more damage than hurricanes because it is sustained
- Does Duck (COE) have information on Currituck and Dare counties due to recent Virginia Beach projects?
- Bodie Island's nourishment (Dean & Dolan)
- Look at data from other areas on effectiveness of strategies
- Ensure that key environmental areas are indentified
- Data Sets:
    - RENCI Database
    - UNC-CSI – wave data AWACS?ADCP
    - Wind Data – water flow
    - UNCW-ADCP's – Lyn Lanard
    - UNC-IMS (Institute of Marine Science) –NCCOOS (NC Coastal Ocean Observing System –SECOORA (Southeast Coastal Observing Regional Association)
    - USGS – Woods Hole; profile data- Currituck to Oregon Inlet
    - NEST – sea turtle group
    - Mike Marshall, Greg Allen- NCDMF Shellfish
    - NCDOT data
- Monitoring of the beach needs to be done before and after changes are made.
    - Money available?
    - State's erosion data – when available? Are funds available for update?
    - Include monitoring of existing/previously removed structures, e.g. sandbags

Strategies

- Socioeconomic evaluation needs to be moved up in priority, not just sand management. What is next after the priorities are completed?
- Site specific design should be used- match strategy to actual field conditions.
- Consider nearshore attenuation; avoid strategies that will relocate the problem.
- Reconsider hard structures, placement of material nearshore
- Publicly owned seashores should be allowed to function naturally – no nourishment
- Preference of how beaches should be treated:
    - Sand bypassing at Oregon inlet is fine – sand is a problem on Pea Island's beaches
    - Is retreat really an option?
    - Are buy-outs feasible?
- Think about non-traditional alternatives:

    - Use recycled glass for beach nourishment
- Why not let State utilize USACE permits and possibly buy State dredge plants
- Clarify goals of strategies
    - Balance development with ecology (those are competing)
    - Can we balance ecology and development and can they be sustained?
- Correlate dredging and nourishment to storm events
- Consider links between physical processes and socioeconomic result
- Clarify factors used in prioritization. For example, not all communities currently have public access
- How do policies and land ownership affect project strategies? For example, beaches in Kitty Hawk vs. beaches at National Seashore and villages
- Understand effects of structures on biological community and moving sand through nourishment. What effects removal has on offshore sites (borrow sites), benthic and biological community, how does it effect erosion (wave formation)
- Encourage natural functions of all beach and inlet ecosystems and their associated habitats.
    - Encourage education associated with this idea
    - By getting this "right" we can be sustainable
- Should state provide help to let people buy out properties before they fall into the ocean?

Funding

- Funding concerns – Is money available?
- Prioritization – don't spend lots of money on extreme areas because under current policy, long term sustainability may be an issue
- Compare the cost of retreat and relocation to the cost of beach nourishment – e.g. Rodanthe
- Represent more than local people because of federal money, and that is money from all over the US
- Perceived benefits of beach nourishment for funding – oceanfront only benefit.
- Public vs. Private funding

Procedures

- Make data available to the public to allow for public involvement on strategy development and funding priorities, etc., including education
- Will maps be available online?
- Not enough time to take in all data- details? (will be on website)
- How can the public give input between meetings?
- How do we better reach out to non-resident property owners?

All Regions – Held December 11, 2008 from 6-8:00 pm at NCSU McKimmon Center, Raleigh NC

Discussion in the break-out sessions ranged from data sources to BIMP strategies and ecological issues. The following list summarizes the comments made:

General

- Modeling of island/inlet behavior should be performed
- Stay out of moratorium (do not allow coastal structures)
- Include other strategies currently outside state policy in study – For example, terminal structures.
- Do not exclude strategies upfront – state policy changes with time.

Data

- Sources:
  - USACE
  - DOT - photos
  - LIDAR
- Shoreline Erosion Data
- Potential offshore/nearshore resources, and hardbottom
- Identify gaps and recommend studies to gain necessities to understanding natural system.

Strategies

- Sand pushing/bulldozing/scraping – what's allowable?
  - Given frequency of events
  - Coordinate with other activities
  - Newly created inlets- policy for response
- Frequency of nourishment- minimum 4 year (ecological considerations)
- Economic alternative should take a hard look at "do nothing" approach (For example, Bogue Inlet)
- Restore natural sediment pathways
- Land acquisition
  - Doesn't mess with existing physical/environmental processes
  - Maintenance lower
  - No 'downdrift' problems
- Look at developed/undeveloped areas moving inland
  - Impervious area impacts, consideration into strategies
- If structures were considered, need to really assess whether they are needed and where
- Kelp forests? (look at possibility of using kelp forests to dissipate wave energy)
- Manage inlets such that the inlets do not destabilize (what is an acceptable level of mining?)
- Property buy-outs (structure and/or land)
  - Convert to parklands

Ecological

- Impacts of overwash – loss of next habitat
- NOAA/NMFS/DMF Larval Fish Mitigation and dredge window
- Design for turtle nesting (template/slope)
- Detailed coastal processes and estuarine ecology necessary to understand and document as part of BIMP
- NEPA/SEPA not addressing complex system

Funding

- Continuous tax/funding source (occupancy tax) or property tax add-on targeted to the BIMP
- Public beach access should be tied to funding/prioritization formula

Second Round of Public Input Meetings

Five meetings were held during the period of March 3 through March 12, 2009 to outline the ongoing development of the North Carolina Beach and Inlet Management Plan (BIMP). These provided opportunities for members of the public and communities to be informed of the progress to date and to provide valuable input and comments.

While the initial set of meeting in December focused on the overall plan, data collection, and the development of management regions, the second set of meetings focused on strategies, costs, valuation, funding approaches, and preliminary draft plan recommendations. The meetings consisted of two main parts. The first part was a presentation on the current status of the BIMP and the second involved interactive breakout sessions or open discussion where maps and flip charts were available to document comments, questions, and concerns during the session. The presentations are available for viewing on the project website www.ncbimp.net. The comments from the meeting break out sessions are summarized in this document. Additional opportunities for comment are the questionnaires provided at the meetings and email feedback at DENR.NCBIMP@lists.ncmail.net . Public input and participation in the process is greatly appreciated.

Summary of Public Comments at Each Meeting

Region 1 Meeting – Held March 3, 2009 from 6-8:00 pm at Brunswick Electric Membership Corporation, Supply NC

Discussion in the break-out sessions ranged from sand sources to funding strategies. The following list summarizes the comments made:

General

- A seawall protects Fort Caswell

Sand Sources

- Frying Pan and Jay Bird Shoals represent a large possible source of sand (close proximity to Bald Head Island)
- Holden Beach has used and is currently truck hauling sand to nourish the beach at costs of $8-$9 per cubic yard.
- Wilmington Harbor Project put 1.3 Mcy of sand onto the beach in 2008.
- For the management plan there needs to be clarification of quality of beach compatible sand.
- Wilmington Harbor reaches have some areas of sand that are too fine for beach nourishment

Economics

- The commercial fishing landings near Lockwoods Folly Inlet appears quite low. There are several commercial docks along the Intracoastal Waterway between Holden Beach and Lockwoods Folly Inlet and also fish docks in Varnamtown. (perhaps Shallotte is too high and is capturing some that are associated with Lockwoods Folly)
- Should include things that have value but are not quantified. (e.g. Shallotte and Lockwoods Folly Inlets both need to be open for water quality circulation)
- Inlets will not close but may shoal and current uses are not possible if not maintained.
- Bald Head Island has some economic data to provide.

Environment

- Region 1 maybe too large for programmatic EIS (do it by federal project or over distance from inlet to inlet)
- Beach nourishment has not only environmental impacts but also value/benefits (e.g. Holden Beach nourishment increased saebeach amaranth population and growth. Can also benefit birds and turtles with improved nesting areas.)

Strategies/Priorities

- New system of prioritization should be developed.
- Corps priority system for inlet maintenance is out of date.
- Need for regional dredging plan for AIWW, side channels, and river channels
- Buyout analysis should clearly list assumptions, realistic possibility of scenario, sensitivity analysis.
- Vulnerability should use 2004 erosion rates not the older ones.
- Proposed inlet hazard areas are not realistic – too large to be considered accurate and people do not buy into the proposed delineation.

Funding Approaches

- Current funding is very variable.
- Need for dedicated funding for Beach and Inlet projects.
- Possible funding sources / current taxes
    - Sales tax – 0.25% statewide, 0.5% in coastal counties
    - Prepared food and beverage tax – 1%
    - Room occupancy tax – 2%
    - No transfer tax.

Regions 2a and 2b Meeting – Held March 4, 2008 from 5-7:00 pm at New Hanover County Northeast Regional Library, Wilmington NC

The attendees gathered around several tables with maps and flip charts discussing topics presented ranging from BIMP strategies to vulnerability and funding. The following list groups and summarizes the comments made:

Sand Sources

- Sediment budgets should be developed – coarse estimates statewide as a first step.
- Dredging for port expansion project at Southport may be a sand source in the future.
- Sand sources should consider broad range of possibilities – islands, shoals, sounds, and land based, etc.
- Recycled glass? (Florida study)

Economics/Environment

- Value of ecosystem function of inlets should be accounted for.

Strategies/Priorities

- In the past 300,000 cy has been considered a large scale project which potentially results in property take issues by fixing the vegetation line so the 1 Mcy assumed project size in developing cost estimates might be an issue (new static vegetation rules and long term projects may address this issue).
- Include as a factor for prioritization - how the local government is managing and protecting the beach and educating citizens (e.g. sea oats and dune protection)
- Regional management to eliminate piecemeal measures is a good idea.
- Tax incentives for relocation from vulnerable properties.

Vulnerability

- Future work should examine improvements to vulnerability assessment combining long-term and short-term erosion rates and storm impacts.

Funding

- Equitable and statewide.
- Trust fund – not political (e.g. let DENR decide funding)
- Needs to be a source for renourishment after storms, especially "no name storms"
- FEMA money potential should be outlined.

Regions 2c and 3a Meeting – Held March 5, 2009 from 6-8:00 pm at North Carolina Aquarium, Pine Knoll Shores, NC

Discussion occurred throughout the presentation and in a single open discussion at the conclusion of the presentation given the smaller animated group in attendance at this meeting. The following list summarizes the comments made:

Strategies/Priorities

- Since 1984 there have been 3 large nourishment events – data should make this clear by breaking down project sizes (e.g. show which ones are less than 100,000 cy)
- Should provide scale of dredging and beach projects – some are large, some are small

- Should highlight which stretches of shoreline have received most of the placed sand against total number of miles of shoreline that have been actively nourished.
- Some sand was placed on Core Banks once.
- How is the deep draft dredging accounted for – keep this data separate.
- Some sensitivity analysis should be conducted with respect to sealevel rise.
- How much of ODMDS could be used for beach placement? Important source.

Economics/Environment

- Beach recreation values seem too high – are dissimilar from NC Tourism data.
- Cultural/Heritage value needs to be accounted for in economics (e.g. lighthouses, national seashore)
- The Cape Lookout National Seashore has some trip numbers to add to economic valuation data (Region 3a)
- Natural resource values

Vulnerability

- Should have inlet hazard areas (IHA) delineated in undeveloped areas also (why not define IHA at lighthouse)
- Static vegetation line from 2004 should not be used – what is on the ground should be

Funding

- Sales tax from beach rentals is a good possibility.

Regions 3b and 4 Meeting – Held March 9, 2009 from 6-8:00 pm at North Carolina Aquarium, Manteo NC

Discussion in the break-out sessions ranged from vulnerability to funding. The following list summarizes the comments made:

Strategies/Priorities

- There are potential issues using Oregon inlet dredge sand.
- Question of sand ownership – e.g. Does Oregon inlet sand belong to park service?
- Florida's system for prioritization is a good example.
- Relocation vs. buyout are two different approaches.
- Moving a house has a large potential cost of power line moving, which needs to be accounted for.
- More tools in the toolbox (consider new options)
- A main comment made last meeting was that BIMP was considering strategies "only within State policy" which seems to only leave sand placement or relocation as main options – why not suggest changes to State policy
- Relocation should consider longer stretches of shoreline
- Soundside should also be considered in future updates to the plan.
- Better sand exists offshore of Nags Head than in inlet.

Economics/Environment

- Clarify economic split of Hatteras Village and Buxton/Frisco
- Positive tax value to properties behind nourishment (gain value)
- Environmental concerns – are they all valid?
- The level of sea level rise discussed has just not been seen in my lifetime – is it actually measured?

Vulnerability

- 2004 shoreline does not reflect recent storms/ vulnerability of shorelines in Region 4 (see county aerials – 2007 GIS data) – structures are closer to shoreline than indicated based on 2004 data
- Some houses in the region are currently endangered so there values are greatly reduced (no longer $1M homes)

Funding

- If buyout of houses is to be considered, need to give fair value – FEMA, Insurance, homeowner, county and state all have interests – potential for a common pooled resolution with all interests contributing
- Beach and inlet fund like the clean water management fund
- Fund should be used to help with buyouts/relocation
- Can FEMA relook at how to help with buyouts?
- Beach access is important
- Funding – local taxes, sales taxes – more
- Earmark funds - should not go to general fund because of potential lost control
- Don't underestimate coastal counties contribution to state revenues, especially compared per capita
- Education of economic value should be made to entire State

All Regions – Held March 12, 2009 from 6-8:00 pm at NCSU McKimmon Center, Raleigh NC

Open group discussion occurred at the conclusion of the presentation involving all attendees. Discussion focused mainly on funding questions. The following list summarizes the comments made:

Funding

- FEMA storm repair funding of engineered beaches
- If fund is based on beach rental sales tax it will fluctuate with the economy – need a diversified portfolio approach
- What does DWR Water Resources Development Grant Program currently rely on to fund projects? (capital funds from previous year surplus, averages $15M of which typically $5M is for beach projects)
- Why are southern beaches federal projects? – what about other regions?
- Make sure federal government stays involved.

NEW HANOVER COUNTY BOARD OF COMMISSIONERS
230 GOVERNMENT CENTER DRIVE, SUITE 175 · WILMINGTON, NC 28403
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Ted Davis, Jr., *Chairman* · Jason R. Thompson, *Vice-Chairman*
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~~~
Sheila L. Schult, *Clerk to the Board*

January 30, 2009

Mr. Steve Underwood
Assistant Director
North Carolina Division of Coastal Management
1638 Mail Services Center
Raleigh, North Carolina 27699-1638

RE: Public Comment – Beach and Inlet Management Plan

Dear Mr. Underwood:

This letter gives the initial comments of New Hanover County on the Beach and Inlet Management Plan (BIMP) currently under development by the North Carolina Division of Coastal Management (DCM).

We applaud DCM for its efforts to develop a more comprehensive and forward-thinking plan for the future protection and maintenance of our beaches and inlets. We greatly appreciate DCM's emphasis on stakeholder input, and we look forward to continued participation in the development of the BIMP in the coming months.

The County's comments and suggestions are outlined below, in two categories – those applicable to the entire NC coast, and those specific to New Hanover County.

**Applicable to Entire NC Coast:**

1. The BIMP should strongly confirm the State's commitment to beach nourishment as the presently most feasible solution for beach erosion issues. The practical reality in North Carolina is that there are only two options for addressing beach erosion – one is the retreat and removal of structures threatened by erosion, and the other is beach nourishment. In many cases, removal and retreat is simply not a practical or cost-effective option. The economy of North Carolina is dependent upon a strong tourism sector, and traditional beach vacations on developed barrier islands (with the associated housing, lodging, dining, shopping, and public infrastructure) are a huge part of NC's tourism economy. At this time, removal and retreat is simply not a viable option for the billions of dollars of investment on the State's developed barrier islands. Beach nourishment should be firmly recognized by the State as the primary solution.

2. The State should establish a dedicated funding source to assist local communities with future beach nourishment projects, navigation projects, and public water access projects. The State has historically provided funding for all Federally-cost shared beach nourishment projects,
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this assistance has been vital and is greatly appreciated. As more NC beach communities undertake beach nourishment projects in the future, and as Federal funding becomes less available, the State should become an equal, if not greater, funding partner with local communities. The State should prepare to assist local communities with at least 50 percent of total nourishment construction costs in the future, provided that local communities provide the remaining funds necessary. To this end, the State should establish a statutorily earmarked and dedicated funding source for beach nourishment, navigation dredging, and public water access projects in the oceanfront counties. The nature of the funding source should reflect the value of the beaches to the entire State.

3. The permitting process for beach nourishment projects should be streamlined and expedited. The State of North Carolina now has significant experience with beach nourishment projects, both Federally-sponsored and locally-sponsored. Much has been learned about the environmental impacts of these projects, and for the most part these impacts are significantly mitigated by a thorough set of existing regulations and standard practices. Among the common requirements for beach nourishment projects are: a) allowing dredging only in winter months between November 16 and April 1; b) strict sediment quality standards; c) use of dredging methods designed to prevent sea turtle impacts; d) monitoring requirements for other endangered or threatened species during construction; and e) sufficient time and space intervals between borrow area re-use and renourishment areas to enable biological recovery. Projects that adhere to these common requirements should be eligible for a streamlined and expedited permitting process that does not require the development of a costly and time-consuming EIS or EA. It should be the State's goal to issue permits for "routine" beach nourishment projects within 180 days, if not less.

4. The BIMP should include a recommendation, though not currently authorized under NC law that terminal structures, if properly designed and sited to prevent negative impacts on other beach areas, should be permitted in NC for inlet uses only. There are numerous examples of terminal groins in NC and other states that have effectively stabilized inlet shorelines without harming other beach areas. North Carolina beach communities would benefit greatly by having this additional means for addressing inlet erosion and sand management issues. We do not advocate the use of groins, seawalls, or jetties along the ocean shoreline.

5. The process for retreat and removal of structures from the shoreline should be clarified and established as a means for beach management when beach nourishment is not feasible. Although beach nourishment is the preferred alternative when feasible, some communities may wish to pursue the retreat and structure removal option. Many questions remain, however, concerning this option. These include concerns about local government's ability to require retreat and beach clean-up, and the availability of Federal and State programs for funding and assistance. Retreat and structure removal may become a more relevant means of beach management with sea level rise, barrier island migration, and decreasing sand availability for nourishment.

Specific to New Hanover County:

1. The BIMP needs to focus on the efforts by Figure 8 Island to manage Rich's Inlet in minimizing beach erosion due to Inlet movement and in using the Inlet as a source of sand for

beach nourishment. Figure 8 has been instrumental in looking at the possibility of using a terminal groin as an environmentally and economically positive means of beach management.

2. Much of the developed beach in New Hanover County in Wrightsville Beach and Carolina/Kure Beaches are part of established Federal beach nourishment projects that have been historically funded in part by the State. We are extremely grateful for the State's support.

The County greatly appreciates the opportunity to participate in the development of the BIMP. We hope you will thoughtfully consider our comments and suggestions. Please contact me if I can provide any additional information or insights on the County's goals, or if you have additional questions.

Sincerely,

Ted Davis, Jr.
Chairman

TD/sjj
cc: Bruce Shell, County Manager
Wanda Copley, County Attorney
Sheila Schult, Clerk to the Board
Ports, Waterway and Beach Commission

Town of Emerald Isle

Visit our web site at www.emeraldisle-nc.org !

Town Manager
Frank A. Rush, Jr.
frush@emeraldisle-nc.org

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Town of Emerald Isle
7500 Emerald Drive
Emerald Isle, NC 28594

Voice 252-354-3424
Fax 252-354-5068

December 18, 2008

Mr. Steve Underwood, Assistant Director
NC Division of Coastal Management
1638 Mail Service Center
Raleigh, NC 27699-1638

Via email at: steve.underwood@ncmail.net

Re: Public Comment – Beach and Inlet Management Plan

Dear Mr. Underwood:

Please accept this letter as the Town of Emerald Isle's initial comments on the Beach and Inlet Management Plan (BIMP) currently under development by the NC Division of Coastal Management (DCM).

The Town applauds DCM for its efforts to develop a more comprehensive and forward-thinking plan for the future protection and maintenance of our beaches and inlets. The Town greatly appreciates DCM's emphasis on stakeholder input, and we look forward to continued participation in the development of the BIMP in the coming months.

The Town's concerns and suggestions are outlined below, in two categories – those applicable to the entire NC coast, and those specific to Emerald Isle.

Applicable to Entire NC Coast:

1. The BIMP should strongly confirm the State's commitment to beach nourishment as THE solution for beach erosion issues. The practical reality in North Carolina is that there are only two options for addressing beach erosion – one is the removal of structures threatened by erosion, and the other is beach nourishment. In the vast majority of cases, removal is simply not a practical or cost-effective option. The economy of North Carolina is dependent upon a strong tourism sector, and traditional beach vacations on developed barrier islands (with the associated housing, lodging, dining, shopping, and public infrastructure) are a huge part of NC's tourism economy. Removal is simply not a viable option for the billions of dollars of investment on the State's developed barrier islands, and beach nourishment should be firmly recognized by the State as THE solution.

2. The State should establish a dedicated funding source to assist local communities with future beach nourishment projects, navigation projects, and public water access projects. The State has historically provided funding for all Federally-cost shared beach nourishment projects, and this assistance has been vital and is greatly appreciated. As more NC beach communities undertake

beach nourishment projects in the future, and as Federal funding becomes less available, the State should step up to the plate as an equal, if not greater, funding partner with local communities. The State should prepare to assist local communities with at least 50% of total nourishment construction costs in the future, provided that local communities provide the remaining funds necessary. To this end, the State should establish a statutorily earmarked and dedicated funding source for beach nourishment, navigation dredging, and public water access projects in the oceanfront counties. One possible dedicated source is the earmarking of the existing State sales tax collected in the 8 oceanfront counties on short-term (vacation rental and lodging) accommodations. This revenue source would provide an estimated $35 million per year that would be available to assist local communities with these projects, and should meet the State's needs for the foreseeable future.

3. The permitting process for beach nourishment projects should be streamlined and expedited. The State of North Carolina now has significant experience with beach nourishment projects, both Federally-sponsored and locally-sponsored. Much has been learned about the environmental impacts of these projects, and for the most part these impacts are significantly mitigated by a thorough set of existing regulations and standard practices. Among the common requirements for beach nourishment projects are: a) allowing dredging only in winter months between November 16 and April 1, b) strict sediment quality standards, c) use of dredging methods designed to prevent sea turtle impacts, d) monitoring requirements for other endangered or threatened species during construction, and e) sufficient time and space intervals between borrow area re-use and renourishment areas to enable biological recovery. Projects that adhere to these common requirements should be eligible for a streamlined and expedited permitting process that does not require the development of a costly and time-consuming EIS or EA. It should be the State's goal to issue permits for "routine" beach nourishment projects within 180 days, if not less.

4. Terminal structures should be considered as an acceptable method to stabilize inlet shorelines. Although not currently authorized under NC law, the BIMP should include a recommendation that terminal structures, if properly designed and sited to prevent negative impacts on other beach areas, should be permitted in NC for inlet uses only. (The Town of Emerald Isle is not advocating the use of groins or jetties along the ocean shoreline.) There are numerous examples of terminal structures in NC and other states that have effectively stabilized inlet shorelines without harming other beach areas, and NC beach communities would benefit greatly by having this additional "tool" in the "toolbox" for addressing inlet erosion issues.

Specific to Emerald Isle:

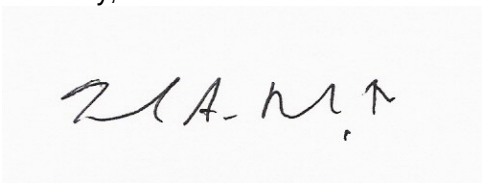
1. The BIMP should include Bogue Inlet ebb channel material as the preferred sand source for beach nourishment projects in western Emerald Isle. The Town successfully relocated the main ebb channel to a central location in the Bogue Inlet complex in 2005, and used this sand source to nourish 4.5 miles of ocean beach in western Emerald Isle. The 2005 project provided multiple benefits, including high quality sand for beach nourishment, improved navigation depths, a significantly-reduced threat of inlet shoreline erosion, and improved public access. The Town should have the ability to periodically re-dredge the central Bogue Inlet ebb channel as the preferred sand source for beach nourishment projects in western Emerald Isle. In essence, the Town should have the ability to emulate the 2005 project on a regular basis if necessary as a sand source for beach nourishment and/or to stabilize the location of the ebb channel and/or to improve navigation.

2. The BIMP should identify multiple potential sand sources for nourishment in eastern and central Emerald Isle. The preferred sand source for future beach nourishment projects in eastern and

central Emerald Isle is the Beaufort Inlet ODMDS. This sand source has been used by the Town for two previous projects, and is of excellent quality with large volumes available for future nourishment. The BIMP should also identify Borrow Area "A", used in 2003 for portions of eastern and central Emerald Isle, and all potential sand sources identified in the US Army Corps of Engineers' Shore Protection Project Feasibility Study due to be completed in the coming months. The combination of all of these sand sources, including the Bogue Inlet ebb channel, should include enough sand to maintain a wide, protective beach strand in Emerald Isle for decades or more.

Again, the Town greatly appreciates the opportunity to participate in the development of the BIMP. We hope you will thoughtfully consider our comments and suggestions. Please contact me if I can provide any additional information or insights on the Town's goals, or if you have additional questions.

Sincerely,



Frank A. Rush, Jr.
Town Manager

copy: Mayor Schools and Board of Commissioners
Greg Rudolph, Carteret County Shore Protection Office
Johnny Martin, Moffat & Nichol

Shore Protection Manager

Greg L. Rudolph
Tel: (252) 393.2663
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rudi@carteretcountygov.org

carteret county Shore protection office
protectthebeach.com

December 4, 2008

Michele Walker
NCDENR - Division of Coastal Management (DCM)
400 Commerce Avenue
Morehead City, NC 28557

Re: Beach and Inlet Management Plan (BIMP)
Public Input – December 2008 Meetings

The Shore Protection Office (SPO) appreciates the opportunity to comment on the BIMP, and overall is supportive of the effort and the management regions and sub-regions that have recently been developed. The SPO serves as staff for the Carteret County Beach Commission, which is an eleven-member group that advises the County Board of Commissioners of beach nourishment strategies and expenditures of occupancy tax proceeds legislatively dedicated for beach nourishment activities. The Beach Commission was created in 2001 as part of the County's occupancy tax law (SL 2001-381) that further establishes a formula for membership providing fair and equitable representation for the beach communities along Bogue Banks and stakeholders throughout the County. It was the first government organization in the State that was legislatively mandated for the purpose of beach nourishment and coastal issues. We have been a big proponent of regional, holistic approaches for sand management and regulatory issues, and again applaud the N.C. Department of Environment and Natural Resources (NCDENR) for taking this same mindset and applying it to the BIMP.

The SPO also understands that the first step of the BIMP is a data gathering effort and concludes with the establishment of management regions and sub-regions. These regions appear to be logically developed based upon geomorphology, underlying geology, and coastal processes, and we look forward to contributing towards the next step of the BIMP – the development of draft beach and inlet management strategies. We respectfully request the following items be evaluated and incorporated into the management phase of the BIMP.

(1) ***The development of a beach monitoring program that adequately addresses shoreline and volumetric change rates for the N.C. Coast.*** One of the cornerstones of the BIMP is to begin assessing local and regional sediment budgets, and identify nourishment needs and triggers as a comprehensive, master type plan is developed. Currently DCM utilizes aerial photography to determine the high water line by visual observation, with the last dataset obtained a decade ago (1998). The State needs a more robust method (e.g. dense profiling, LIDAR, etc.) to achieve objective, repeatable results and to address some of the more macroscopic goals of BIMP.

(2) ***As mentioned in the State's draft ocean policy recommendations and building upon the efforts of the U.S. and N.C. Geological Surveys, the State***

should develop a coastal vulnerability or assessment index. The index should not be envisioned as a tool to determine which communities are simply in worse or better shape than others, or the availability of beach quality sand to a particular community, but rather to help develop a decision matrix that can be used for prioritizing State funding for shore protection efforts such as beach nourishment projects, relocation efforts, or/and utilizing new technologies. Addressing the best return of State dollars, and prioritizing funding for projects that have the best chance of succeeding could be aided by a coastal assessment index.

(3) ***NCDENR must work with the North Carolina General Assembly to amend State Gen. Stat. §113-229 (h1) and §113-229 (h2) (quoted below) such that these beneficial use policies will be approved by NOAA's Office of Coastal Resource Management (OCRM) and incorporated into North Carolina's Coastal Management Plan as an enforceable policy.*** The State as a whole and the BIMP specifically will need the regulatory tools to ensure the proper management of beach quality sand in the littoral system.

> §113-229 (h1): "Except as provided in subsection (h2) of this section, all construction and maintenance dredgings of beach-quality sand may be placed on the affected downdrift ocean beaches or, if placed elsewhere, an equivalent quality and quantity of sand from another location shall be placed on the downdrift ocean beaches."
>
> §113-229 (h2): "Clean, beach-quality material dredged from navigational channels within the active nearshore, beach or inlet shoal systems shall not be removed permanently from the active nearshore, beach or inlet shoal system. This dredged material shall be disposed of on the ocean beach or shallow active nearshore area where it is environmentally acceptable and compatible with other uses of the beach."

Respectfully,

Greg "rudi" Rudolph
Shore Protection Manager

d:.../spmcorrespondence/2007/jun/2008-09/bimp comments