

Jefferson Parish Shoreline Restoration and Protection
Lake Pontchartrain Basin Foundation
Coastal Sustainability Program - December 2005

Problem:

Placement of rip rap directly on the shoreline and other modifications have reduced the natural ecological benefit of the fringing marsh that once existed along Jefferson Parish's shoreline of Lake Pontchartrain (**Figure 1**). In addition, during high-water events, the shoreline and base of the levee may be flooded and may be subject to wave erosion. This erosion poses a risk of failure of the levee and additional maintenance costs.

Proposed solution:

Construction of an offshore breakwater creating a quiet water area for restoration of natural shoreline habitat functions (**Figure 2**). This includes placement of soil fill along the shoreline to create emergent marsh adjacent to the lake's shoreline. Placement of reef balls between the marsh and breakwater further reduces lateral wave energy and creates structure that will be utilized by small fish, crabs and other indigenous species. The combined impact of the offshore breaker and the wetland habitat is to reduce wave energy and produce an additional measure of risk reduction of damage to the Jefferson Parish levee. Rock utilized for the offshore breakwater will be appropriately sized for the project life. The design is intended to function either in a single shoreline restoration module or as multiple adjacent modules (**Figure 3**). This allows for demonstration projects and multiple construction phases of the project.

At this time, a demonstration project is proposed which would construct a single shoreline restoration module in Jefferson Parish. The cost for one module is estimated to be \$1,080,000 (**Figure 4**). Successful demonstration of the project design would lead to application along the entire 10-mile shoreline of Lake Pontchartrain in Jefferson Parish. This would provide additional protection to 10 miles of the flood protection levee and add approximately 100 acres of fringing marsh. The estimated cost for the entire 10 mile shoreline is \$63,000,000.

Support:

Restoration of the fringing marsh along Lake Pontchartrain in Jefferson and Orleans Parishes is a recommendation in the "Comprehensive Habitat Management Plan for the Lake Pontchartrain Basin". Fringing marsh is the emergent vegetation immediately adjacent to open water lakes or bays and is considered the most beneficial for the estuary especially for utilization and production of fish. A constructed wetland (fringing marsh) was developed adjacent to the Bucktown marina and has generated quality habitat (Hester, 2005). Re-establishment of fringing marsh should improve commercial and recreational fisheries in Lake Pontchartrain in general, but also provide local attractive shoreline for fishers. This project was developed with support from the LSU AgCenter.

For More Information Contact: John Lopez (504) 421-7348 or Carlton Dufrechou (504) 836-2215

References

Lake Pontchartrain Basin Foundation, 2005, Comprehensive Habitat Management Plan for the Lake Pontchartrain Basin, draft 2005.

Hester, Mark W., Jonathan M. Willis, and C. Ellery Mayence, 2005, Plant Community Composition of the Bucktown Created Marsh: A Preliminary Assessment, Coastal Plant Sciences Laboratory Department of Biological Sciences & Pontchartrain Institute for Environmental Sciences

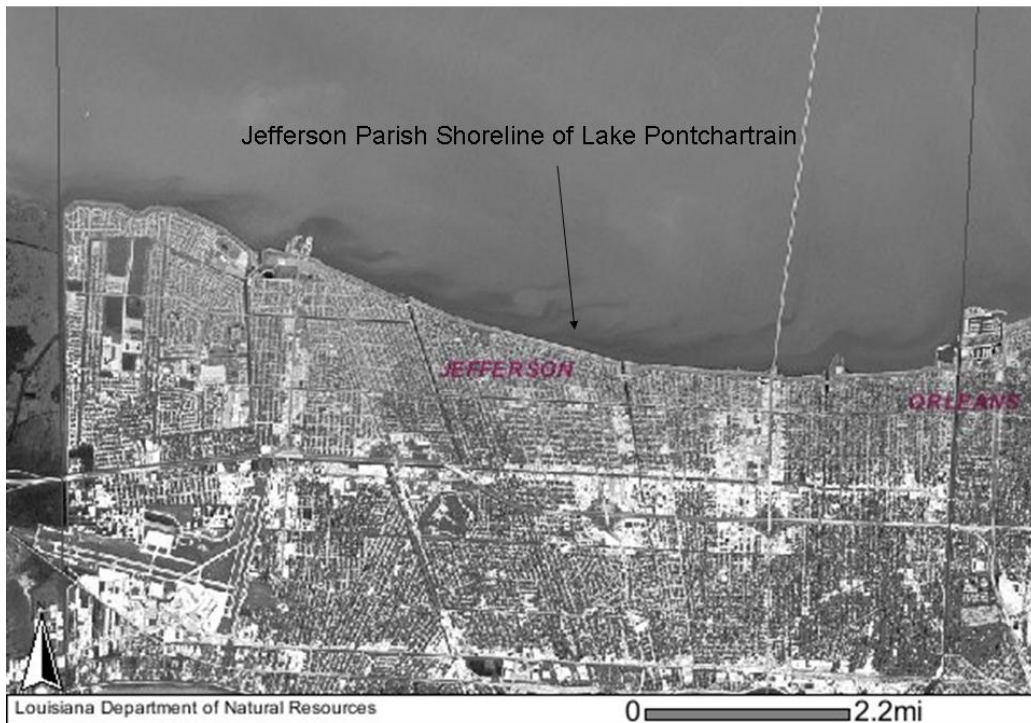


Figure 1: Satellite image of the Jefferson Parish shoreline of Lake Pontchartrain.

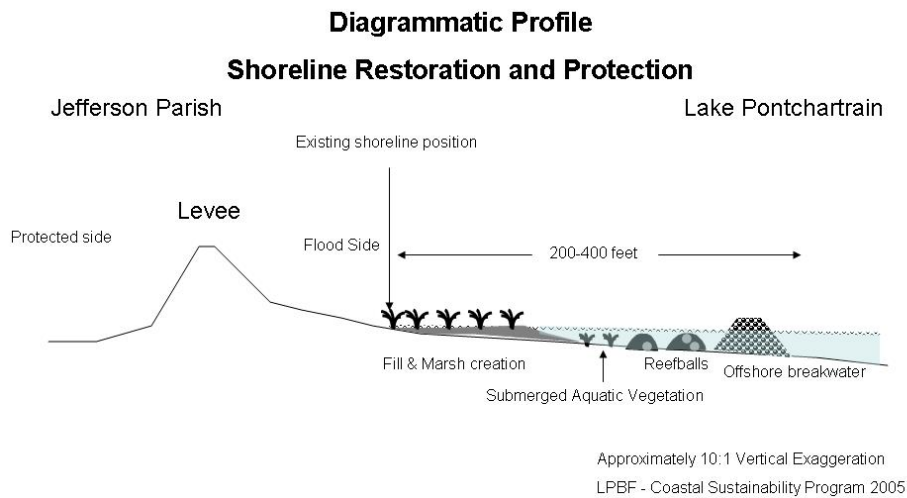
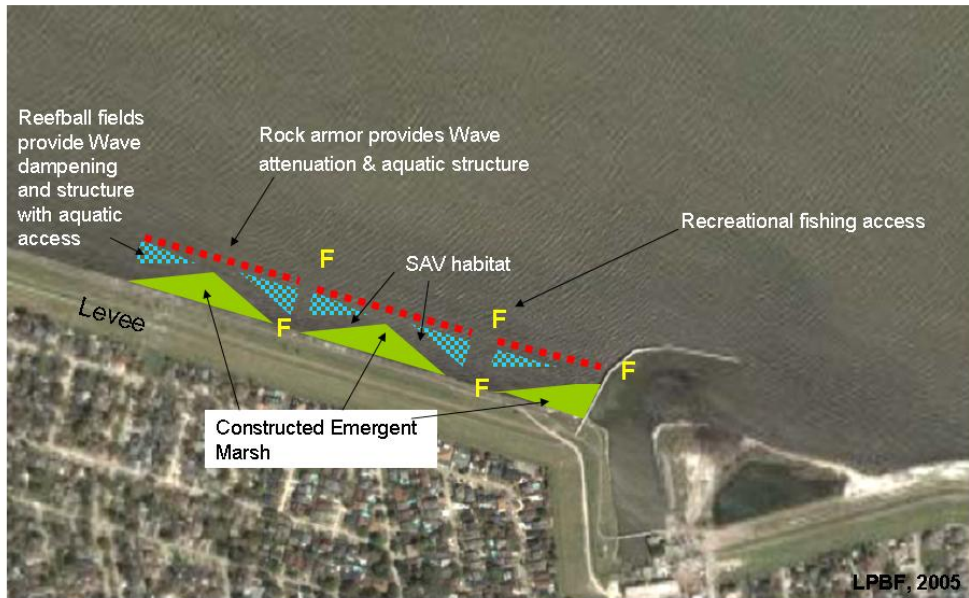


Figure 2: Diagrammatic profile of the proposed design elements of the Jefferson Parish Shoreline Restoration and Protection project. The combined elements produce critical habitat and additional protection to the Jefferson Parish flood levee.

Jefferson Parish Shoreline Restoration and Protection Project

Restoration modules



Shoreline Restoration Modules provide reduced risk of levee damage due to high energy shoreline conditions while also creating "fringe marsh" habitat.

Figure 3: Design elements of a shoreline restoration module and location of multiple modules to create continuous habitat and armoring along the lake shoreline.

Single Shoreline Restoration Module Cost



Figure 4: Dimensions and elements of a single shoreline restoration module. Costs are based on the estimated cost of rock armoring for restoration projects elsewhere along the Louisiana coast.