THE TOWN OF OAK ISLAND, NORTH CAROLINA

PLANNING ANALYSIS, ENGINEERING DESIGN AND ENVIRONMENTAL INVESTIGATIONS

in Support of a Comprehensive Shoreline Management Plan

moffatt & nichol

Goals and Strategies

Goals

- **Long-term Beach and Shoreline Management Program**
  - Qualify for and Maintain Static-line Exception
  - Qualify for and Maintain FEMA Engineered Beach
- **Lockwoods Folly Inlet Management Plan**
- **Davis Creek Area Enhancement Plan**

Strategies

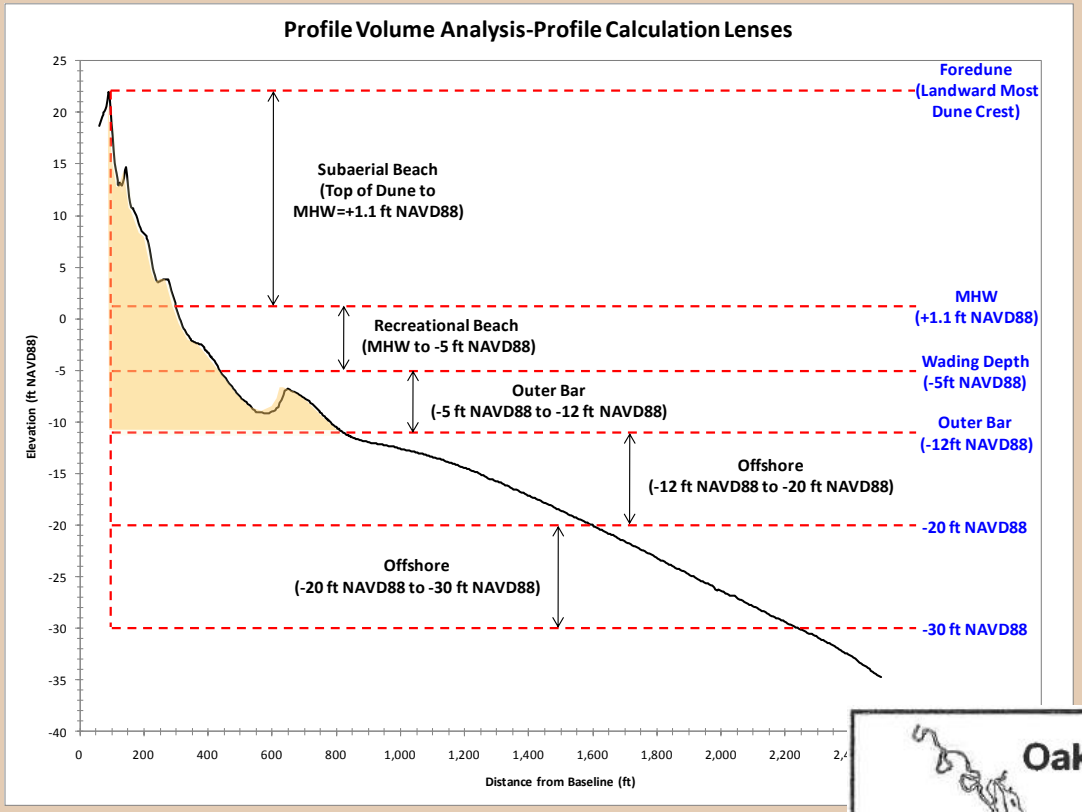
- **Develop Cost and Time Efficiencies by:**
  - Collaborate with USACE on Cape Fear Inlet Management – SMP
  - Utilize Available Data from the USACE BCB 50-yr Project
  - Partner with Town of Holden Beach on joint Lockwoods Folly Inlet Management
  - Innovative Permitting Approaches

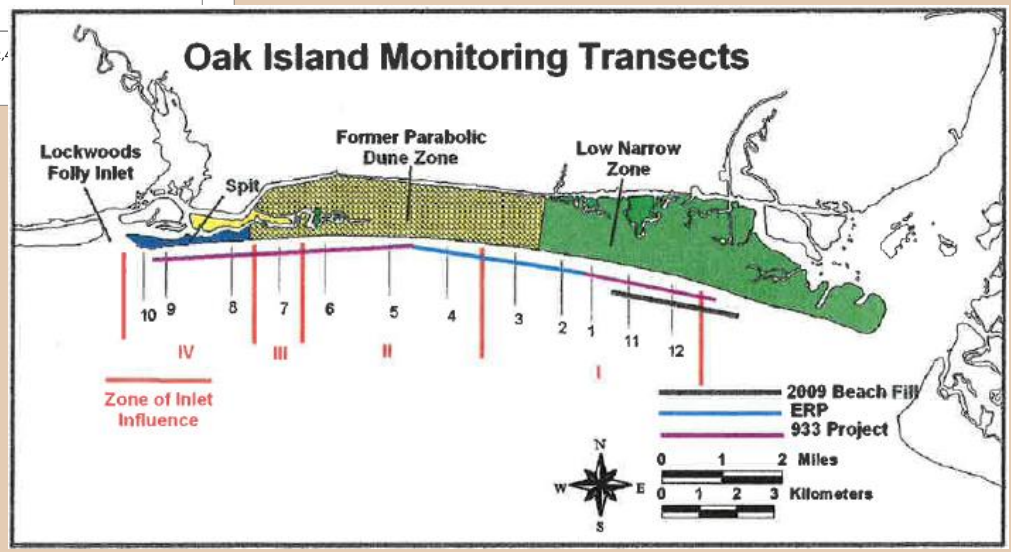
Project Scope of Work

- **<u>Task 1 - Review Existing Data and Identify Field Data Collection Needs</u>**
  - Use existing USACE and Town data to the extent possible (USACE, Cleary, etc.)
  - Define representative reaches based on available data (subject to change)
  - Identify data gaps for additional field work needed (topo/bathy surveys, geotechnical data) and likely permitting approaches

- **<u>Task 2 – Field Investigations</u>**
  - Topo/bathy surveys of representative profiles needed (~40 profiles)
  - Preliminary sediment sampling of native beach also to be completed
  - Above will provide general morphologic understanding of island, basis for limited modeling and compatibility assessment

Project Scope of Work





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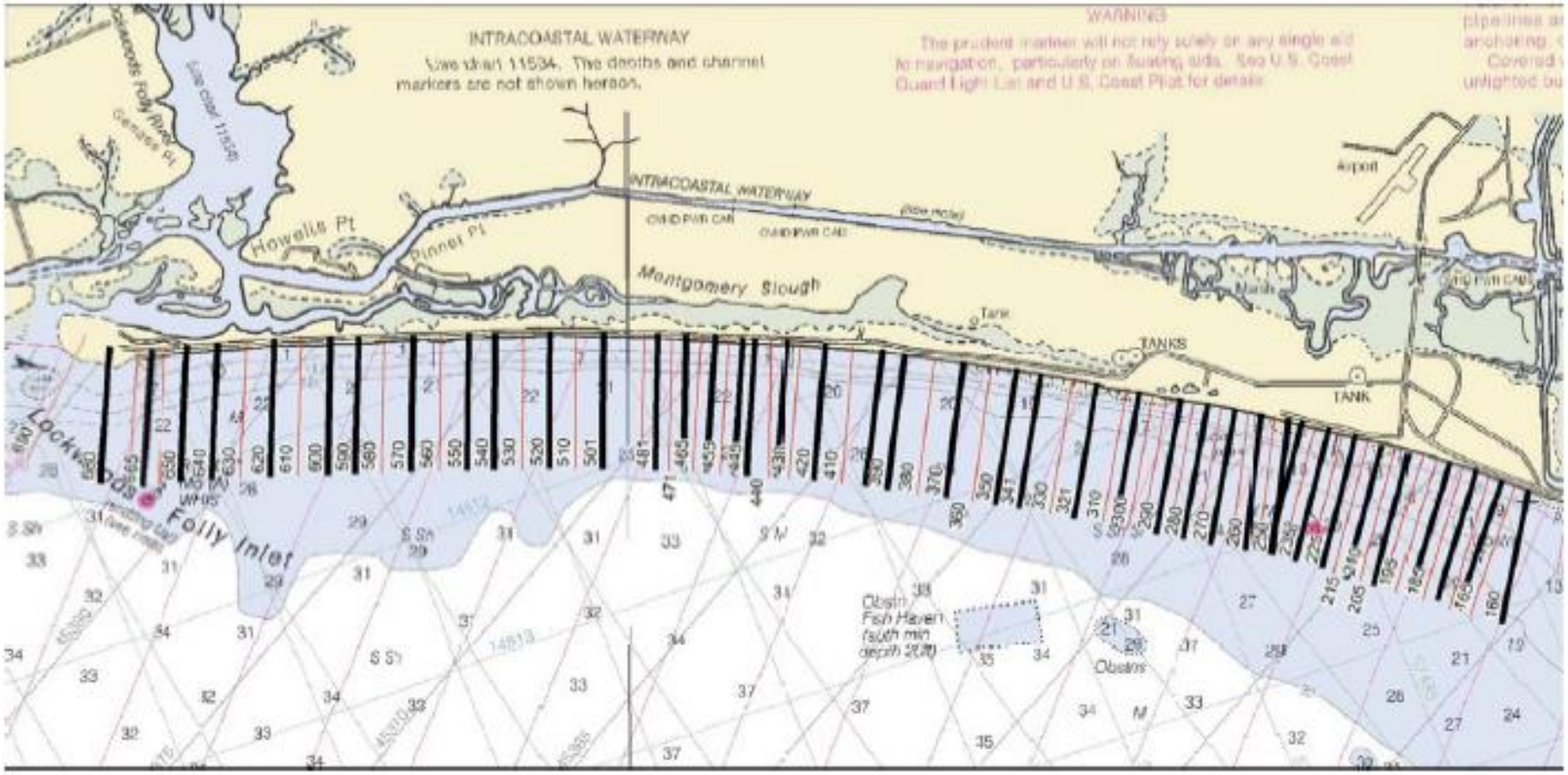

Project Scope of Work

- **<u>Task 3 – Coastal Engineering/Geology and Planning Evaluation</u>**
  - Analytical analysis to develop preliminary estimates of sand need
    - Build on USACE vulnerability analysis in the GRR and use DCM shoreline and USACE profile change data to develop estimates of sand need
  - Sand source assessment
    - Build on USACE GRR work (including Yellow Banks, inlet and offshore locations)
    - Reassess the potential use of multiple sources
    - Leverage beneficial use as possible (Eastern Channel, Lockwoods Folly Inlet) and complete analytical assessments of these options (increased flushing, water quality improvement, improved navigation) with expanded/optimal permitted dimensions
  - Storm protection assessment
    - Complete SBEACH modeling of representative sections to determine level of protection provided and likely templates needed to provide additional storm protection
    - Short-term and long-term strategies will be developed as well as resulting funding needs/potential funding sources
    - Incorporate static line exception and FEMA engineered beach criteria

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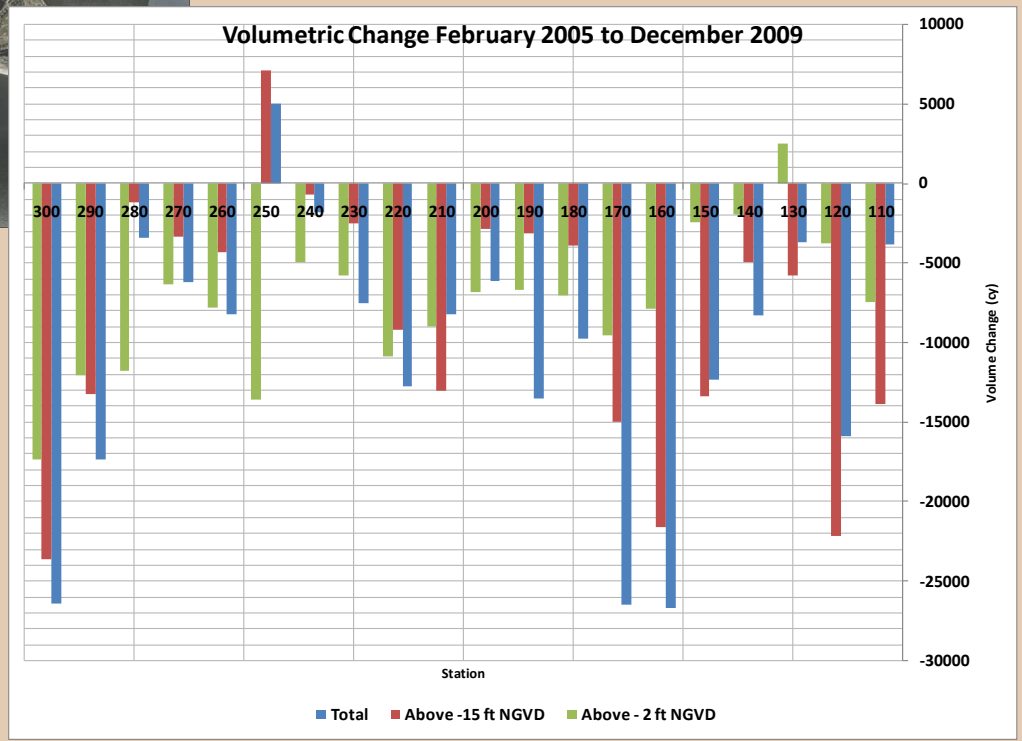

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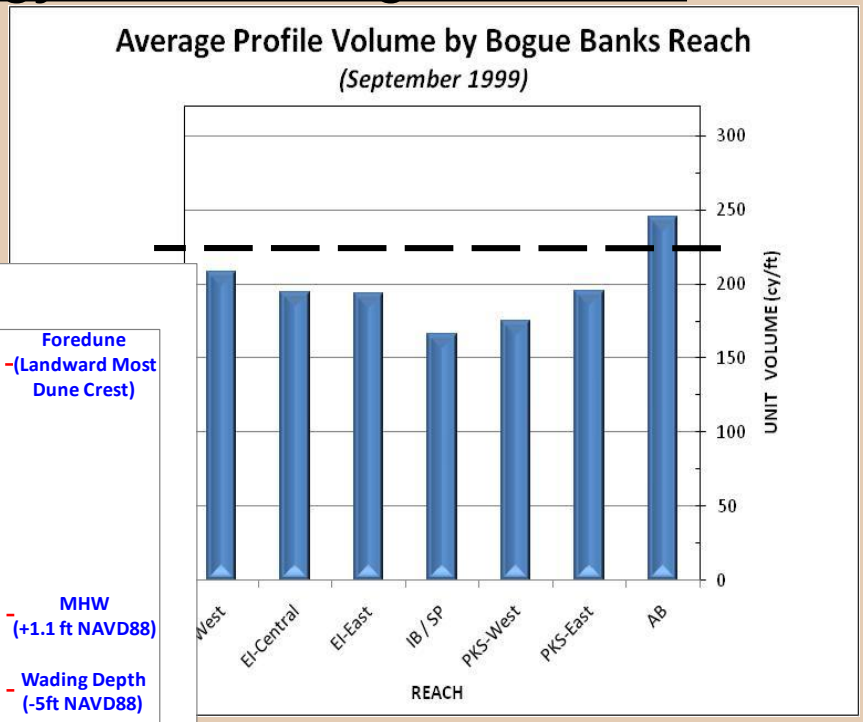

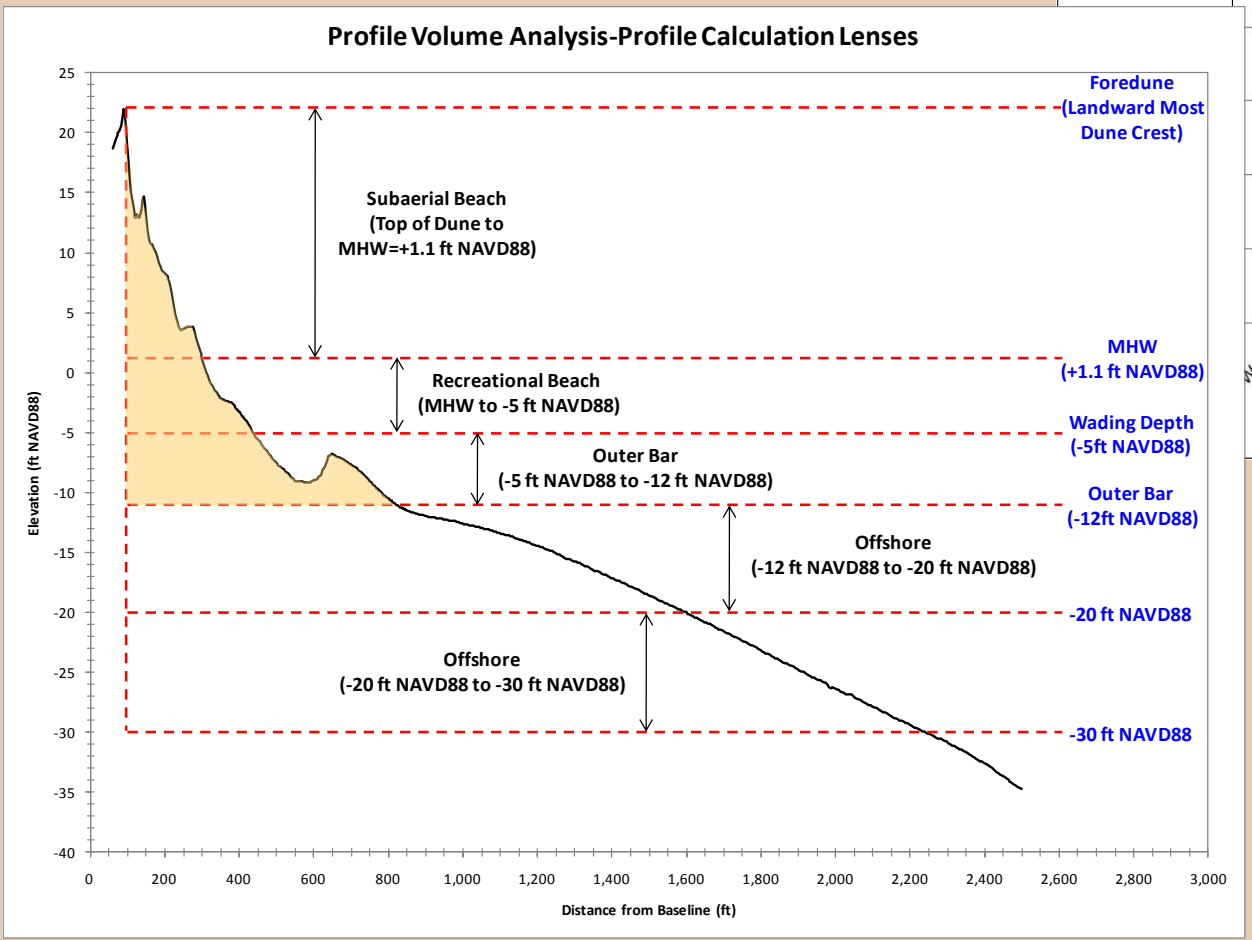

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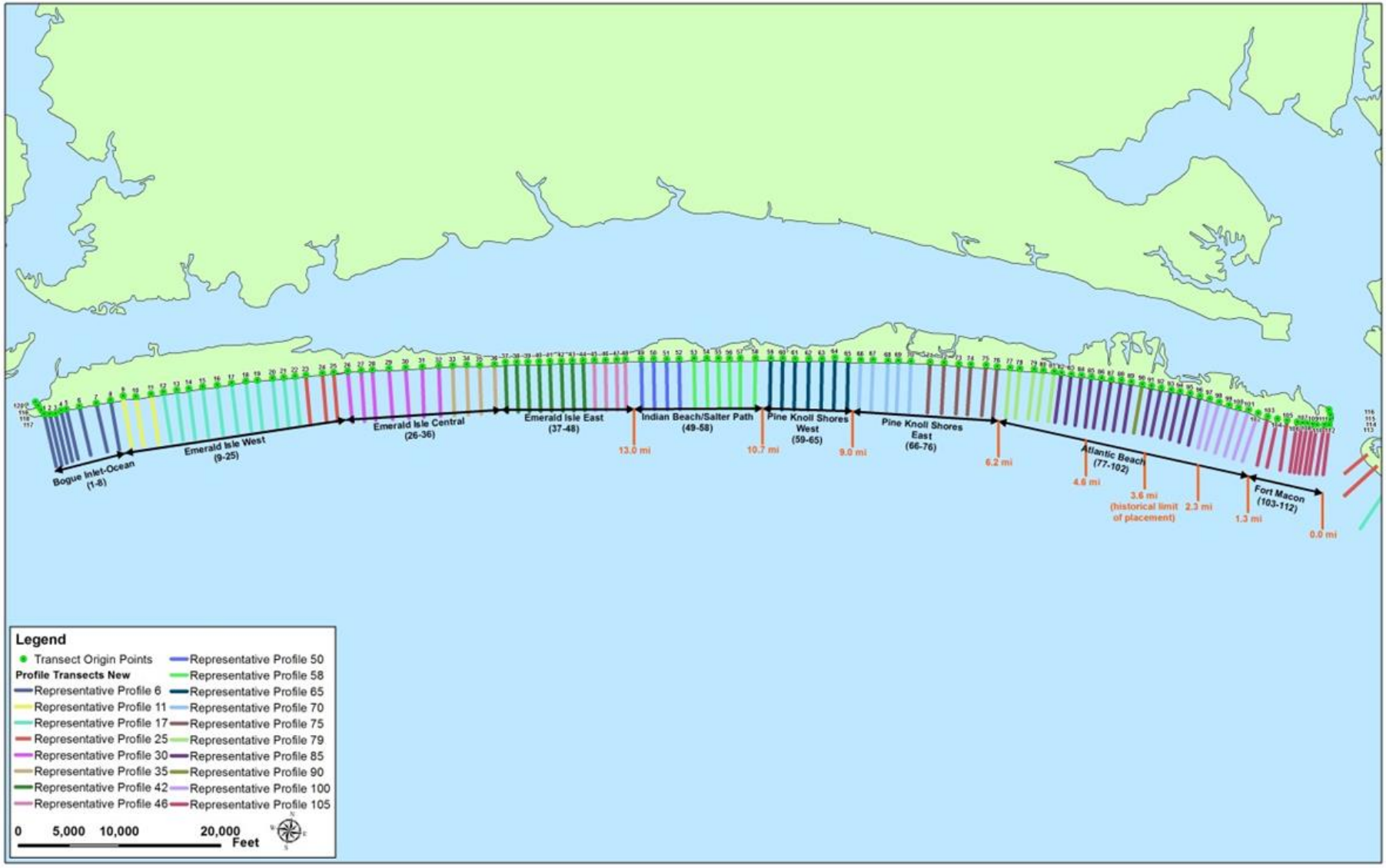

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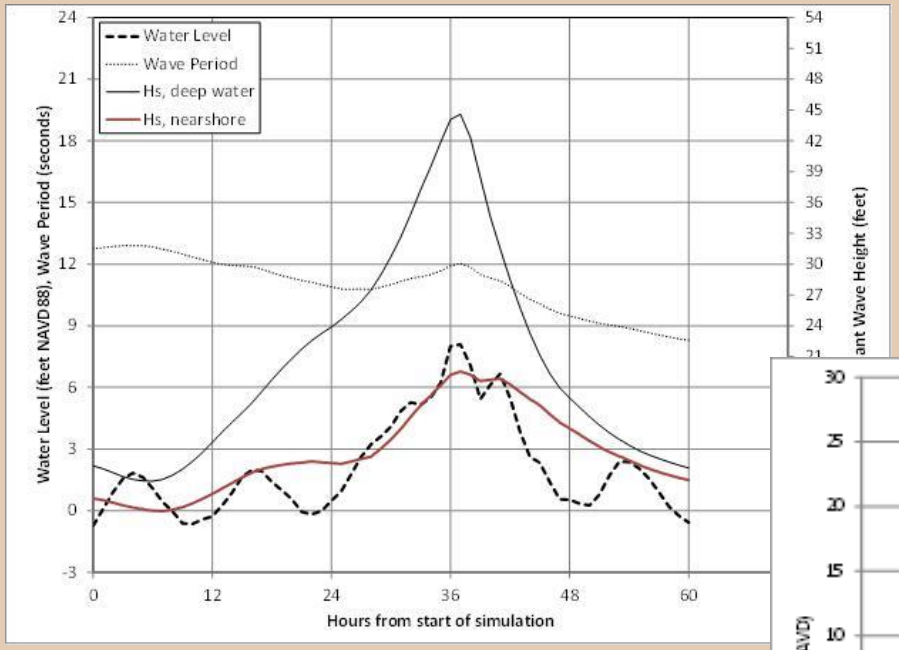
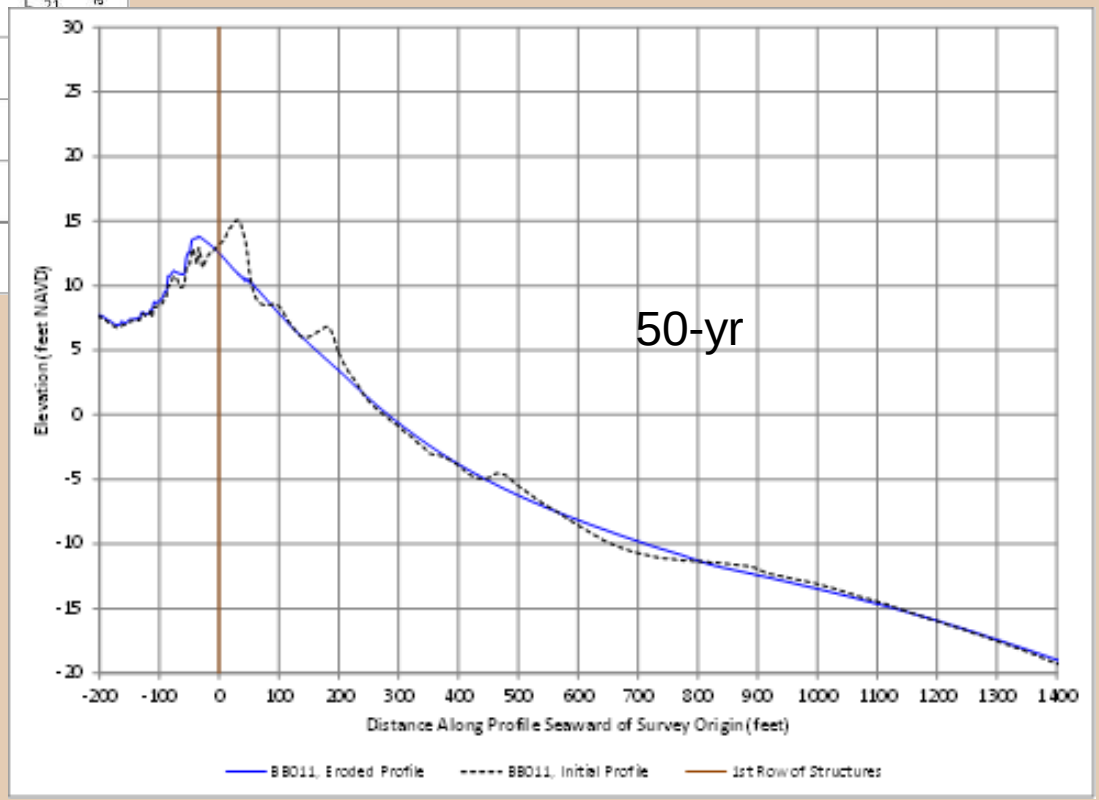




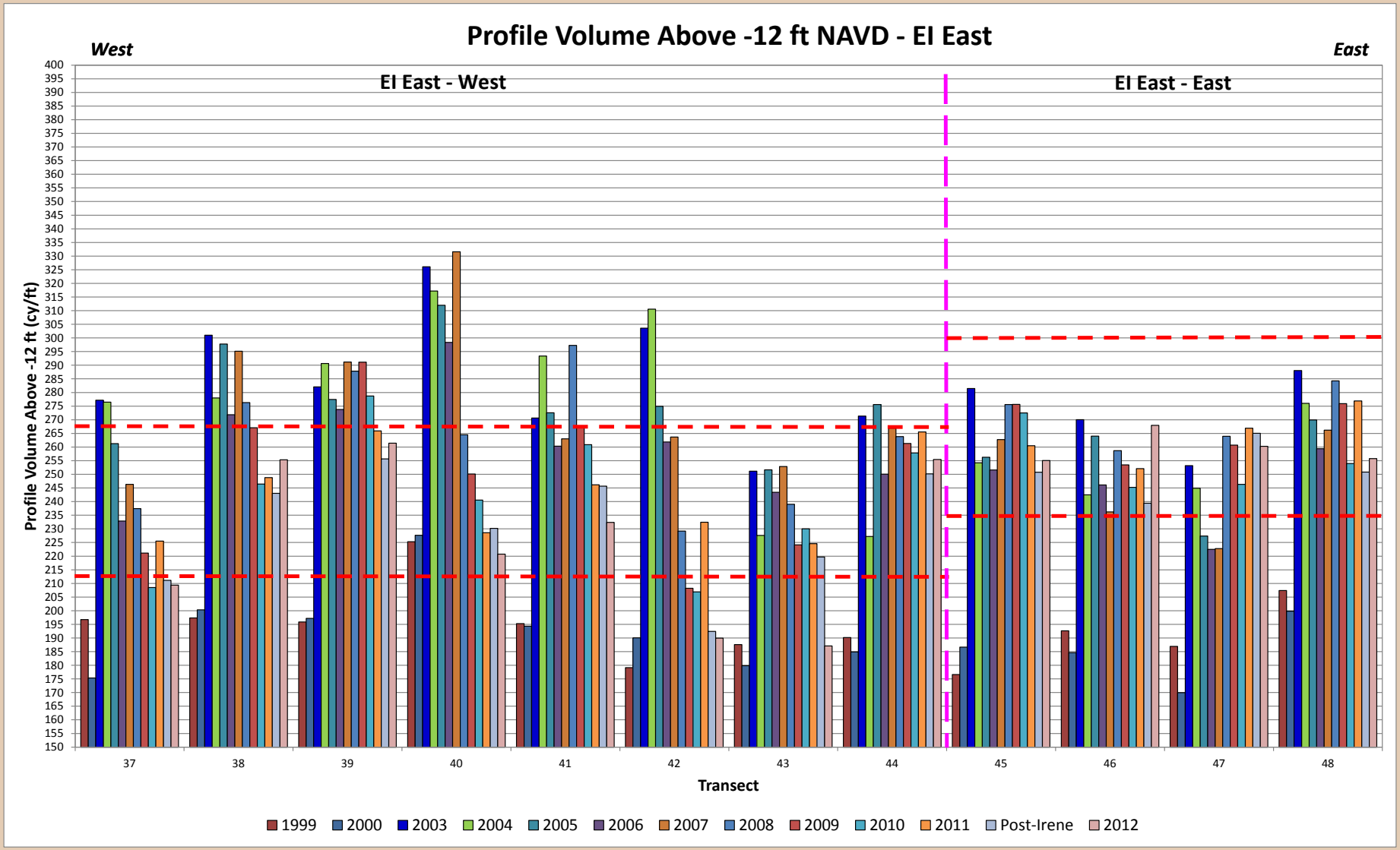
Project Scope of Work

- **Task 3 – Coastal Engineering/Geology and Planning Evaluation**

`	Reach Length (ft)	50-yr -12 ft Trigger (cy)	25-yr -12 ft Trigger (cy)	Adjusted 25-yr -12 ft Trigger (cy)	Preliminary FEMA -12 ft Trigger (cy)	-12 ft 2011 Volume (cy)
Bogue Inlet (1-8)	7,432	238	103	238	235	389
Emerald Isle West - West (9-11)	4,056	282	230	230		277
Emerald Isle West - Central (12-22)	14,283	319	272	272	266	295
Emerald Isle West - East (23-25)	4,005	323	242	242		303
Emerald Isle Central - West (26-32)	10,428	237	213	213	211	292
Emerald Isle Central - East (33-36)	5,374	277	207	207		262
Emerald Isle East - West (37-44)	8,814	268	214	214	221	242
Emerald Isle East - East (45-48)	4,406	299	235	235		264
Indian Beach/Salter Path - West (49-52)	5,275	243	216	216	224	263
Indian Beach/Salter Path - East (53-58)	7,575	241	229	229		298
Pine Knoll Shores - West (59-65)	9,063	235	196	196	215	253
Pine Knoll Shores - East - West (66-70)	6,564	271	222	222		240
Pine Knoll Shores East - East (71-76)	8,251	276	230	230		262
Atlantic Beach - West (77-81)	5,388	269	225	225	243	281
Atlantic Beach - Central (82-89, 91-96)	13,771	368	256	256		291
Atlantic Beach - Circle (90)	1,006	408	364	364		330
Atlantic Beach - East (97-102)	6,011	304	209	209		384
TOTAL	**121,702**					
AVERAGE		286	227	235	232	290
					Weighted	

Project Scope of Work

- **Task 3 – Coastal Engineering/Geology and Planning Evaluation**



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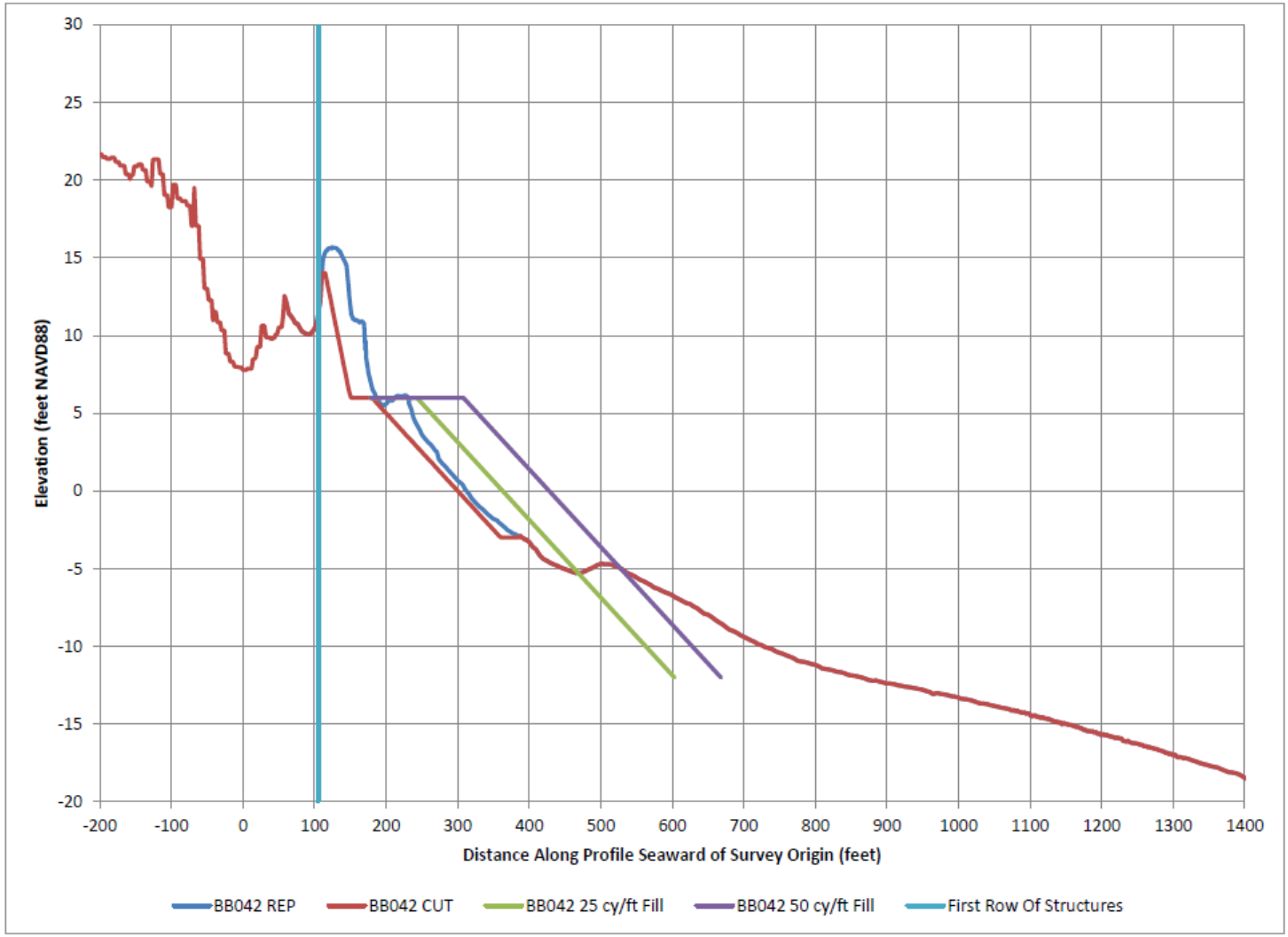
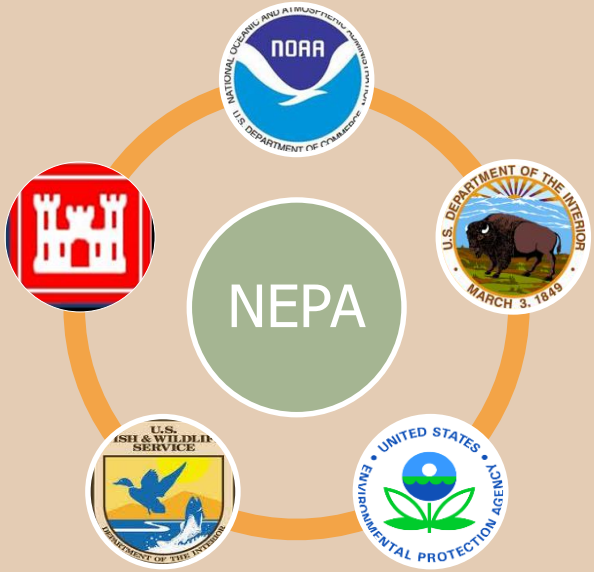


Project Scope of Work

- **<u>Task 3 – Coastal Engineering/Geology and Planning Evaluation</u>**
  - Environmental planning and permitting evaluation
    - Agency meetings
    - Review of existing data and identify data gaps for future data collection
    - Identify permitting options (USACE GP291, EA, Supplemental EIS to GRR)
    - Assess potential regulatory/mitigation/monitoring requirements
    - Environmental planning and permitting evaluation
  - Draft and final feasibility report



Project Scope of Work

- **Task 4 – Davis Canal Management**
  - Review existing surveys and prior investigations
  - Identify additional data collection efforts needed for design and permitting
    - Bathymetric surveys, water quality and other environmental data
  - Develop conceptual dredging plan and potential funding options
  - Develop permitting path in conjunction with Task 3
    - Review original permit and investigate USACE GP291 option
    - Assess potential variance for dredging in Primary Nursery Area
    - Investigate/Document historical navigation use
- **Task 5 – Project Management**
  - Town/Regulatory Coordination, Four (4) Meetings
- **Additional Services Under Separate Authorization**
  - Represent Town of Oak Island in USACE SMP, USACE GRR and meetings concerning Lockwoods Folly Inlet Management

Project Fee

- Task 1 – Review Data/Identify Data Collection Needs - $12,960
- Task 2 – Field Investigations - $18,220
- Task 3 – Coastal Engineering/Environmental Evaluation - $98,230
- Task 4 – Davis Canal Management - $6,960
- Task 5 – Project Management - $12,500
- Incidentals – $1,030
- Additional Services Under Separate Authorization – TBD

- TOTAL PROJECT - $149,900

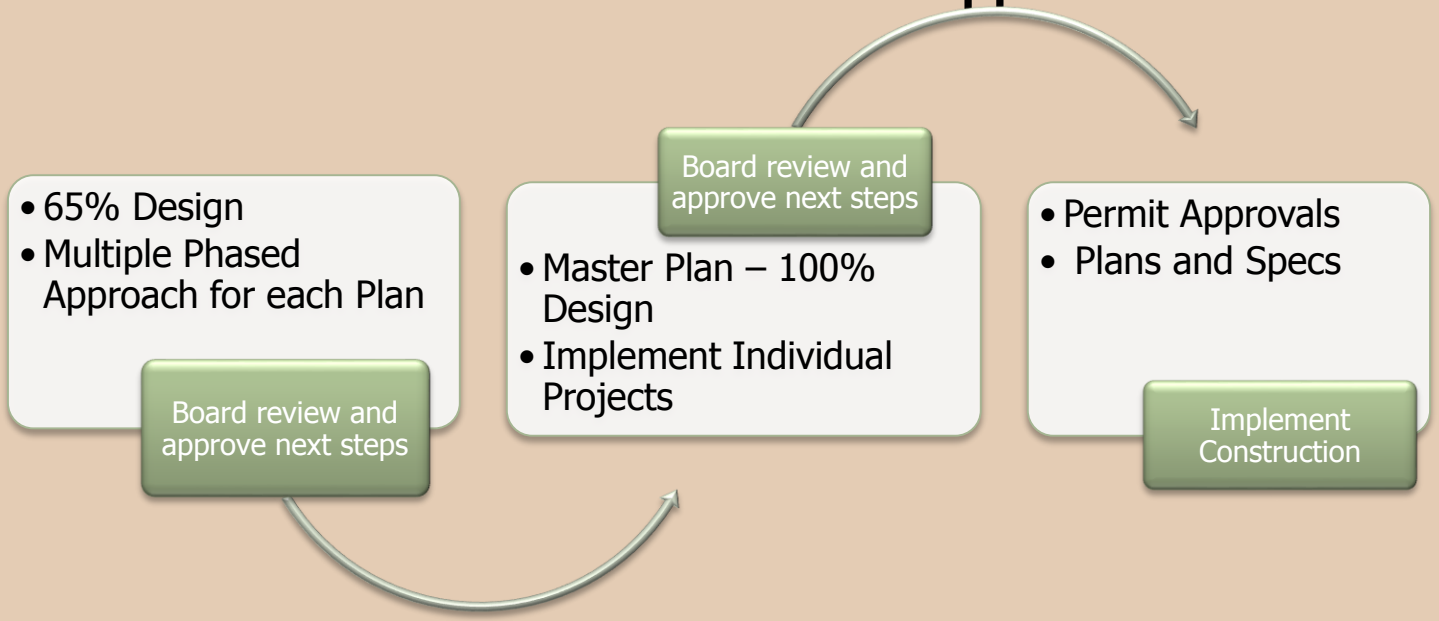
Project Schedule

- **Complete by End of 2014/Beginning of 2015**
- **6-7 Months After Receipt of Available Data from USACE**

	2014									
TASK	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**
1. Review Data/Identify Data Collection Needs										
Submit Data Request to USACE and Receive Data										
Data Collection/Review										
2. Field Investigations										
Topo/Bathy Representative Profile Surveys										
Sediment Sampling and Reporting										
3. Coastal Engineering Environmental Evaluation										
Analytical Analyses										
Sand Source Assessment										
Storm Protection Assessment and Modeling										
Environmental Planning and Permitting Assessment										
Draft and Final Report										
4. Davis Canal Management										
Engineering Assessment and Plan Development										
Environmental Assessment and Planning										
5. Project Management										
Client Coordination										
Meetings										

Current Scope Allows for Tiered Approach

A. Complete a Feasibility Level Study to Determine Estimates of Project Needs and Costs ("65% Answer")

1) Beach Protection and Shoreline Needs
2) Lockwoods Folly Inlet Management
3) Davis Creek Enhancement
4) Determine if Feasible to Move Forward with a Small Investment

B. If Town Desires, Move to Next Steps with a Detailed Study and Documentation Needed to Gain Permit Approval