

ALABAMA STATE EXPENDITURE PLAN (SEP)

Project #11: Lillian Park Beach Habitat and Shoreline Protection

Project Description/Summary

- a) The Lillian Park Beach Habitat and Shoreline Protection Project includes three components: 1) development of a coastal processes study, 2) engineering and design based on the results of the study, and 3) construction of a shoreline restoration project at Lillian Park in Baldwin County. The coastal processes study will support design solutions to create a stable sand beach shoreline and effectively minimize beach erosion and habitat loss along Perdido Bay. In addition, this project will reduce safety risks at the public boat launch at Lillian Park resulting from open, un-attenuated wave action, reduce overall maintenance costs due to rapid sand and debris build up on the ramp due to unknown patterns of transport and deposit, create a more stable and useable public beach, and protect adjacent properties from beach erosion.

Activities also include the comprehensive administration of this grant, including, but not limited to, project development and oversight, contracting, and sub-recipient monitoring.

- a. **Need:** Bay shorelines are subject to a variety of impacts resulting from human development, loss of natural sand replenishment, and storm events. This section of bay shoreline has been significantly modified over time to facilitate greater public access to and enjoyment of the natural resources of the Perdido watershed and the Gulf of Mexico. Sand beach shoreline and associated littoral habitat are a preferred feature for public use, as well as the typically occurring habitat. Economic resilience for the area is impacted when the boat ramp is unusable due to un-attenuated wave conditions or excess sand deposits, which results in high maintenance costs. In addition, adjacent beach habitat to the ramp structures are being potentially impacted.

Purpose: The Lillian Park Beach Habitat Project's purpose is to fund a coastal process study to inform engineering and design for the construction of appropriate shoreline measures to meet a mix of human use and habitat protection needs.

Objectives: The objective of the Lillian Park Beach Habitat project is to better understand local shoreline and coastal processes to support design solutions which will:

- Restore a sand shoreline, increase the resilience of the estuarine and marine habitat;
- Reduce safety risks to the use of the public boat launch at Lillian Park resulting from open, un-attenuated wave action;
- Reduce overall maintenance costs due to rapid sand and debris build up on the ramp itself due to unknown patterns of transport and deposit;
- Create a more stable and useable public beach; and
- Protect adjacent properties from beach erosion.

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- b. This activity is located in the Gulf Coast region and will be carried out in the community of Lillian in Baldwin County, Alabama.
 - c. This project is anticipated to begin on 7/1/19 and end 12/31/2020 (18 months).
 - d. This project will be implemented by Baldwin County.
- b) Completion of this project will provide restoration, protection, and conservation of the health, diversity, utility, and resilience of coastal habitats by establishing a stable sand beach shoreline. It will also improve public safety and mitigate the wave energy contribution to beach erosion and habitat loss along Perdido Bay. The proposed improvements will create 500 feet of stabilized sand beach shoreline, serving to enhance the resilience of the estuarine and marine habitat.

Eligibility and Statutory Requirements

This activity is located in the Gulf Coast Region and is eligible for Spill Impact Component funding under Category #1 – Restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches and coastal wetlands of the Gulf Coast region (primary). Secondary activities include Category #3 - Implementation of a federally approved marine, coastal, or comprehensive conservation management plan, including fisheries monitoring.

Comprehensive Plan Goals and Objectives

This project is consistent with the following Comprehensive Plan goals:

- Goal 1: Restore and Conserve Habitat – Restore and conserve the health, diversity, and resilience of key coastal, estuarine, and marine habitats;
- Goal 4: Enhance Community Resilience – Build upon and sustain communities with capacity to adapt to short- and long-term changes; and
- Goal 5: Restore and Revitalize the Gulf Economy – Enhance the sustainability and resiliency of the Gulf economy.

This project supports the following Comprehensive Plan objectives:

- Objective 1: Restore, Enhance, and Protect Habitats - Restore, enhance, and protect the extent, functionality, resiliency, and sustainability of coastal, freshwater, estuarine, wildlife, and marine habitats;
- Objective 3: Protect and Restore Living Coastal and Marine Resources – Restore and protect healthy, diverse, and sustainable living coastal and marine resources including finfish, shellfish, birds, mammals, reptiles, coral, and deep benthic communities;
- Objective 4: Restore and Enhance Natural Processes and Shorelines – Restore and enhance ecosystem resilience, sustainability, and natural defenses through the restoration of natural coastal, estuarine, and riverine processes, and/or the restoration of natural shorelines;

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- Objective 5: Promote Community Resilience – Build and sustain Gulf Coast communities’ capacity to adapt to short- and long-term natural and man-made hazards, particularly increased flood risks associated with sea-level rise and environmental stressors. Promote ecosystem restoration that enhances community resilience through the re-establishment of non-structural, natural buffers against storms and flooding; and
- Objective 6: Promote Natural Resource Stewardship and Environmental Education – Promote and enhance natural resource stewardship efforts that include formal and informal educational opportunities, professional development and training, communication, and actions for all ages.

Major Milestones

- Milestone 1: Complete Coastal Process Study
- Milestone 2: Complete engineering & design
- Milestone 3: Environmental permitting
- Milestone 4: Complete construction

Success Criteria/Metrics/Outcomes

The anticipated outcome of the Lillian Park Beach Habitat and Shoreline Protection Project will be:

- Restoration of the shoreline at Lillian Park Beach

Table 12. Proposed Projects Success Criteria/Metrics/Outcomes

Activity	Anticipated Project Success Criteria/Metrics	Short-term outcome	Long-term outcome
Restore and protect shoreline at Lillian Park Beach	Completed coastal shoreline study Completed plans for engineering and design Completed construction of 500 linear feet shoreline protection	Restoration of a sand beach shoreline	Improved coastal resiliency
	Develop monitoring plan to assess water quality improvements		

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Monitoring and Evaluation

- a) Submission of the completed Coastal Process Study to ADCNR for review
- b) Submission of final E&D to ADCNR for review and approval
- c) Provide evidence to ADCNR that all required permits were obtained
- d) Submit results of bid process to ADCNR prior to awarding contracts
- e) ADCNR will conduct periodic onsite reviews
- f) Submission of quarterly and final reports
- g) Post construction monitoring as required

Best Available Science

This project will start with a Coastal Processes Study, followed by engineering designs based upon results from the Coastal Processes Study. Beyond professional engineering practices & standards, this approach has been documented in scientific studies, recommended procedures, and policy guidance which specifically address local bay area conditions.

Sources indicate that hybrid designs for shoreline habitat restoration and protection are applicable to environs such as the Lillian project location. These are particularly applicable to projects with multiple human use considerations. Headwall breakwaters have been successfully employed in the Perdido and Mobile Bay watersheds. Proper design must come from an initial coastal processes study which defines the wave periods, directions, and shore transport processes.

This project is consistent with the values and recommendations set forth in the MBNEP's Comprehensive Conservation and Management Plan 2013-2018, available on the MBNEP [website](#).

For the Coastal Processes Study:

"Coastal Processes of Dauphin Island, Alabama," Scott L. Douglass, PhD., P.E. College of Engineering Report, No. 92-1, 1992. The report is available on the USACE [website](#).

"Summary of Existing Coastal Engineering Data for Dauphin Island, Alabama", Scott L. Douglass, PhD., P.E. College of Engineering Report No. 91-1, 1991. The report is available on the USACE [website](#).

"Guidelines and Specifications for Flood Hazard Mapping Partners [November 2004], D.4.2

Study Methodology. The guidelines and specifications are available on the FEMA [website](#).

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For the design concept:

[“The Functional Design of Breakwaters for Wetlands,”](#) Caren R. Dixon, Dept. of Civil Engineering, university of South Alabama, Mobile, AL, 2010.

[“Living Shorelines in the Gulf of Mexico,”](#) Scott L. Douglas, University of South Alabama Civil Engineering Department, 2013.

[“The Tide Doesn't Go Out Anymore - The Effect of Bulkheads on Urban Bay Shorelines,”](#) Scott L. Douglass, PhD, P.E., and Bradley H. Pickel, Civil Engineering and Marine Sciences Departments, University of South Alabama, 1999.

[“Mitigating Shore Erosion Along Sheltered Coasts” \(2007\), Chapter 3: “Methods for Addressing Erosion,”](#)

[“Coastal Alabama Living Shorelines Policies, Rules, and Model Ordinance Manual,”](#) Chris A. Boyd, Ph.D., Mississippi State university, Coastal Research and Extension Center, 2012.

Additional BAS review may be required at the grant application stage.

Budget/Funding

- a) Estimated cost of the project and amount to be requested from Spill Impact Component Funds: \$645,254 (35-40% - Planning, 55-60% - Implementation). While it is noted that funding available under a grant award cannot exceed the amount described in the SEP for this project, the percentages listed in this section are estimated and will be more clearly cultivated in the grant application.
- b) No other funding sources are anticipated at this time

Partnerships/Collaboration (if applicable)

Not applicable at this time

Leveraged Resources (if applicable)

Not applicable at this time

Funds Used As Non-Federal Match (if applicable)

Not applicable at this time

Other

Not applicable at this time

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Figure 11. The Lillian Park Beach Habitat and Shoreline Protection project will be implemented in Lillian, Alabama in Baldwin County.