



Comprehensive Plan for Conservation, Management and Long-term Sustainability of North Carolina's Beaches and Inlets

Partnership between DCM and DWR



Cape Hatteras



Cape Lookout



Cape Fear

Mr. President this is a BIG 1

*It's About
Freakin'
Time !!!!*





BIMP- It's about Time

Pooling Resources...
to Accomplish shared goals...
for less cost...

Data, Financial, Government, Elected Officials, Non-Profits



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BIMP Recommendations derived from numerous Summit's and meetings, 2000-present

- **1999-2000** Session Law 2000-67-House Bill 1840. Multi-year Beach Management and Restoration Strategy and Plan

Items Identified In House Bill 1840

Sand Management



- Identify Erosion Rates & Storm Vulnerability at each Beach Location
- Determine Need For And Effectiveness Of Beach Nourishment
- Coordinate With State And Federal Agencies
- Provide Status On USACE Beach Projects
- Maximize Use Of Sand Dredged From Navigation Channels For Beach Nourishment
- Promote Inlet Bypassing To Replicate Natural Flow Interrupted By Inlets
- Locate Suitable Material For Beach Nourishment
- Consider Regional Context For Beach Communities For Cost-effectiveness
- Provide For Public (Including Handicap) Access
- Recommend Priorities For Beach Nourishment Projects
- Recommend Ways To Maximize Federal Funding
- Hold Public Hearings For Citizen Input



BIMP Recommendations derived from numerous Summit's and meetings, 2000-present

- **1999-2000** Session Law 2000-67-House Bill 1840. Multi-year Beach Management and Restoration Strategy and Plan
- **2001** Legislative General Assembly: Coastal Beach and Storm Mitigation
- **April 2001** US General Assembly: on a comprehensive Coastal Management Automatic EIS
- **February 2005** Coastal Habitat Protection Plan
- **April 2009** Ocean Policy Steering Committee (OPSC) stakeholder group report, Coastal Resources Law, Planning and Policy Center NC (Joint venture between NC Sea Grant and UNC law Center)
- **March 2009** Beach Management Summit: NCCF and UNC Center for the Study of Natural Hazards and Disasters
- **September 2007** General Assembly appropriates funding to DWR





BIMP Development Process

- Funded by General Assembly - \$750,000 to DWR, another 30,000 from DCM's NOAA grant to expand the BIMP chapter on funding and prioritization.
- Moffatt and Nichol was selected through an RFP process and were tasked to: 1) data identification and acquisition of datasets, 2) determination of beach and inlet management regions, 3) scheduling and facilitation of stakeholder meetings, 4) development of Beach and Inlet Management Strategies, 5) preparation of a final report.
- Two groups were established to help guide the BIMP development: a BIMP Advisory Committee and a DNR technical work group.
- A broad Stakeholder process was used – press releases, questionnaires, CRC meetings, LG presentations and public input meetings in all four coastal regions and Raleigh.



Data Identification and Acquisition

- an overview of the state's coastal geology,
- an assessment of waves and climate,
- water levels, including tides and tide stations,
- beach profile data,
- an assessment of sea level rise,
- tropical storm and hurricane history and probabilities,
- availability of digital aerial orthophotography,
- historical shorelines and erosion rates,
- geological framework of islands/inlets,
- assessments of potential sand resources,
- beach fill and dredging history,
- inlet channel realignment/relocation,
- **Ecological information**
- **Socioeconomic factors**

Organization of CHPP Based on Six Fish Habitats

Water Column



Shell bottom



Hard bottom



Wetlands



Soft bottom



Submerged
Aquatic Vegetation



Our Coastal Economic Engines - Absolutely depends on a Healthy Ecosystem

BIMP - New tool in the State's toolbox





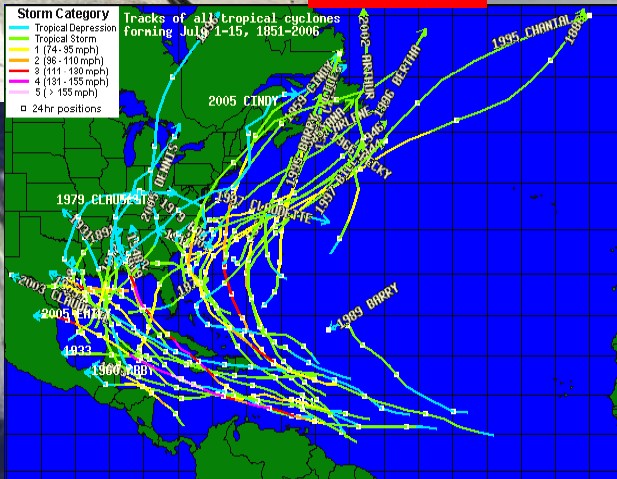
Socio-Economic Values of N.C. Beaches and Inlets

- NC Beaches and Inlets generate \$3 billion in revenue and directly support 39,000 jobs in coastal communities.
- When multipliers (total business sales supported and total jobs supported) are added, these numbers rise to \$4.9 billion and 62,100 jobs.
- The developed portions of the ocean shoreline also represent a considerable investment. The value of coastal property at risk for three of the most developed oceanfront counties (New Hanover, Carteret, and Dare) is \$2.8 billion.
- The recreational consumer surplus resulting from beaches and inlets is over \$400 million.



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ATLANTIC HEATS UP

Tropical Storm Colin sends fun summertime surf to East Coast By Mike Watson



Summer, East Coast surfers head southward and eastward with open waves. The Atlantic tropics are in the business end of the six-week season -- punctuated over the week-end by the most potent Tropical Storm Colin.



Development of Beach and Inlet Management Regions

Why adopt a Regional approach?

- 1) The entire coastal environment is taken into account, including natural processes as well as the effect of human activities. Allows for consideration of related segments of the coast and not merely a project-focused approach
- 2) Planning projects on a regional scale “balances” environmental and economic needs while facilitating collaboration and pooling local resources. Regionally allows for an “efficiency of scale,” which can reduce the costs associated with individual projects.





Define Beach and Inlet Management Regions

✓ Global Regions

Defined by Geologic Framework and Cape Features

✓ Localized Regions

✓ Defined by Numerous Datasets

✓ Geologic Features

✓ Developed/Undeveloped Reaches

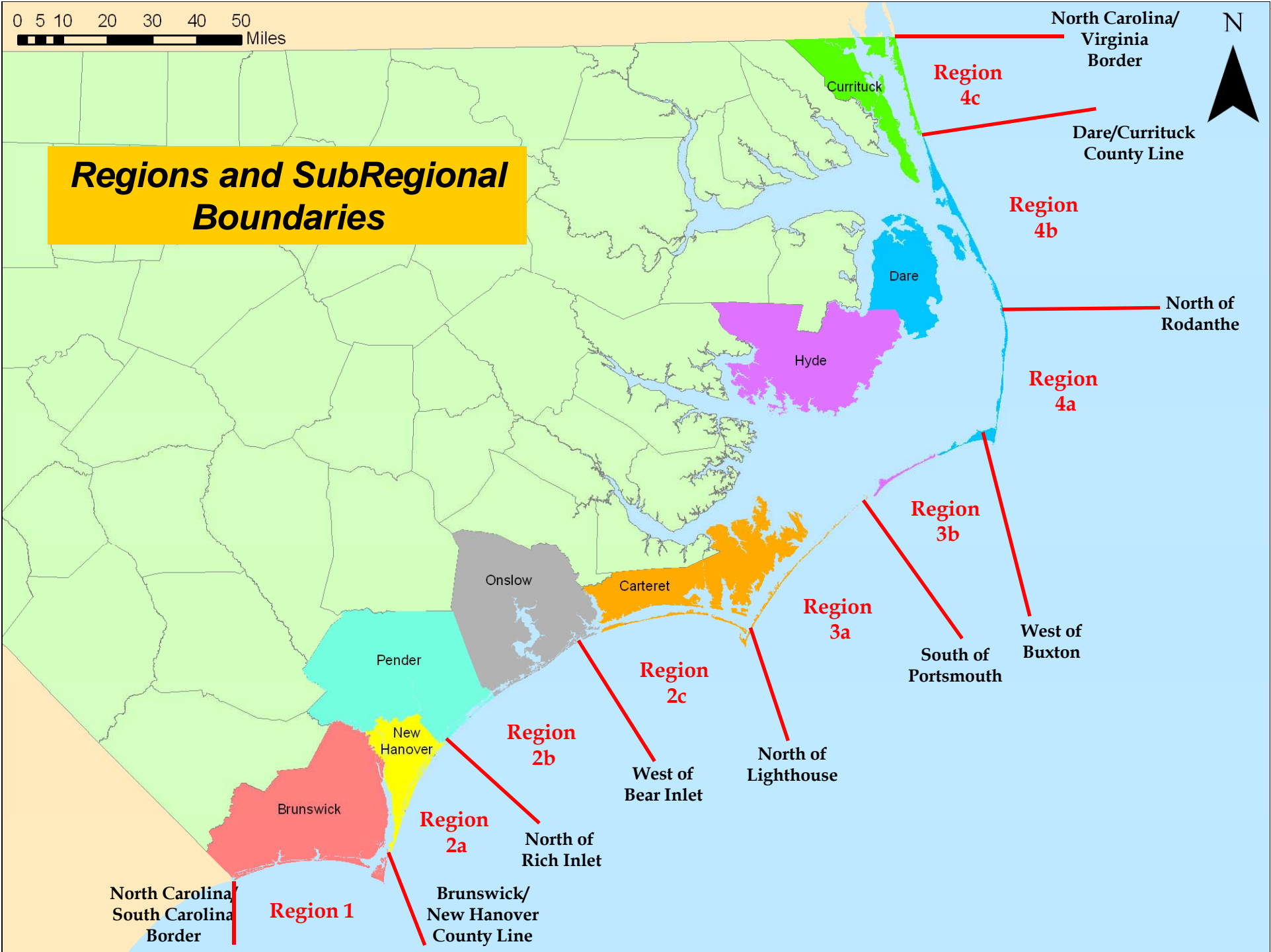
✓ Erosion/Accretion Patterns/Rates

✓ Potential Sediment Transport

✓ Potential Sand Sources

✓ **Dredging Considerations**

✓ **Socio-Political Regions**



Regions and SubRegional Boundaries

0 5 10 20 30 40 50 Miles



North Carolina/
Virginia
Border

Dare/Currituck
County Line

Region
4b

North of
Rodanthe

Region
4a

Region
3b

South of
Portsmouth

West of
Buxton

Region
3a

North of
Lighthouse

West of
Bear Inlet

Region
2c

Region
2b

North of
Rich Inlet

Region
2a

Brunswick/
New Hanover
County Line

Region
1

North Carolina/
South Carolina
Border



Implementation of a Regional Approach

Facilitated through the use of regional authorities modeled on the beach commissions currently in place in Brunswick, New Hanover, Pender, Dare and Carteret Counties.

The regional authority could maintain local control through four essential characteristics:

- 1) Serve as an integrated, regional decision-making body with authority to coordinate beach and inlet projects within the region,
- 2) Possess the financial and legal authority to partner with the state,
- 3) Have available a local funding stream sufficient to match the dedicated state funds, either directly or in association with municipalities within the region, and
- 4) The regional authority could provide a lead professional coordinator who lives and works in the region, through whom local project planning and management expertise can be fostered and developed.



Creation of a long-term, stable and predictable financial foundation

- Two broad funding categories, reflecting two distinct uses: project cost sharing funds (state share) and program support funds (joint or regional investigations).
- Based on the information available, the annual revenue needed to support eligible projects is dependent on at least three major policy decisions.
 1. the state must define what specific projects would be eligible for funding.
 2. the state share for projects supported by the fund must be established.
 3. the current cost-sharing models with the federal government for both beach fill and inlet dredging, the total state funding required for these projects per decade is projected to be \$77.4 million (\$7.7 million per year).

Community	Managed Shoreline length	Beach fill volume	Total Cost Per decade	Federal Share	State Share	Local Share
REGION 1	31.2	5,641,214	\$54,713,132	\$29.4	\$14.2	\$11.1
Ocean Isle Beach	5.6	459,720	\$4,445,470			
Holden Beach	8.2	1,897,470	\$18,633,120			
Oak Island	9.3	745,730	\$10,820,520			
Caswell Beach	3.6	440,990	\$3,616,150			
Bald Head Island	4.5	2,097,304	\$17,197,872			
REGION 2a	17.3	3,886,729	\$33,022,839	\$18.9	\$8.2	\$5.9
Kure Beach	3.4	381,393	\$5,137,423			
Carolina Beach	2.7	2,428,236	\$19,741,556			
Wrightsville Beach	4.1	895,610	\$6,555,840			
Figure Eight Island	5.1	181,490	\$1,588,020			
REGION 2b	22.3	2,370,627	\$24,655,778	\$11.0	\$6.4	\$7.2
Topsail Beach	5.1	604,070	\$4,911,050			
Surf City	6.1	623,770	\$8,202,570			
North Topsail Beach	11.1	1,142,787	\$11,542,158			
REGION 2c	23.8	3,773,368	\$48,052,803	\$38.4	\$7.2	\$2.5
Emerald Isle	10.3	981,968	\$13,747,573			
Indian Beach / Salter Path	2.6	353,780	\$4,952,970			
Pine Knoll Shores	4.8	545,000	\$7,771,740			
Atlantic Beach <small>(includes Ft. Macon)</small>	6.1	1,892,620	\$21,580,520			
REGION 4b	19.6	2,745,080	\$30,694,980	\$15.3	\$8.0	\$7.4
Nags Head	11.3	1,859,230	\$21,325,380			
Kill Devil Hills	4.8	327,520	\$3,579,760			
Kitty Hawk	3.5	558,330	\$5,789,840			
TOTAL (all regions)	112.2	18,417,018	\$191,139,532	\$113.0	\$44.0	\$34.1
Total per/yr Avg.		1,841,702	\$19,113,953.2	\$11.3	\$4.4	\$3.4

REGION	Shallow Draft Inlet Dredging (total cost per decade)*	Deep Draft Inlet Dredging (total cost per decade)*	TOTAL Inlet Dredging (cost per decade)*
1	\$9 million	\$51 million	\$60 million
2a	\$10 million	\$0	\$10 million
2b	\$20 million	\$0	\$20 million
2c	\$20 million	\$17 million	\$37 million
3a	\$5 million	\$0	\$5 million
3b	\$10 million	\$0	\$10 million
4a	\$0 million	\$0	\$0 million
4b	\$25 million	\$0	\$25 million
4c	\$65 million	\$0	\$65 million
TOTAL (per decade)	\$164 million	\$68 million	\$232 million
TOTAL Cost Share	90% federal cost share \$147.6 million 10% state cost share \$16.4 million	75% federal cost share \$51 million 25% state cost share \$17.0 million	(total federal share) \$198.6 million (total state share) \$33.4 million
TOTAL Cost Share (per-yr avg)	federal cost share \$14.76 million	federal cost share \$5.1 million	(total federal share) \$19.86 million
	state cost share \$1.64 million	state cost share \$1.7 million	(total state share) \$3.34 million



Dedicated Funds – Guiding Principles

- 1) Shared Benefits, Shared Responsibility
- 2) Beaches and Inlets Should Earn their Keep
- 3) Shoreline Management, Not Crisis Response
- 4) Federal Funds First
- 5) Stability and Predictability Balanced with Local Control and Flexibility



Strategy Development

- The state should develop a funding strategy that takes into consideration numerous options to ensure a balanced approach to current and future changes along the coast:
 - 1) beach nourishment
 - 2) increased beach access
 - 3) removal of structures encroaching onto public beach areas
 - 4) inlet channel realignment
 - 5) dredging navigation channels at inlet crossings
 - 6) incentives for projects that exceed minimum public access requirements and the use of land use plans
 - 7) acquisitions or conservation easements to restrict or prevent development in high-risk areas.
 - 8) OTHER.....TBD



Strategy Development (cont'd)

- 1) Ensure that the level of funding and strategies can be justified.
- 2) All beach quality sediment that is dredged from navigation channels should be returned to the beach system.
- 3) Local project sponsors should design and monitor their projects so that the criterion for complete federal reimbursement is maximized.
- 4) Continue integrating the USACE regional sediment management (RSM) strategies into the BIMP to ensure long-term federal assistance and to maximize available expertise in project planning and implementation.



RSM Funds for USACE-Wilmington derived from National Demonstration Program

Benefit of State Investment of \$800,000 for BIMU

\$600,000/yr for 3 yrs

(Year 1)

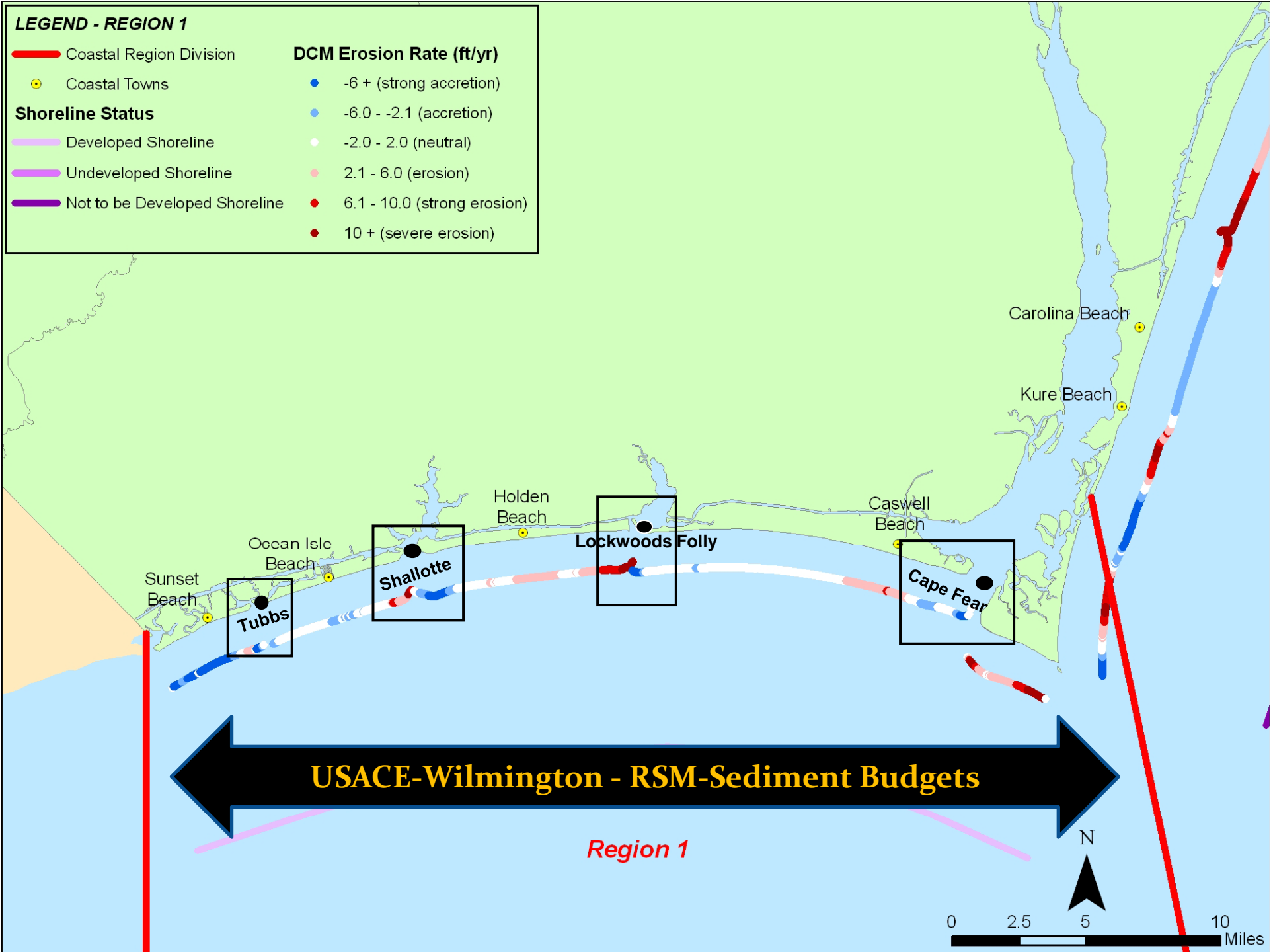
e-coastal format for all dredging data (all digital)
Sediment Budgets for Southern Beaches (4)
Coastal Process data

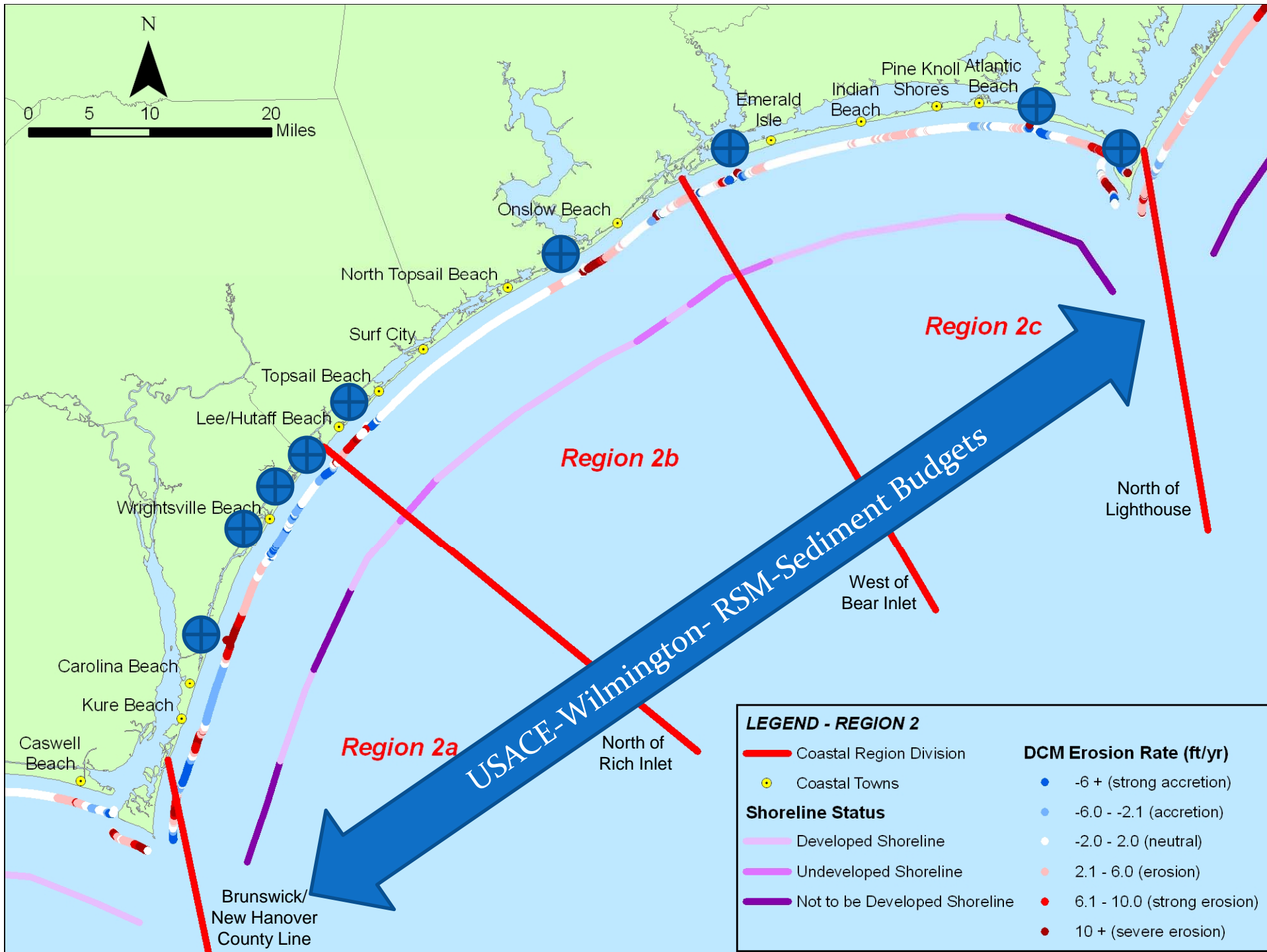
(Year 2)

Sediment Budgets for “Region 2” inlets (9)
CASCADE Modeling

(Year 3)

Keep going NORTH-Discussion with USACE







Strategy Development (cont'd)

- The state should promote and support development of innovative dredging technologies for the shallow-draft inlets, as opposed to using side-cast dredges, which do not place the dredged material back onto the beach shoreline.



Data Collection and Monitoring

- Continue to further identify data gaps and partner with various state and federal agencies, local governments and academia to assess data needs and acquire relevant coastal datasets
- All data should be made available to local governments in planning for beach and inlet projects, and integration of this information into their local CAMA Land-Use plans.
- Standardize data collection formats among the regional authorities to improve data sharing across BIMP regional boundaries.
- The state, along with the regional entities, should guide and/or prioritize future data collection and monitoring needs, and ensure that these costs are shared across as many regions as possible.
- Establish a framework for multiple permanent monitoring stations within the N.C. coastal zone, such as a system of estuarine, ocean and river stations, to measure absolute changes in sea-level rise, characterize the dynamics of storm surges and tides, and monitor water quality.

Follow the Progress

www.nccoastalmanagement.net/bimp.htm

FINAL THOUGHT:

Forward thinking policy is required to realize the full benefits of the plan....and

Support from NC citizens (including legislature), especially coastal citizens, is critical for the BIMP success and Implementation