Activity: Texas Beneficial Use/Marsh Restoration (Marsh Restoration in the Salt Bayou Watershed on the J.D. Murphree Wildlife Management Area (WMA); Marsh Restoration in Pierce Marsh and Greens Lake on West Galveston Bay) (Planning)
Unique Identifier: TX_RESTORE_004_001-003_Cat1
Location: Texas, Jefferson and Galveston Counties
Type of Activity: Planning
FPL Category: 1 – Funding Approved
Cost Estimate: $968,000
Responsible Council Member: State of Texas
Partnering Council Member(s):
Originally submitted by: The State of Texas, as the proposal "State of Texas Beneficial Use of Dredged Material Project Design Fund Phase I".

Executive Summary: The State of Texas Beneficial Use of Dredged Material (BUDM), Project Design Fund Phase I project, located in Jefferson and Galveston Counties Texas, will facilitate the beneficial use of dredge materials through careful site selection, preparation of engineering and design plans, environmental compliance and permitting. The primary goal is to create shovel-ready placement areas that, if fully implemented, will transform areas that have subsided into open waters back to tidally influenced coastal wetlands. This method has proven to be a highly effective in restoring and creating habitat for fish and wildlife, improving water quality and enhancing natural storm buffers. The BUDM Project Design Phase I will provide funding for advance planning for three proposed BUDM projects: (1) Marsh Restoration in the Salt Bayou Unit of the J.D. Murphree WMA in the Salt Bayou Watershed; (2) Marsh Restoration in Pierce Marsh on West Bay in the Galveston Bay Estuary; and (3) Marsh Restoration in Greens Lake on West Bay in the Galveston Bay Estuary. Texas has a history of successful BUDM projects and cooperative agreements among Texas natural resource agencies and the United States Army Corps of Engineers (USACE) in place through the Texas Coastal Management Program. In addition, the project proponent will coordinate with USACE and private dredging operations to identify potential source materials and timelines for placement of dredge materials.

PROJECT DESCRIPTION:

Specific Actions/Activities: Concepts for the three individual projects have been completed by resource managers. The project proponent will hire experienced coastal engineering firms to design and engineer the placement areas that should take 6-8 months to complete. During the development of project design features, individual project managers and coastal engineers will coordinate with the state and federal natural resource agencies to ensure that all design features comply with statutory obligations. When engineering and design is complete, project managers will pursue required permitting, which can take an additional 3-12 months, depending on the type of permit required. It is anticipated that engineering, design and permitting for the three individual projects should be completed by 12-24 months from the date that project design funding becomes available.

Deliverables: Preliminary deliverables include surveys of potential placement sites, engineering designs, permit documents, and monitoring plans to measure sedimentation rates and planting success. Specific measures of success for this project include completion of an approved project design, submission of all required permit applications to the respective agencies, and identification of at least one source of dredge material for construction of the project. Pending receipt of all necessary permits, the project should be made shovel ready by the end of the project period.

Ecological Benefits/Outcomes and Metrics: Each of the three BUDM projects addresses the serious issues of wetland loss, loss of important habitat for fish and wildlife, and water quality. The successful completion of the design projects will facilitate many additional acres of BUDM marsh from dredge projects that may have been too small in scope to afford the engineering and design costs. This project will take advantage of the economies of scale and enable building more marsh where it is needed.

This project lays the foundation for the restoration of thousands of acres of estuarine emergent marsh through BUDM. The habitats restored through this project are important to the life cycles, and therefore the sustainability, of many ecologically and economically significant marine species. The contributions of such natural resources on the ecology and economy of Texas are, in a major way, dependent upon the Salt Bayou Watershed and Galveston Bay having habitats suitable to their development. Restoration of estuarine habitats is especially important not only to maintain essential habitat for commercially and recreationally important marine species, but also for their prey species, as so many of the prey species are also estuarine dependent. The marsh edge, in particular, serves as a critical transition between the emergent marsh vegetation and open water by providing a gateway for the movement of organisms and nutrients between intertidal and subtidal estuarine environments.

Leveraging and Co-Funding:

- **Adjoining:** No additional funding is anticipated for these projects for engineering and design. However, the process of engineering and design will rely upon participation by a host of project partners. These may include natural resource agency personnel (including representatives from the United States Fish and Wildlife Service, Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, etc.), non- governmental organizations, and other potential future construction phase funding partners.
- **Building on prior or other investments:** Multiple project partners have historically committed to restoring marsh within the proposed project areas using the technique of BUDM. Marsh construction projects using the beneficial use of dredged materials have been successfully implemented or are underway at each of the proposed project locations. This planning and design effort will build upon these previously implemented projects and the successful construction of additional marsh in these areas using BUDM

would substantially increase the amount of viable wildlife and fisheries habitat in these locations.

The USACE and regulatory permit review agencies are strongly encouraging applicants for dredging permits to beneficially use the material to create or enhance coastal marshes. Facilitation of additional BUDM is currently hindered by the lack of funding available for the planning, design and permitting for placement areas. By conducting needed design and engineering work, this project will facilitate continued benefits to the coastal environment, fish and wildlife communities, local industries and communities, and recreational users of these resources by providing areas to facilitate BUDM.

The goal of regional sediment management is shared by all five Gulf coast states, numerous federal agencies and nongovernmental organizations. Each additional designed project creates valuable data that can be shared with the public to increase knowledge about sediment transport rates and magnitudes. Texas is working towards a regional sediment management approach with the USACE and other stakeholders. The project designs funded by this project will move these efforts closer to fruition.

Duration of Activity: Once funded, the design and permitting activity will be completed within 12-24 months.

Life of Activity: Not applicable for planning activity.

RESPONSE TO SCIENCE REVIEWS:

Comment: Expand on the on the science and engineering behind beneficial use of dredged materials for wetland creation.

Response: The proposal is based on science and lessons learned on similar projects. Experience and monitoring of projects such as the Houston-Galveston Navigation Channel (HGNC) Beneficial Uses Plan in the mid-1990s used available science and case studies to implement multiple BUDM marsh restoration projects that restored over 4,500 acres of marsh in Galveston Bay. Through that effort, the HGNC Beneficial Uses Group (BUG) has monitored the constructed marshes and implemented an adaptive management program. The BUG was composed of state and federal resource agency staff, Port of Houston personnel, and environmental/engineering consultants. In 2003-2004 the BUG oversaw the development of the Marsh Monitoring Management and Maintenance Plan (M3 Plan) that reviewed lessons learned; identified goals, objectives, and standards; established monitoring and maintenance considerations; outlined program management; and provided guidance on a public information program.

The Texas General Land Office (GLO), through the Coastal Erosion Planning and Response Act (CEPRA) Program, and the Texas Parks and Wildlife Department (TPWD) have conducted numerous BUDM restoration projects since the late 1990s with the assistance of well-qualified

environmental/engineering consultants. Lessons learned from previous projects were incorporated into subsequent project designs and will be further refined in the design of the proposed projects.

Comment: Describe monitoring, maintenance and risk mitigation plan.

Response: The project is based on science and lessons learned on similar projects that communicates the risks and uncertainties in the scientific basis for such projects. Experience and monitoring of projects such as the HGNC Beneficial Uses Plan in the mid-1990s used available science and case studies to implement multiple BUDM marsh restoration projects that restored over 4,500 acres of marsh in Galveston Bay. Through that effort, the HGNC BUG has monitored the constructed marshes and implemented an adaptive management program.

Standard procedures for wetland restoration construction projects typically include pre-construction topo-bathy surveys to provide a baseline to monitor contractor performance. If there were significant differences in the elevations between the design/planning survey information and the pre-construction surveys, the construction oversight engineer would make any necessary adjustments to the design and issue revised construction documents to the contractor to reflect existing conditions at the initiation of construction. The pre-construction surveys and design/construction documents modifications (if needed) would be conducted and funded as part of the construction phase services and not included as part of the project design phase.

As part of the project design process, a project monitoring plan and adaptive management strategy would be developed for each individual project based upon the HGNC BUG M3 Plan. Each monitoring plan would identify key components of the constructed projects to monitor such as: sediment characteristics; elevation of placed dredged material; sediment settlement and compaction rates; development of hydrologic features; and vegetation coverage. An adaptive management approach would be taken to respond to any project deficiencies identified through the monitoring program.

Comment: Explain project manager experience managing similar projects.

Response: The GLO and the project partners are parties heavily associated with the proposed project and have extensive experience in successfully implementing BUDM restoration projects. The GLO CEPRA program has been in existence since 1999 and has overseen the construction of dozens of similar restoration projects. Staff with TPWD's Coastal Fisheries Program and with Wildlife Management Areas have also overseen successful BUDM projects. In 2001, the GLO established a BUDM Memorandum of Agreement with the USACE Galveston District that streamlined the contracting process and outlined the project partner responsibilities for BUDM projects.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this activity will not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor does it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this activity is covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion (CE) for planning, research or design activities (Section 4(d)(3) of the Council's NEPA Procedures). The Council's NEPA Procedures and the signed CE form for this activity can be found here.

Category 2:

NONE