Non-Rock Alternatives to Shoreline Protection Demonstration Project (LA-16)

To be built under the Coastal Wetlands Planning, Protection, and Restoration Act
Public Law 101-646

by the United States Department of Agriculture Natural Resources Conservation Service

with assistance from the Coastal Protection and Restoration Authority of Louisiana
Non-Rock Alternatives to Shoreline Protection

Project location
Shark Island, Iberia Parish, Louisiana

Project goals
The goal of this demonstration project is to identify and test an alternative method(s) of shoreline protection that can be used in areas having one or more limiting factors which preclude the use of currently adopted standards (i.e. rock, concrete panels, bulkheads, etc.).

Project benefits
The primary benefit of this project would be to find a product(s) that effectively reduces or eliminates shoreline erosion at sites where current standards are either non-acceptable or not economically justified.

Identification of potential issues
One of the criteria to be used in the selection of a viable product(s) is its ability to circumvent or avoid potential issues (subsurface utilities, accessibility, etc.). Project site limitations include, but are not limited to, considerable fetch length, unstable soil conditions, moderate to high erosion rates and large tidal fluctuations. Any shoreline protection system selected would also have to allow marine fisheries access, where applicable.

Project funding
LA-16 was authorized by the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990, 16 U.S.C. Section 3951 et seq., (Public Law 101-646, Title III), and for local sponsorship by the Louisiana Coastal Wetlands Conservation and Restoration Plan, by the State of Louisiana on January 21, 2009. Funding includes soliciting for and researching new products/methods/techniques, seek potential location(s), engineering and design, fabrication, construction, and three years of onsite monitoring.

Project sponsors
Federal: USDA Natural Resources Conservation Service
State: Coastal Planning and Restoration Authority

Photograph provided by USDA Natural Resources Conservation Service.
Proposed solutions

Several “new” concepts of providing shoreline protection have surfaced in the last few years. These concepts however, have not been researched or installed due mainly to budget limitations or the apprehension of industry, landowners, and others to try an unproven product. The purpose of this demonstration project is to provide a mechanism to research, install, and monitor various shoreline protection techniques in an area(s) of the state where physical, logistical and environmental limitations preclude the use of current adopted methods.

Product No. 1

**Contractor:**
Living Shoreline Solutions, Inc.
Dade City, Florida

**Product Name:**
Wave Attenuation Devices (WAD*s)

**Product Description:**
The structure consists of individual modular units connected to each other at the base. Each unit is a three-sided pyramid shaped concrete structure with angled sides and triangular-shaped tapered openings on each side. The units are placed in a double row array in approximately 4-5 feet of water; parallel to shore and designed such that the wave is actually allowed to transmit through the structures and in doing so, wave energy is significantly reduced. Refer to Figure 1 for a typical isometric drawing of the structure.

Figure 1

Product developed by Living Shoreline Solutions, Inc. The authors reserve and retain any and all intellectual property and licensing rights associated with the design and pending patent, Copyright 2013, all rights reserved.
Product No. 2

Contractor:
Royal Engineers & Consultants, Inc.
Lafayette, Louisiana

Product Name:
Integrated Shoreline Solutions – Wave Screen System

Product Description:
The structure is a continuous linear feature consisting of two parallel vertical walls of perforated HDPE sheeting supported by steel pilings. The bottoms of the vertical walls are positioned 1 – 1.5 feet above the bay bottom. Two walls will be installed parallel to each other in a straight configuration parallel to the shoreline and in approximately 4 – 4.5 feet of water. Refer to Figure 2 for a typical isometric drawing of the structure.

Product No. 3

Contractor:
Jesco Environmental & Geotechnical Services, Inc.
Jennings, Louisiana

Product Name:
Wave Robber

Product Description:
The structure consists of individual modular units that are cabled together in a linear fashion to form a continuous unit paralleling the shoreline. Each module has vertical side and rear (land side) walls, a front (bay side) wall that slopes up toward the shore to deflect waves, and baffled tubes to promote sediment retention behind the module. Every module is built primarily of HDPE molded material and sits on the bay bottom in approximately 4 feet of water. The units are held in place by cables with anchors driven below the surface and are partially water-filled to provide the proper ballast. Refer to Figure 3 for a typical isometric drawing of the structure.
Product No. 4

Contractor:
Jansen, Inc.
Ferndale, Washington

Product Name:
Buoyancy Compensated Erosion Control Modular System

Product Description:
The structure consists of individual modular units placed adjacent to each other in a linear fashion to form a continuous unit parallel to the shoreline. Each unit is a 4-sided styrofoam-filled concrete shell with sloped front (bay) and rear (land) sides and has an enclosed bottom. Individual units will be held to each other via winched cables and secured in place with 2 vertical and 2 batter driven pin piles. The structure will be placed in approximately 5 feet of water. Refer to Figure 4 for a typical isometric drawing of the structure.

Product developed by Jansen, Inc. The authors reserve and retain any and all intellectual property and licensing rights associated with the design and pending patent, Copyright 2013, all rights reserved.
Coastal Wetlands Planning, Protection, and Restoration Act

Public Law 101-646

The CWPPRA Task Force manages the CWPPRA program. The Task Force is composed of the State of Louisiana and five federal agencies: the U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), USDA Natural Resources Conservation Service (NRCS), NOAA-National Marine Fisheries Service, and the U.S. Army Corps of Engineers (USACE).

For more information about this demonstration project, contact:

Loland J. Broussard
Civil Engineer
USDA Natural Resources Conservation Service
646 Cajundome Boulevard, Suite 180
Lafayette, Louisiana 70506
Telephone: (337) 291-3069
Fax: (337) 291-3085
loland.broussard@la.usda.gov

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers. If you believe you experienced discrimination when obtaining services from USDA, participating in a USDA program, or participating in a program that receives financial assistance from USDA, you may file a complaint with USDA. Information about how to file a discrimination complaint is available from the Office of the Assistant Secretary for Civil Rights. USDA prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual’s income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) To file a complaint of discrimination, complete, sign, and mail a program discrimination complaint form, available at any USDA office location or online at www.ascr.usda.gov, or write to: USDA, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410. Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender.

12/11/2013