January 2016
Cost figures as of: January 2017

# Shoreline Protection, Preservation, and Restoration Panel (SPPR Panel) (LA-280)

## Project Status

**Approved Date:** 2016 **Project Area:** N/A
**Approved Funds:** **Total Est. Cost:**
**Net Benefit After 20 Years:** N/A
**Status:** Engineering and Design
**Project Type:** Demonstration: Shoreline Protection
**PPL #:** 25

## Location

Coastwide

## Problems

The demonstration project would introduce an innovative solution for shoreline protection and dredge containment projects, which can be installed at a significant savings to the project owner. The demonstration project would help reduce shoreline retreat in areas that have experienced excessive amounts of erosion and would also have the intent to offset increased rates of land loss to wetlands that become exposed due the loss of protective shorelines features through the protection of the shoreline and collection/retention of suspended sediments behind the structures.

Historically Louisiana's coastal shoreline, bays, and lake rims have experienced high levels of retreat and land loss. The approach to repairing these areas have utilized heavy, hard engineering methods that eventually settle into the substrate, which has not achieved the goal and even presented additional hazards. Through the use of pre-fabrication of the proposed units, the landowner will see a 60%-80% reduction in installation costs when compared to typical rock rip-rap consturuction.

## Restoration Strategy

The proposed demonstration project would stabilize existing shoreline features and attenuate shoreline retreat and potentially enhance interior marshes and an accretion platform behind the structure. The goal of the proposed demonstration project is to provide a cost effective construction alternative to rip rap for shoreline protection.

The SPPR Panel is a pre-cast, saltwater tolerant concrete panel system (with no carbon steel reinforcement), the dimensions and density of which can be adjusted to site conditions. The SPPR Panel units resemble a chain when joined together allowing for on site adjustment to irregular shorelines. The project has several aspects, in that it is shoreline protection and restoration, marsh protection, restoration, and enhancement system that would deflect wave energy, protect and enhance vegetation, trap sediment, protect and create emergent marsh, and provide nursery habitat.

1. The SPPR Panels have a variety of application possiblilities that can be adjusted to best suite the problem area to best restore and enhance shorelines and marshes in many different types of coastal environments.
2. Each panel has planned openings (vents) within the face of the unit that allows for some sediment to penetrate. The vents can be adjusted in size and location on the unit (depending on location and water depth) to allow for the most beneficial capture of available sediment.
3. When connected, there is a 0.3' to 0.5' gap between SPPR Panels to allow for water drainage from behind the units, as well as, estuarine animal ingress/egress.

The demonstration project would include the selection of 2 application sites for treatment with water depths ranging from 2 to 5 feet. Each treatment would include 3 replicate 100-foot sections for a total project installation of 1,800 linear feet. Project effectiveness would be monitored and evaluated after construction according to the CWPPRA workgroups' recommendation for this product in Phase 0. The conceptual treatment is shown in Figure 1.

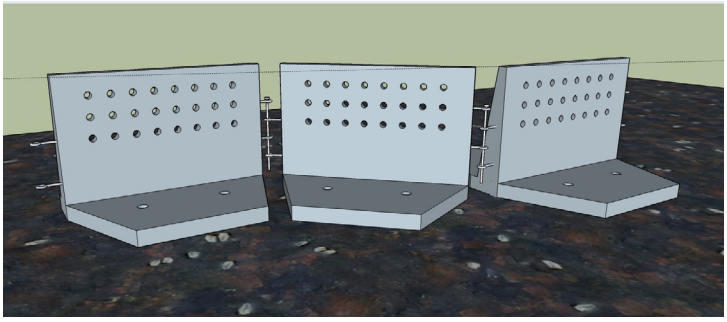
By using a pre-cast SPPR Panel, owners can see significant savings from traditional rip-rap embankments by;

- Project construction phase time is reduced
- Reduced initial installation cost compared to rip rap embankments (60%-80% the cost of rip rap per linear foot depending upon water depths)
- Reduced life-cycle cost compared to rip rap embankments (no additonal lifts required)
- Minimal settlement (designed for LA-16 Shark Island location which has 15'-20' of peat...Engineering theory shows the units will only settle 6-9 inches)
- Can be installed in water as shallow as 2-3 feet and as deep as 5 feet with minimal footprints
- Provides fisheries access on landward side
- Collects/retains suspended sediments

## Progress to Date

This project was approved for Phase I Engineering and Design in January 2016.

This project is on Priority Project List (PPL) 25.



example SPPR Panel dimensions, layout, and vent placement

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