

BORROW AREA MANAGEMENT FOR BARRIER ISLAND RESTORATION IN LOUISIANA

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Barrier Island restoration efforts primarily depend on emplacement of sediment to build up barrier and deltaic systems. Thus qualitatively compatible and quantitatively adequate sediment/sand is the vital factor in any restoration effort. Almost 80% of total cost of restoration-budget is allocated for exploration, exploitation, and emplacement of sand/sediment. This cost is directly proportional to the distance of the borrow sources from the project area. Therefore success of Louisiana restoration effort depends on locating sufficient volumes of sand and mixed sediments that are suitable for placement on beaches, for building dunes, and for creating marshes.

Estimates of required sand volumes for initial construction are in the range 100 million cubic meters. These large sand volumes must be obtained from offshore sources that can be dredged and pumped or transshipped to shore. It is thus obvious that the restoration of barrier islands is critically dependent on availability of suitable sediment and hence it is imperative that a comprehensive Borrow Area Management Plan is put in place to meet this challenge. Various mitigation projects to restore barrier islands are being considered as part of regional planning efforts. However we have not yet considered optimizing the sediment resources by planning the projects around the sediment sources. There are instances where in absence of any integrated approach the sand reserves were not fully utilized. Presently in the planning process of any restoration project the project is decided first and then the consideration for sediment sources is effected. Planning for project in such a fashion has the risk of uncertainty of the cost of the project besides not utilizing the resources optimally. The better approach, where utilization of sediment sources is optimized, is to view the whole process regionally in first locating the source and decide the most cost-effective way of using that resource for restoration of barrier islands.

With the evolution of restoration methodologies and advances in survey and dredging technologies, methods have moved beyond emplacement of non-discretionary sediment toward strategic assessment of potential sediment sources for specific application, *i.e.* placement on a beach, in a dune, or for marsh enhancement. Marsh creation/nourishment, for example, is enhanced by placement of sandier and siltier sediments, as opposed to finer grained sediment, because they facilitate constructability better predict resultant marsh elevation.

The cost as well as the success of a project is defined by the sediment selection process. It is thus essential that for better planning and management of multiple-users-conflicts, a regional understanding of sediment resources would be a more beneficial approach compared to status quo procedures. Borrow Area Management (BAM), which helps protect and preserve sand deposits, would only be possible by inter-agency coordination so that identified sand resources should not become inaccessible by oil and gas pipelines or infrastructure. Sediment management plans need to be integrated because sediment budgets are not independent systems.

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