

NC BEACH AND INLET MANAGEMENT PLAN (BIMP) STAKEHOLDER MEETING #2 – Public Information and Input OVERVIEW



**REGIONS 2c & 3a – NC Aquarium, Pine Knoll Shores, NC
Thursday, March 5, 2009**

INTRODUCTION

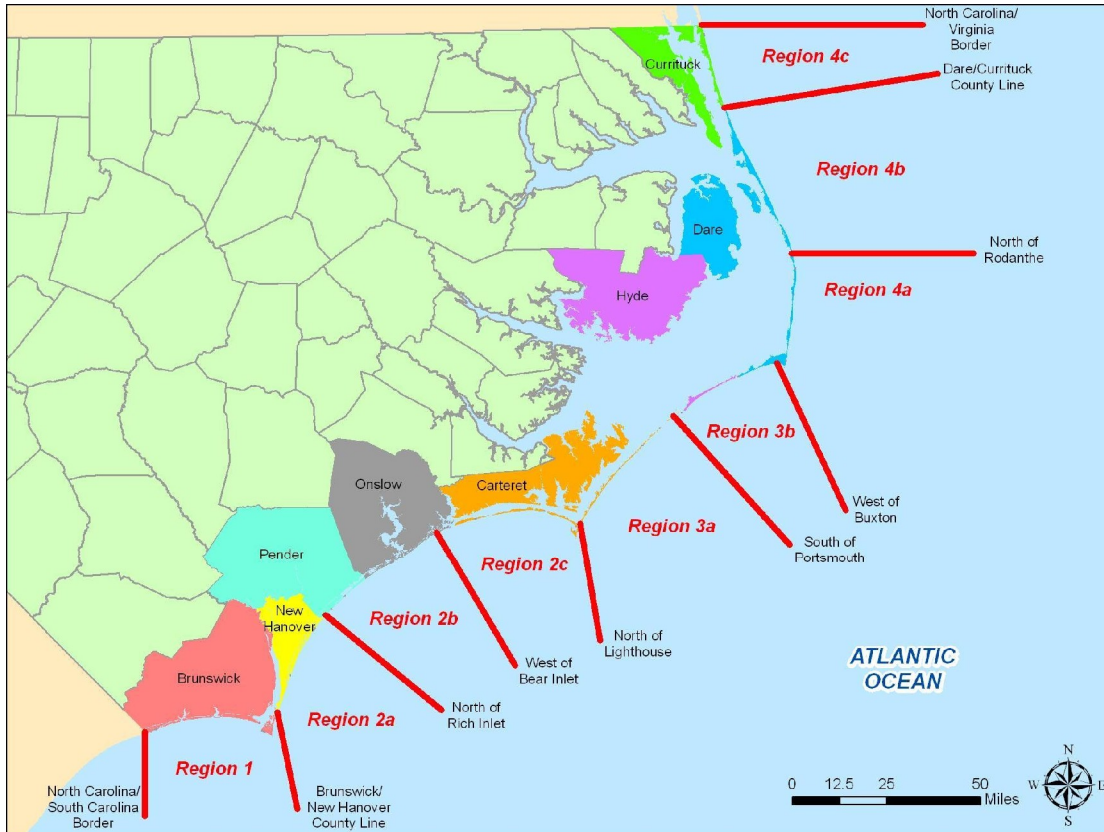
North Carolina's beaches and inlets are a vital part of the heritage, economy, environment, and daily life of the people of the State. The Beach and Inlet Management Plan (BIMP) is being developed to help preserve and enhance the value of these coastal resources for the citizens of North Carolina by helping develop a systematic management strategy for the 326 miles of oceanfront beaches and 19 active tidal inlets. The need for a plan was identified in House Bill 1840 and in the Coastal Habitat Protection Plan (CHPP). The plan is being developed by the Department of Environment and Natural Resources (DENR) Division of Water Resources (DWR) and Division of Coastal Management (DCM). 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, which is scheduled for completion in May 2009.

The next step will be developing management strategies for each region and sub-region. As management strategies are developed, the Divisions of Coastal Management and Water Resources will attempt to incorporate the ecological, economic and socio-political factors affecting beach and inlet management.

The first set of stakeholder meetings in early December outlined the pertinent data gathering and background required to develop the BIMP including physical, environmental, and socio-economic information. The management regions and sub-regions developed were introduced. The NC coast was divided into 4 main regions, which were further divided into sub-regions as needed. The regions and sub-regions were delineated using natural features as well as socio-political factors.

Presentations and public comments from this first set of meetings are available on the website established for the BIMP – www.ncbimp.net

During these meetings, beach and inlet management strategies, economic valuation, environmental considerations, financing options and the structure of the plan be discussed and expanded upon.



ECONOMIC VALUATION

An important aspect of gaining support to fund beach and inlet management is understanding the value of these resources to the State. The value of the beaches and inlets can be assessed based on tourism, commerce data and prior economic studies. Some key elements examined in developing economic valuation were:

- Beach Recreation
- For-Hire Fishery
- Marine Recreation Services
- Commercial Fishery
- Private Boating
- AIWW Commercial Barge Traffic
- Shore and Pier Fishing
- Marinas
- Boat Builders
- Sea Level Rise (data not statewide)

In addition to compiling and analyzing the economic data, modeling of several economic impact scenarios is being performed including the impact of lost beach width and inlet closure.

REGION 2c – Beach and Inlet Values

Below is an example of the data for beach recreation grouped by beach and a summary of some of the key regional economic data.

Location	Beach Recreation	
	Trips/yr	Expenditures/yr
Atlantic Beach	2,085,178	\$ 1,536,684,346
Bear Island	No Data	No Data
Cape Lookout	No Data	No Data
Emerald Isle	1,922,738	\$ 1,409,842,393
Fort Macon	419,873	\$ 161,353,174
Indian Beach/Salter Path	254,394	\$ 149,630,386
Pine Knoll Shores	473,736	\$ 239,393,315
Shackleford Banks	No Data	No Data
Totals	5,155,919	\$ 3,496,903,614

REGION 2c - Economic Summary				
Marine Recreation Services (expenditures/yr)	Beach Recreation (expenditures/yr)	Beach Recreation (consumer surplus)	Pier/Jetty/Bridge Fishing (consumer surplus)	Shore Fishing (consumer surplus)
\$ 2,510,000	\$ 3,496,904,000	\$ 335,070,000	\$ 12,184,000	\$ 4,978,000

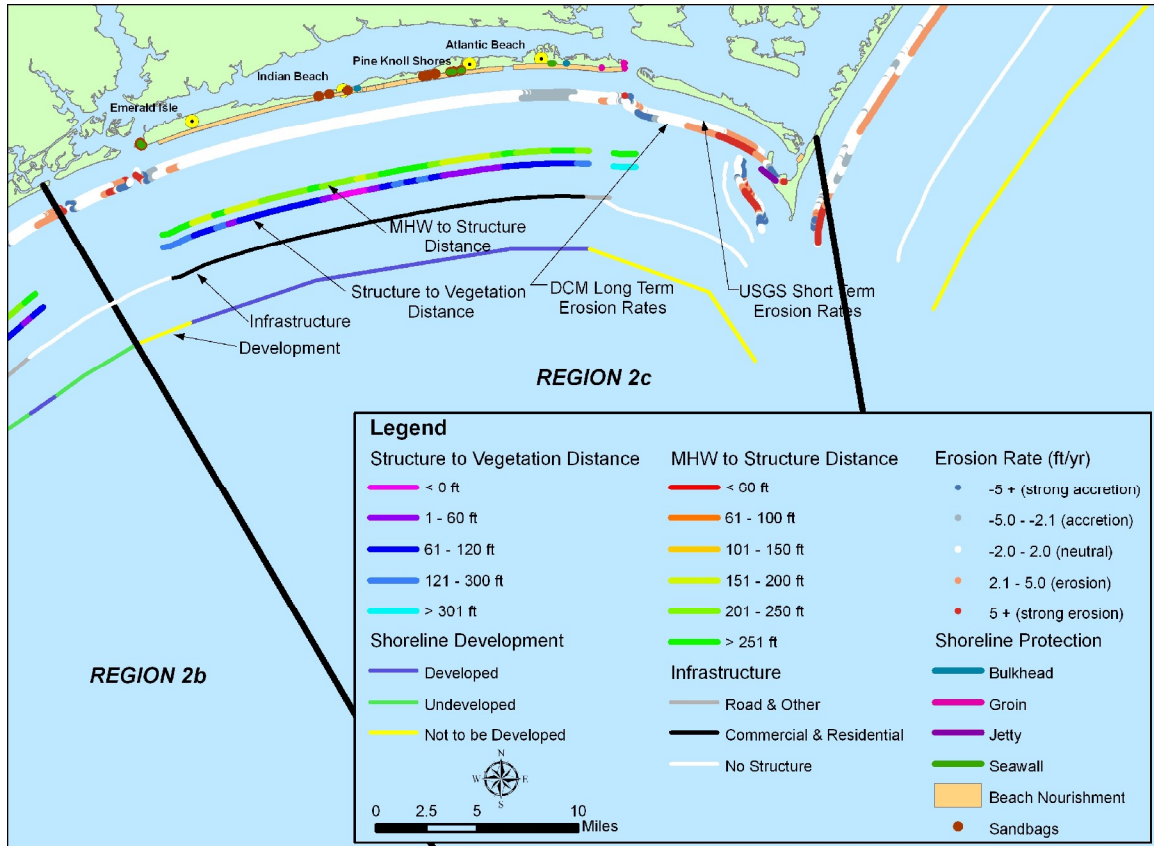
REGION 3a – Beach and Inlet Values

Region 3a is almost completely undeveloped, composed of Core Banks and Cape Lookout National Seashore. The typical economic data is not available for this region.

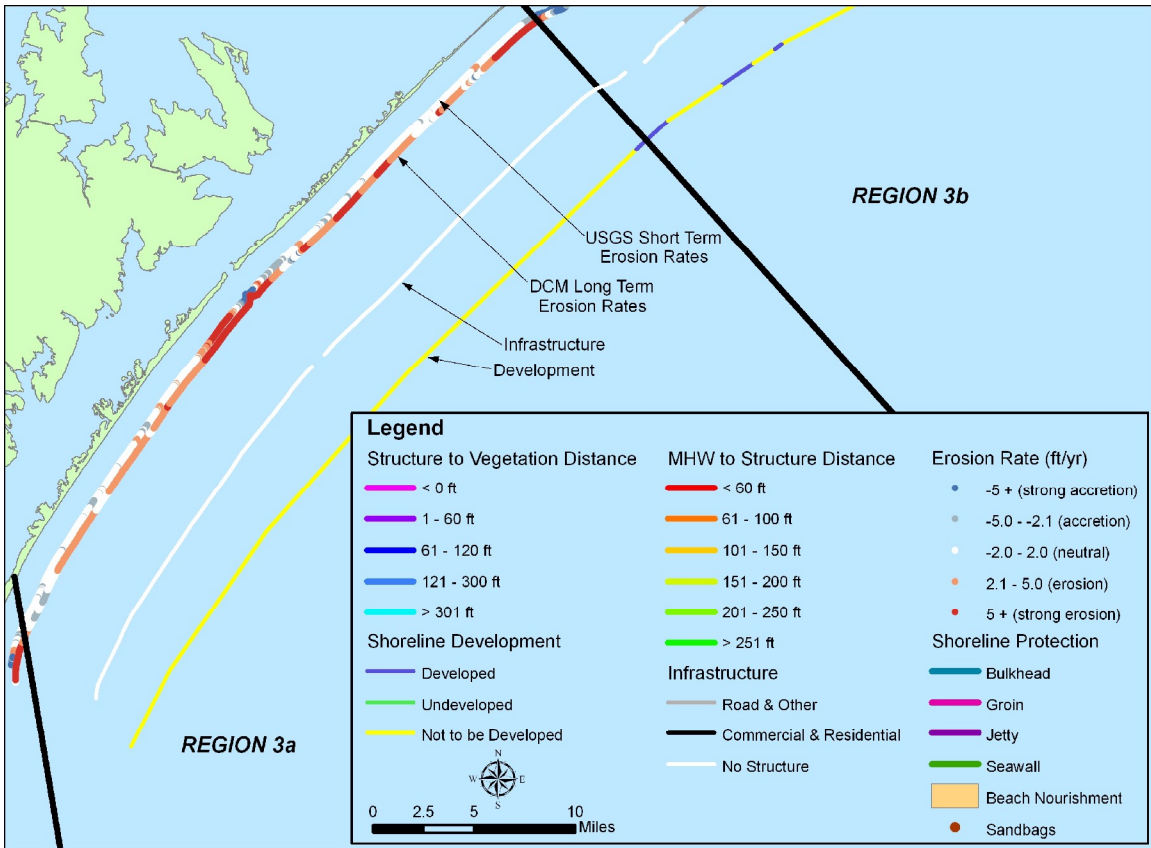
COASTAL VULNERABILITY ASSESSMENT

- Identify areas vulnerable to long term erosion

REGION 2c



REGION 3a



BEACH MANAGEMENT STRATEGIES

Beach and inlet management strategies are interrelated. For example, material dredged to maintain an inlet for navigation might be placed on the beach. Some overall strategies are given in the following table.

BEACH	INLET
<ul style="list-style-type: none"> ▪ Nourishment (size, frequency, location, method, ...) ▪ Coastal Zone Management Practices (setbacks, retreat, public access, ...) ▪ Storm Recovery (dune reconstruction, planting, beach dozing, breach fill, ...) 	<ul style="list-style-type: none"> ▪ Dredging (size, frequency, location, method, ...) ▪ Sand Bypassing (size, frequency, location, method, ...) ▪ Inlet Relocation

The following sections further detail the costs of beach nourishment and inlet dredging since these could be computed on a statewide basis providing a good overall assessment of a potential beach and inlet management budget. Other strategy potential costs will also be discussed in the BIMP such as inlet relocation, structure relocation, and conservation lands.

REGION 2c - Beach Management Strategies / Needs

- Historical strategies have used beach nourishment and disposal in the nearshore

Region 2c:

Past 10 Years

Location	Number of Times Nourished	Cost per cy (\$ / cy)	cy per year (cy / YR)	Cost per year (\$ / YR)
ATLANTIC BEACH	3	6.28	334,108	2,099,598
CAPE LOOKOUT	1	12.74	7,570	96,423
EMERALD ISLE	8	10.82	342,575	3,705,365
INDIAN BEACH/SALTER PATH	2	11.80	99,789	1,177,839
PINE KNOLL SHORES	4	11.23	423,638	4,757,963
TOTAL REGION	18		1,207,680	11,837,187

- Beach nourishment requirements and costs to maintain the beaches were computed using the DCM shoreline erosion rates and typical associated profile volume change based on available surveys
- Costs for beach maintenance through sand placement were based on typical dredging and pumping techniques for potential sand sources

Location	Most Likely Source		Likely Dredge Type	Annual Need (CY)	Developed
	Name	Distance			
Bear Island	Bogue Inlet	2.5	Pipeline	36,249	N
Emerald Isle	Bogue Inlet/A1&A2	5.9/6.1	Pipeline/Hopper	107,777	Y
Indian Beach/Salter Path	Beaufort Inlet/Morehead City ODMDS	12.3/10.7	Hopper	35,378	Y
Pine Knoll Shores	Beaufort Inlet/Morehead City ODMDS	8.8/7.9	Pipeline/Hopper	54,500	Y
Atlantic Beach	Beaufort Inlet/Morehead City ODMDS	4.1/5.5	Pipeline/Hopper	168,258	Y
Fort Macon	Beaufort Inlet/Morehead City ODMDS	1.1/5.3	Pipeline/Hopper	21,004	Y
Shackleford Banks	Beaufort Inlet/Morehead City ODMDS	5.4/7.7	Pipeline/Hopper	156,230	N
Cape Lookout	Morehead City ODMDS	9.7	Pipeline/Hopper	210,738	N

	Shoreline Length	NCDM Raw Total Vol Need (Erosion With Nour)	NCDM Raw Total Vol Cost (Erosion With Nour)
	MI	CY	\$
BEAR ISLAND	3.26	36,249	\$ 294,704
EMERALD ISLE	11.25	107,777	\$ 1,508,880
INDIAN BEACH/SALTER PATH	2.55	35,378	\$ 495,297
PINE KNOLL SHORES	4.82	54,500	\$ 777,174
ATLANTIC BEACH	4.63	168,258	\$ 1,955,152
FORT MACON	1.43	21,004	\$ 202,900
SHACKLEFORD BANKS	8.95	156,230	\$ 2,045,055
CAPE LOOKOUT	6.96	210,738	\$ 2,861,825
CORE BANKS	0.90	-	\$ -
TOTAL	44.74	790,135	\$ 10,140,986
TOTAL DEVELOPED	24.67	386,917	\$ 4,939,403

REGION 3a- Beach Management Strategies / Needs

- Beach nourishment requirements and costs to maintain the beaches were computed using the DCM shoreline erosion rates and typical associated profile volume change based on available surveys
- Costs for beach maintenance through sand placement were based on typical dredging and pumping techniques for potential sand sources

Location	Most Likely Source		Likely Dredge Type	Annual Need (CY)	Developed
	Name	Distance			
Core Banks	USGS Source	16.5	Hopper	647,292	N
Portsmouth Island	USGS Source	9.5	Hopper	656,995	N

	Shoreline Length	NCDM Raw Total Vol Need (Erosion With Nour)	NCDM Raw Total Vol Cost (Erosion With Nour)
	MI	CY	\$
CORE BANKS	18.55	647,292	\$ 630,189
PORTSMOUTH ISLAND	19.88	617,991	\$ 593,274
TOTAL	38.43	1,265,282	\$ 1,223,463
TOTAL DEVELOPED	0.00	-	\$ -

REGION 2c – Inlet Management Strategies / Needs

- Past and current dredging has been conducted in the inlets

LAST 10 YEARS (1997 - 2007)

Region 2c:

Location	Pipeline (cy / project)	Hopper (cy / project)	Sidecast (cy / project)	Currituck (cy / project)	Total Volume (CY / YR)
BEAR INLET	-	-	-	-	-
BOGUE INLET	-	-	71,430	17,160	323,150
BEAUFORT INLET	-	-	-	-	-
BARDEN INLET	73,727	668,892	-	11,860	276,115
OVERALL TOTAL (Potential Nourishment)	73,727	668,892	71,430	14,510	599,265
BEAUFORT HARBOR	-	-	-	40,900	4,090
MOREHEAD CITY HARBOR	2,940,507	-	-	-	294,051
ATLANTIC BEACH CHANNELS	-	-	-	-	-
OVERALL TOTAL	1,507,117	668,892	71,430	23,307	897,406

LAST 10 YEARS (1997 - 2007)

Region 2c:

Location	Pipeline (\$)	Hopper (\$)	Sidecast (\$)	Currituck (\$)	Total Cost (\$ / YR)
BEAR INLET	-	-	-	-	-
BOGUE INLET	-	-	9,287,974	31,746	931,972
BEAUFORT INLET	-	-	-	-	-
BARDEN INLET	971,375	8,995,215	-	-	996,659
OVERALL TOTAL (Potential Nourishment)	971,375	8,995,215	9,287,974	31,746	1,928,631
BEAUFORT HARBOR	-	-	-	185,452	18,545
MOREHEAD CITY HARBOR	17,145,703	-	-	-	1,714,570
ATLANTIC BEACH CHANNELS	-	-	-	-	-
OVERALL TOTAL	\$18,117,078	\$8,995,215	\$9,287,974	\$217,198	\$3,661,747

REGION 3a – Inlet Management Strategies / Needs

Region 3a includes only Drum Inlet.

LAST 10 YEARS (1997 - 2007)

Region 3a:

Location	Pipeline (cy / project)	Hopper (cy / project)	Sidecast (cy / project)	Currituck (cy / project)	Total Volume (CY / YR)
DRUM INLET	460,882	-	96,991	50,610	75,608
OVERALL TOTAL (Potential Nourishment)	460,882	-	96,991	50,610	75,608

LAST 10 YEARS (1997 - 2007)

Region 3a:

Location	Pipeline (\$)	Hopper (\$)	Sidecast (\$)	Currituck (\$)	Total Cost (\$ / YR)
DRUM INLET	3,260,246	-	290,973	506,100	405,732
OVERALL TOTAL (Potential Nourishment)	\$3,260,246	-	\$290,973	\$506,100	\$405,732

ENVIRONMENTAL CONSIDERATIONS

- Key environmental constraints will be outlined and mapped for each region
- For each beach and inlet the six critical habitats outlined in the NC Coastal Habitat Protection Plan (CHPP) – water column, shell bottom, SAV, wetlands, soft bottom, and hard bottom will be discussed
- Also protected species, and environmental windows due to turtle and bird nesting in each region will be noted

For example:

Pine Knoll Shores

- CHPP Elements
 - Class SA waters in Bogue Sound; ORW in Theodore Roosevelt State natural Area
 - Extensive SAV in Bogue Inlet
 - Salt marsh and estuarine shrub-scrub wetlands along rear of island
 - Hard bottom approx. 2 miles off beach
 - Artificial reef
- Protected Species & Wildlife Elements
 - Loggerhead sea turtle nest sites (May 1-Nov. 15 moratoria)
 - Shortnose sturgeon occurrence (February 1-June 15 moratoria)
 - Seabeach amaranth; 130 plants observed on Bogue banks by USACE in 2007 (will require surveys)
 - EFH for 70 species (Atlantic Ocean)
- Other
 - Areas of Regional and State Significance (Theodore Roosevelt State Natural Area)

POTENTIAL RANKING CRITERIA FOR PROJECT FUNDING

- Vulnerability of shoreline
- Economic justification – benefits
- Environmental impacts
- Dedicated funding
- Likelihood of success/effectiveness

POTENTIAL FUNDING STRATEGIES

Ideally, funding of projects associated with beach and inlet management will come from federal, state, and local sources. Identifying potential funding and financing strategies will be addressed in the BIMP.

- Selected local elected officials and town/county representatives currently dealing with funding beach and inlet projects are being consulted and an overview of what currently works and what does not in NC and elsewhere will be discussed
- It is currently envisioned that funding from State partnership should be predictable and structured in nature but still allow flexibility for unique approaches at the regional/local level
- Possible concepts include a State Beach and Inlet Trust Fund, use of sales tax revenue from coastal rentals, occupancy taxes, property taxes, and various combinations

FURTHER INFORMATION AND COMMENTS

Further information – www.ncbimp.net

Comments – DENR.NCBIMP@lists.ncmail.net