Black Lake
Beneficial Use Site

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Applicant:
Lake Charles Harbor and Terminal District
150 Marine Street
Lake Charles, Louisiana 70602

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Summary

The semi-annual maintenance dredging of the Calcasieu River and Pass Ship Channel by the USACE utilized the Black Lake Beneficial Use Site (BLBU) for the placement of 2.8 million net cubic yards of dredged material as an environmental enhancement project to create approximately 440 acres of marsh habitat. With limited upland disposal, the channel had not been maintained at authorized dimensions for several years. The local sponsor, Lake Charles Harbor and Terminal District (LCHTD) sought an innovative solution to acquire new disposal areas to ensure adequate maintenance capability of the Channel. Rather than expanding upland disposal sites, LCHTD chose environmental enhancement to increase disposal capacity and meet the wetlands restoration goals of Louisiana. Placement of dredged material at the BLBU site was beyond the Federal Standard at that time. LCHTD provided funding to the USACE for the cost above the Federal Standard to beneficially place dredged material at the BLBU by blending multiple funding sources through a successful and innovative collaboration between federal, state and local agencies.

This project is one of the first Coastal Impact Assistance Program (CIAP) projects to use maintenance dredge materials to build wetlands. The result is the BLBU project shown in Figure 1, which was completed in December 2010. By combining maintenance dredging with marsh creation, the cost of a dedicated dredge to construct an environmental enhancement project was avoided. This Project stands as a model for future projects to restore and reclaim wetlands lost to decades of erosion throughout the nation’s coastal areas while maintaining the nation’s ports. When Louisiana realized the potential benefit of this approach, the state requested LCHTD to cooperate in building a second environmental enhancement project at the Sabine National Wildlife Refuge. The Sabine Project, 227 acres of wetlands created, was built during the same maintenance dredging cycle as the BLBU project, allowing the Calcasieu Ship Channel to be restored to full project dimensions for the first time in 5 years.
**Project Team Members**

Project Owner: Lake Charles Harbor and Terminal District  
Team Members: State of Louisiana, Calcasieu Parish and the United States Army Corps of Engineers New Orleans District (USACE), *WEA member*  
Nominating Entity: Gahagan & Bryant Associates, Inc., *WEA members Whitt Barlow and Grady Bryant*

**Environmental Benefits**

This project supports a key strategy for sustaining coastal Louisiana through the creation of approximately 440 acres of marsh within an area of eroded marsh and shallow open water during the 2010 dredging cycle. The BLBU site is located approximately 5.5 miles west of the Calcasieu River and Pass and 1 mile south of the Gulf Intracoastal Waterway (GIWW) at river mile 19, Cameron Parish, Louisiana. Due to this distance, all dredging activities were conducted in such a manner as to minimize the impact on any existing marsh areas by utilizing open water routes and floating pipeline whenever possible. Dredged material was confined to the placement area to maintain water quality levels in all areas surrounding the BLBU site and along the pipeline pathway. The material was placed inside the marsh creation site to elevations varying between +4.0-ft and +4.5-ft NAVD88. This is the elevation range for optimum marsh habitat in this area.

This project restores an area that has eroded over time due to salt water intrusion and major weather events that had destroyed the marsh ecosystem in this area. The re-established marsh will benefit the indigenous local wildlife, fisheries and a vast number of various species of migratory birds that winter in southwest Louisiana. The project will also contribute to the landowner’s water control efforts to convert this area of open salt water to freshwater marsh.

Long-term public recreation benefits will be realized as the marsh becomes established, complementing the existing fish and wildlife habitat and increasing future recreational activities in the area. In addition ecosystem and recreational benefits, marsh habitat provides hurricane protection benefits through reduction of storm surge.
Innovation

The USACE had been unable to dredge the Calcasieu Ship Channel from Mile 14 to Mile 22 to its full project width because of a short fall of capacity in the upland disposal sites along the Channel to accommodate the material removed from the channel. The local sponsor of the channel, LCHTD, sought to expand available disposal capacity in a way that would ensure the waterway could be dredged to its full project dimensions, both width and depth, then and in the future, while contributing to the goals of the State of Louisiana to restore significant losses in coastal marsh and habitat.

To provide this two-prong solution, LCHTD developed and nurtured a public/private partnership with property owner Curt Marcantel, the Calcasieu Parish Police Jury, the State of Louisiana, and the USACE to develop and fund the BLBU Project. Through this successful and innovative collaboration funds were provided to the LCHTD through three means:

- Coastal Impact Assistance Program (CIAP) funds through the State of Louisiana
- CIAP funds from Calcasieu Parish
- State of Louisiana surplus funds

The use of CIAP funds does not involve a required non-Federal cost sharing (or “matching”) obligation and was approved by the Minerals Management Service (MMS), then administrator of the CIAP program.

In order to make this project a reality and success, LCHTD established multiple Cooperative Endeavor Agreements (CEAs) with state and local entities as well as the final MOA with the USACE. This included fostering intergovernmental cooperation on the local level in soliciting Calcasieu Parish to expend its CIAP funds for a project in Cameron Parish.

Economic Benefits

The maintenance dredging of the channel is conducted each year utilizing federal funds. Each year, the material dredged, a valuable resource for building marsh in Southwest Louisiana, is stacked in upland disposal areas along the channel. The local sponsor for the channel, the LCHTD, found a way to piggyback channel
maintenance with marsh restoration. By combining the two efforts, the cost of removing the material from the channel was not incurred by the BLBU project. This saved the BLBU project the substantial cost of a dredge dedicated to remove material from the channel for beneficial use. However, under federal regulations, the USACE could not pay to pump the material the additional distance to the BLBU site. In order to deposit material at the site, the cost exceeding the normal cost of disposal next to the channel was paid by the local sponsor using the funding arrangement previously discussed. By coupling channel maintenance with marsh creation, the additional cost of creating 440 acres of wetlands at the BLBU site was estimated to be about $20 million but would have cost many millions of dollars more if a dredge dedicated solely to the beneficial use project had been employed.

In another example of cost effectiveness, the dikes to contain the dredged materials at the BLBU site were constructed from adjacent in-situ soils rather than mining materials from other areas and either hydraulically, hauling and mechanically placing them as traditionally done under previous USACE contracts. Rather than over constructing and armoring the dikes for long-term use, they are designed to naturalize as the marsh created through the beneficial placement of dredged materials stabilized and established itself. This method of adaptive management lends to a more natural marsh and saved the project almost $10 million dollars in construction and maintenance over more traditional beneficial use projects constructed in the past.

By locating a new area to beneficially use the dredge material, the Channel can now be maintained to its authorized depth and width, which ensures safe, efficient deep-draft navigation which will positively affect the Ports economy.

**Transferability**

The LCHTD is working with the American Association of Port Authorities (AAPA), the USACE, and other local sponsors to help institute a more streamlined approach to establish CEAs, MOAs and mechanisms to combine multiple funding sources in order to provide for full and safe navigation while conducting coastal restoration. This is not an easy process and requires open-minded thinking and strategy. Through its work with AAPA and
USACE, the principles established during this project will be adaptable by other ports to combine routine channel maintenance with the beneficial use of the material dredged.

As the arrangements for building the BLBU project were being made, Louisiana realized the very significant benefits of this approach. As a result, the state requested LCHTD to cooperate in building a second environmental enhancement project at the Sabine National Wildlife Refuge. The Sabine Project, 227 acres of wetlands created, was built during the same maintenance dredging cycle as the BLBU project, allowing the Calcasieu Ship Channel to be restored to full project dimensions for the first time in 5 years. Before the BLBU project was even built, it became a model for a second project based on the same innovative approach.

**Outreach and Education**

Over a two-year period all of the stakeholders from LCHTD, the State of Louisiana, Louisiana Coastal Protection and Restoration Program, USACE and Calcasieu Parish met on a monthly basis and coordinated various levels of this project. The Black Lake site had been identified for restoration by multiple parties. After a consensus had been reached by all parties and multiple agencies regarding the overall scope of work and project design, LCHTD was able to blend several funding sources to make this successful project a reality.

In addition to working with the local stakeholders, LCHTD is working with McNeese University on various issues including beneficial use strategies and ways to model the inflow and migration of sediments within the Calcasieu estuary. Representatives from McNeese University participated in many site visits during construction in order to learn more about the dredging and material placement process.

**Other**

The BLBU project restored approximately 440 acres of vital marsh habitat in southwest Louisiana while returning the Calcasieu River and Pass Ship Channel to its full project dimensions. This project was a creative collaboration of federal, state, parish and local participants to use multiple funding sources to make use of normal channel maintenance dredging to enhance the environment. This project took careful coordination and approval by
many entities in regards to funding, permitting and design. Multiple CEAs had to be negotiated between the LCHTD, Calcasieu Parish, and the State of Louisiana and a MOA with USACE was concluded, all of which balanced the interests of all parties and none of which were previously in place. Without these additional funding sources created by these agreements, the dredged materials would not have been utilized beneficially. This Project stands as a model for future projects to restore and reclaim wetlands lost to decades of erosion throughout the nation’s coastal areas while maintaining the nation’s ports.

"The utility of our ports and waterways benefit all of us, and projects like this demonstrate that when several forces combine, we can make a difference. I intend to push for more opportunities like this along coastal Louisiana." Secretary Scott Angelle of the Louisiana Department of Natural Resources