

DRAFT WORK PLAN FOR SERVICE 1 – DATA IDENTIFICATION AND ACQUISITION

The overall goals and objectives for the BIMP as outlined by the original legislation can be summarized as follows:

1. Characterize vulnerability (erosion rates, land use, socioeconomic data),
2. Develop a conceptual regional sediment budget (where sufficient data is available),
3. Foster a transparent process involving stakeholders, and
4. Prioritize regions and identify potential strategies (Recommend priorities for State funding for beach nourishment/sand management 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 project engineering, the cost-effectiveness of the project, and the environmental impacts).

The BIMP project team will collaborate to meet each of the goals outlined above. A draft detailed work plan for addressing Service 1 is identified below. General work plans for Services 2 – 5 are also outlined below and will be expanded in more detail as Service 1 is completed and the completeness of various datasets (and subsequent methodologies to determine conceptual sediment budgets) are identified.

Service 1 – Data Identification and Acquisition – (6 Months)

Based on the previously submitted scope of work and discussions held at the kickoff meeting in Mobile, the following datasets have been identified as crucial to the work plan. The lead team member responsible for collecting the individual datasets is shown in parentheses. The eCoastal Database structure has been selected as the platform for data storage for the BIMP. Please note that the key statewide datasets targeted for integration within the eCoastal database are italicized.

Determine and Acquire Key Statewide Datasets That Will Allow For Vulnerability Characterization and Development of a Conceptual Sediment Budget for Various Regions

- Datasets for Vulnerability Characterization
 - USACE NC vulnerability studies - A. Sallenger (M&N)
 - NCGS/NCDEM NC Vulnerability Data (NCDCM)
 - Review literature for additional vulnerability data and develop a definition of what will be considered in vulnerability analysis (i.e., define “vulnerability”) – (M&N)
 - Erosion rate/Shoreline databases (NCDCM)
 - Socio-economic data and studies - Chris Dumas, USACE, County Tax (M&N)
 - Identify key environmental datasets for CHPP integration (M&N)
 - Identify public access (NCDCM)
- Datasets for Development of Conceptual Sediment Budgets
 - Identify sand sources - USGS, NCGS, USACE, MMS, lit review (M&N and DCM)
 - Characterize subsurface geology (DCM contact Rob Thieler and M&N contact Riggs and Cleary)
 - Literature review (studies related to sediment budgets) (M&N and DCM)
 - Develop USACE Dredging Database (M&N)
 - Develop beach fill database of USACE and local sponsor projects (M&N and DCM)
 - Populate eCoastal database with shoreline and USACE dredging/beach fill data (DCM & M&N)

Deliverables

A draft technical memorandum (TM) will be developed summarizing: (a) the extent of all compiled data and existing or planned monitoring programs, (b) gaps in data and (c) recommendations for a future monitoring program. The TM will be circulated for review by project partners, edited and finalized based on additional input.

Assumptions

- M&N will identify and collect readily available physical & socioeconomic data. It is assumed that minor data formatting will be performed to electronic data sets in accordance with an agreed upon protocol (may or may not be converted to eCoastal database structure).
- Where it is not practical to digitize and/or acquire the aforementioned data, a descriptive catalog will be created that references data specifics (e.g., type of data, geospatial and chronological coordinates, acquisition entity, data format, location of data).
- Significant gaps in data will be noted in both physical as well as socio-economic data. Recommendations will be made for future data collection. No new data collection efforts will be performed under this task. Additional data can be collected by team members under a separate contract.
- All datasets within the GIS data archive will be converted to the same horizontal (NAD 83 State Plane (ft)) and vertical (NAVD88 (ft)) datums.

Service 2 – Define Beach and Inlet Management Regions and Develop Conceptual Sediment Budgets (4 Months)

Sediment management regions will be initially defined based on coastal physiography and natural processes. Typically sediment management regions are delineated in association with littoral cells. Along the North Carolina coast, inlets, headlands, embayments and the capes (Cape Hatteras, Cape Fear and Cape Lookout) all serve as logical boundaries for delineating littoral cells and sediment management regions.

Data and prior studies compiled in Service 1 will be employed to further delineate the planning area into management subregions. The delineation will be performed based on local physical processes, ecological considerations, and social/political management boundaries.

The project team will use prior investigations and available data to determine locations where there is a change in predominant direction of alongshore transport. A conceptual sediment budget will be prepared for individual subregions (where sufficient data exists).

The feasibility of detailed modeling will be explored in a data rich area to illustrate the potential and benefits of moving from conceptual to more accurate sediment budgets. Recommendations will be made for a systems based approach to quantifying sediment budgets under future studies.

The project team will prepare a draft delineation for general sediment management regions. Gaps in understanding of local physical processes and recommendations for future investigation for refining subregion delineation will be identified.

The delineation will be presented for review by the project partners and refined based on input. The final delineation will serve as the geographic planning framework of the NCBIMP and platform for developing a conceptual sediment budget.

Deliverables

A TM will be prepared providing a brief discussion of the basis for the delineation of sediment management regions and the conceptual sediment budgets. The TM will be circulated for review by project partners, edited and finalized based on additional input from the project partners. GIS data layers outlining the regions and the datasets within them will also be provided.

Assumptions

- No additional new data collection efforts will be performed under this effort. The delineation of regions and subregions will be based upon available data.

Service 3 – Hold and Facilitate Stakeholder Meetings (8 Months)

An integral component of the NCBIIMP planning process is public education and stakeholder involvement. The project team will facilitate a series of stakeholder meetings in each beach and inlet management region. The purpose of the meetings will be to summarize the data collection and analyses as well as introduce the draft strategies for beach and inlet management and obtain input on the general approach and specific strategies recommended. Based on prior regional experience, the project team is familiar with many of the key stakeholders who will be involved in the process.

Deliverables

Meeting summaries and a list of attendees will be prepared for each meeting.

Assumptions

- M&N will be responsible for preparing public presentations, leading technical discussions for each of the meetings, and preparing meeting summaries.
- DENR staff will be responsible for advertising meetings and coordinating meeting logistics, including setting up meeting locations.
- M&N staff will participate in a total of up to 10 stakeholder meetings. It is anticipated that two meetings will be held in each of five regional locations (e.g., Brunswick County (Shallotte), New Hanover County (Wilmington), Onslow/Pender/Carteret Counties (Jacksonville), Dare/Hyde Counties (Manteo/Nags Head), Raleigh – depending on first round of meetings, Raleigh may be replaced with Carteret County (Morehead City))
- In addition to public meetings, representatives of M&N staff will participate in up to 4 technical advisory meetings and 3 advisory committee meetings.

Service 4 – Develop Draft Management Strategies (8 Months)

M&N will work with NCDENR staff to develop draft principles and guidelines for the comprehensive plan based on **current** North Carolina coastal policies and the objectives defined in the request for qualifications. (e.g., restore natural pathways of sediment transport, encourage regional approaches to geographic coordination & sequencing of priorities, reduce equipment mobilization and demobilization, and extend the life of beaches & reduce frequency of nourishment)

M&N will work with NCDENR staff to define critical eroding areas for management based on the data collected in Service 1 and the subregions defined in Service 2.

For each management region, the project team will summarize existing activity and draft management strategies will be developed for each beach and inlet management region in accordance with the overarching principles and guidelines.

It is anticipated that an overview will be developed including the following information:

1. Area description and characterization of background erosion rates
 - a. Global view
 - b. Sub-region view (where applicable)
2. Document existing sediment budget (where data available) & current and prior beach and inlet management actions
3. Identify critically eroding areas based on background erosion rates, underlying geology, vulnerability to damage due to erosion
4. Develop a list of available resources and potential management measures (e.g. sediment trapping, fixed mechanical bypassing at inlets, beach nourishment, retreat, etc.). The draft strategies will be physics based and permissible under current state regulations and policies.

Strategies will be considered in relation to the following criteria:

 - a. Effective in addressing critically eroding shoreline – areas with severe erosion & high risk of damage to development
 - b. Minimize potential direct & indirect impacts - (e.g., erosional impacts to adjacent areas)

- c. Environmentally responsible - minimize impacts on fisheries, habitat, etc.
- d. Compatible with existing local, state and federal coastal policies (e.g., NCDOM coastal management, NCDWQ water quality planning) and politically viable
- e. Economically justifiable - including capital and maintenance costs, financial benefits (business and jobs), ecological, navigation (commercial and recreational) and public safety
- f. Fundable – funding mechanisms (extent of local government sponsor commitment, availability of matching funds)
- g. Likelihood of Success - Prior success/anticipated performance
5. Identify a preliminary strategy for managing the region's inlets and beaches
 - a. Short-term (Over the next 20 – 30 years)
 - b. Long-term (Identify concerns (e.g., sea level rise) that should be considered when developing strategies and addressed in future plans)
6. A funding strategy
 - a. Annual cost estimate for implementing regional management plan strategies
 - b. Economic impact of beach and inlet related activities for cost-effectiveness analysis of future management operations
 - c. Identify funding sources (Federal, State, and Local) and strategies for securing funding
7. List of supporting data and references

M&N will involve key national experts from the project team to provide input on alternative management strategies.

Deliverable

A draft TM will be prepared, providing an overview of the draft beach and inlet management plan strategies. The summary will be revised and incorporated into the draft beach and inlet management plan.

Assumptions

- Potential strategies will be permissible in accordance with existing North Carolina coastal policies.
- Strategies will be developed based on available data and analytical coastal analyses (detailed coastal wave, hydrodynamic and sediment transport modeling will not be completed during this task)
- M&N will not seek to develop an optimum strategy, rather the goal will be to identify options that generally make sense and are reasonable, providing a factual context under which stakeholders may make informed decisions.

Service 5 – Prepare Final Beach and Inlet Management Plan Report (2 Months)

Based on the findings from Services 1 through 4, the project team will develop a comprehensive Beach and Inlet Management Plan for the State of North Carolina. It is anticipated that NCBIIMP will be a "living document". Similar to the NCDWR and NC Division of Water Quality (DWQ) Basinwide Plans, the framework will be developed anticipating that it will be updated periodically, with additional monitoring data.

In accordance with the RFQ the Inlet Management Plan shall contain at a minimum the following:

- Description of the study elements and process
 - Executive Summary
 - Stakeholder process
- Proposed Management Plan by Region
 - Area description
 - List of available resources and management strategies
 - Description of compiled data in the data archive, identification of gaps and recommendations for monitoring
 - Preliminary strategy for managing the inlets subregions and beaches
- Potential Funding Sources

- Annual cost-estimate for sub-region management plan
- Economic impact of beach and inlet related activities
- Potential funding sources and strategies for securing funding
- Supporting Data (Appendices, Data archive Catalog, Maps, References, etc.)

Deliverables

A draft outline of the comprehensive Beach and Inlet Management Plan will be prepared and circulated for review and comment. A Draft Plan will be prepared in accordance with the agreed upon outline. The Plan will be finalized based on receipt of input from NCDENR project partners. M&N will also develop a summary Powerpoint presentation of the final plan suitable for presentation to the appropriate legislative committees.