

Activity: Comprehensive Living Shoreline Monitoring (Implementation)

Unique Identifier: AL_RESTORE_004_004_Cat1

Location: Alabama, Mobile and Baldwin Counties

Type of Activity: Implementation

FPL Category: 1- Funding Approved

Cost Estimate: \$3,975,000

Responsible Council Member: State of Alabama

Partnering Council Member(s): N/A

Originally submitted by: The State of Alabama as a component within the proposal "Alabama Living Shorelines Restoration and Monitoring Project"

Executive Summary: Utilizing the Comprehensive Monitoring Plan developed in the Alabama Living Shorelines Program (see the above Category 1 project Comprehensive Monitoring Activity, Planning Phase, with Unique Identifier AL_RESTORE_004_004_Cat1), the State of Alabama will monitor and assess the performance of at least ten (10) proposed and existing living shoreline projects in coastal Alabama for a period of 5 years. This will allow for a robust comparison across all monitored projects, as well as an accurate evaluation of their success relative to specific site conditions, providing valuable information to resource managers, project proponents, homeowners and others interested in utilizing and promoting living shorelines techniques. This project could serve as an example pilot project for the Council to consider as it continues to plan and implement monitoring of living shoreline projects in watersheds across the Gulf.

PROJECT DESCRIPTION:

This project will utilize standard monitoring parameters and protocols developed during the Planning Phase to implement a five (5) year monitoring program for at least 10 proposed and existing living shoreline sites in coastal Alabama. Each site will be monitored for shoreline position breakwater aerial extent and height, cross-shore topographic and bathymetric profiles, vegetation density and species composition, encrusting organism counts and/or measurements of secondary productivity or other similar parameters. Monitoring reports will be generated annually and a comprehensive monitoring report will be produced at the end of the 5-year study period.

The purpose of this comprehensive monitoring activity is to evaluate the effectiveness of specific living shorelines techniques relative to specific site conditions. This will include an assessment of biological benefits as well as physical parameters (such as wave energy, sediment composition, erosion rates, etc.). Ultimately, the goal of this effort is to determine best practices for living shorelines given site-specific physical conditions.

Deliverables:

- Yearly Interim Monitoring Reports
- Final 5-Year Comprehensive Monitoring Report.

Ecological Benefits/Outcomes and Metrics: As shoreline armoring increases in coastal estuaries, intertidal habitats continue to be lost. To address this issue, resource agencies, regulatory agencies, non-governmental organizations (NGOs) and other concerned partners have been actively promoting living shorelines as an alternative to traditional bulkheads and similar shoreline armoring. However, while it is generally known that living shorelines can provide erosion control and increased ecosystem services, it is also acknowledged that more data is needed on living shorelines efficacy.

This project will provide valuable data on the benefits of a wide range of proposed and existing living shorelines projects. This will include data on shoreline stabilization, biological productivity and similar parameters. This data can then be used to inform resource managers, consultants, homeowners and others decision makers interested in promoting and utilizing living shorelines in place of traditional shoreline armoring.

Leveraging and Co-Funding:

- **Building on prior or other investments:** Numerous state, federal, academic and NGO partners have been constructing living shorelines projects over at least the past decade using a variety of funding sources. Since 2005, The Nature Conservancy, with various public and private partners, has implemented 17 living shorelines projects valued at approximately \$9.2 million. At Point aux Pins, Alabama and the DISL have invested approximately \$500,000 in a small scale, living shoreline project along the northeastern shoreline. A proposed DWH-NRDA Phase IV Early Restoration project would invest an additional \$2.3 million to complete restoration of the northeastern shoreline. The RESTORE efforts will build upon past efforts and complement the NRDA restoration effort.

Duration of Activity: 5 Years.

Life of Activity: 5 Years.

RESPONSE TO SCIENCE REVIEWS:

A general response to the scientific reviews for this suite of living shoreline activities can be found in activity AL_RESTORE_004_001-003_Cat1. For purposes of the proposed living shorelines monitoring implementation component, the following additional information is presented.

Comment: "The proposal seems like an effort to fill in the gaps of projects that have fallen by the wayside due to lack of funding, oversight, or are in need of revision. While the intentions seem valid, I feel a more detailed descriptive proposal for each concept would help the reviewer or funding agency fully understand the deliverables in a more confident manner."

Original Response (12/09/2015): An initial list and map of sites to be monitored is included in the proposal. The planning phase would further identify the specific sites to be monitored as well

as the scope and breadth of the measurements to be collected at each location. The ultimate goal of this monitoring program would be to identify a suite of best practices to use given certain site conditions. The planning component would fully define and describe the monitoring program and its deliverables prior to implementation funding being awarded.

Revised Response (dated 04/02/2020) Note: *this science review response was revised slightly to reflect that planning and implementation components will be implemented as two phases of a single monitoring program:* An initial list and map of potential sites to be monitored is included in the proposal. The planning phase will further identify the specific sites to be monitored during the implementation phase as well as the scope and breadth of the measurements to be collected at each location. The planning phase will fully define and describe the monitoring program and its deliverables prior to the start of implementation. The ultimate goal of this monitoring program is to identify a suite of best practices for living shorelines that can be applied given certain site conditions to help inform future restoration decisions.

ENVIRONMENTAL COMPLIANCE:

Section 4(d)(4) of the Council's National Environmental Policy Act (NEPA) [procedures](#) enables the Council to use Categorical Exclusions (CEs) of its federal member agencies when that federal agency advises the Council that use of the CE would be appropriate for the specific action under consideration by the Council. In November 2018, National Oceanic and Atmospheric Administration (NOAA) advised the Council that use of NOAA's CE E5 for research activities would be appropriate for the implementation of the Alabama Comprehensive Living Shoreline Monitoring Program. In March 2020, NOAA's National Marine Fisheries Service (NMFS) concurred with the Council's determination that the proposed action is not likely to adversely affect the NMFS ESA-listed species and/or designated critical habitat. Also, in March 2020, the Council received Essential Fish Habitat concurrence from the NMFS Habitat Conservation Division. Based on this information, the Council has determined that this activity would not have significant effects on the environment individually or cumulatively. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, Tribal interests and historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has reviewed the associated [environmental complication documentation](#), found that it addresses all laws applicable to Council approval of funding under the Bucket 2, and is using the NOAA CE E5 for approval of implementation funding for this activity.