

Attachment 2

Background

The Lower Perdido Islands Restoration – Phase I (E&D) project (hereafter, the “project”) includes several islands at the intersections of Bayou Saint John, Terry Cove, and Perdido Pass, all in proximity to Orange Beach, Alabama, within the lower Perdido Bay watershed (Figure 1). The total project area encompasses approximately 33 acres and includes: Robinson Island (11 acres), Bird Island (15 acres), and Walker Island (7 acres). The remaining portion of the project area includes open water and a variety of wetland types. Robinson and Walker Islands are owned by the City of Orange Beach. Bird Island is owned by the State of Alabama. Robinson, Walker, and Bird Islands are all managed and maintained by the City of Orange Beach.

In recent decades, the valuable habitats in the Perdido Islands complex have experienced sustained erosion and other ecological injuries resulting from storms, intense boat traffic in nearshore waters, and shoreline and upland recreational use. The Lower Perdido Islands Restoration Phase I (E&D) project aims to develop a long-term conservation management plan with the goal of maximizing the ecological functions of the Perdido Islands complex while balancing human use factors.

The islands contain habitats such as emergent marsh, unconsolidated shorelines, submerged aquatic vegetation (SAV), as well as forested/shrub wetlands and pine uplands. These unique habitats support a wide diversity of wildlife, including shorebirds, wading birds, and waterfowl. The area also provides nursery habitat for coastal finfish and shellfish, such as speckled seatrout, redfish, Atlantic croaker, shrimp, and blue crabs. Coastal, shore, and wading birds use the islands for roosting and foraging, including tricolor herons, reddish egrets, little blue herons, snowy egrets, white ibis, and brown pelicans. Great blue herons, great egrets, clapper rails, willets and woodcock also forage in the marsh. Migratory waterfowl and neotropical migrants also frequent the area seasonally. There have been attempts to restore the roosting, foraging, and nesting habitats on the islands by planting native shrubs and pine trees, as well as by installing man-made roost huts on poles for the birds to utilize, with some success. There are fewer suitable habitats for the birds due to loss of a significant number of pine trees and shrubs on the islands.

Project Summary

The engineering firm will synthesize available data and make recommendations for restoration design alternatives and conservation practices for the long-term conservation of the islands. The analysis will incorporate hydrological modeling and sediment studies (from the City of Orange Beach), cultural resources investigation, recreational use data, and habitat/faunal use surveys of the Perdido Islands complex. The engineering firm will provide a wide range of feasible alternatives that will maximize achievement of most of the project goals, while avoiding or minimizing environmental impacts. The analysis will also provide an evaluation of the comparative merits and pitfalls of the alternatives. This suite of alternatives shall include a “no-action” option along with a discussion of the impacts of the lack of implementation of a project. Engineering designs at a minimum of 30% will be developed for a minimum of three restoration alternatives.

The comprehensive management plan will integrate recommendations for restoration design alternatives and will recommend conservation practices based upon the restoration alternatives analysis. The plan aims to provide a comprehensive, integrated approach for conservation and restoration of the Lower Perdido Islands with input from stakeholders and the public on suitable uses, including both active and passive activities such as birding or utilizing the shorelines.



Figure 1: Lower Perdido Islands Complex

The final version of the conservation management plan will include final recommendations and 30% designs for 3 priority alternatives provided by the engineering firm, as well as a final restoration and public use design report, which incorporates public opinion and stakeholder input and carefully balances human uses with conservation, restoration and long-term sustainability.

Overview

The engineering alternatives analysis will include:

- 1) An evaluation of existing and collected data.
- 2) A preliminary restoration alternatives analysis, including: draft restoration and management alternatives such as shoreline protection and restoration, SAV protection, dune enhancement, public use approaches and/or restrictions, and habitat protection and management strategies.
- 3) Finalized summaries for all alternatives.
- 4) 30% designs for three committee selected alternatives.
- 5) Preliminary cost estimates.

Tasks to be Accomplished

Under this agreement, the engineering firm tasks are as outlined on Table 1.

Table 1. Summary List of Tasks to be Accomplished:

TASKS
Restoration Alternatives Analysis and Design
Complete data review - 2013 Hydrological Modeling and Sediment Study; cultural resources investigation; Wildlife/habitat data; Recreational data; Other
Conduct preliminary restoration analysis and draft alternatives
Finalize summaries for all restoration alternatives
Develop 30% designs for three priority alternatives and preliminary cost estimates for all alternatives

1. Data Review and Evaluation: Data sets will be reviewed and incorporated into the alternatives analysis by the engineering firm. Existing and new data gathered throughout the project will be utilized to inform the alternatives.

Existing data sets include (but are not limited to):

- The Lower Perdido Bay/Perdido Pass Hydrological Modeling Phase I (2013) initial data to model the hydrology in Lower Perdido Bay in the vicinity of the Perdido Pass Navigation Project, adjacent to the Lower Perdido Islands Restoration project
- Habitat types (National Land Cover Data)
- Wildlife use (Audubon, City of Orange Beach)
- Seagrass coverage (DISL, ADCNR)
- Shoreline position (NOAA Shoreline Data)
- Dune/shoreline enhancement information (USACE, City of Orange Beach)
- Terry Cove Water Quality Study
- Wolf Bay WMP

New data sets include (but are not limited to):

- Hydrology and Sediment data: The Lower Perdido Bay/Perdido Pass Hydrological Modeling Phase II and Sediment Study (2020) that will collect additional data to model the hydrology and sediment dynamics in Lower Perdido Bay in the vicinity of the Perdido Pass Navigation Project, adjacent to the Lower Perdido Islands Restoration project. The results of this study will guide future dredging and sediment placement practices in the area such that shoaling and erosion can be addressed through beneficial placement of dredged material. This study has been funded by RESTORE Initial FPL (Bucket 2) and is being coordinated by the City of Orange Beach through ADCNR.
- Marine Debris data: The City of Orange Beach's Marine Debris Program includes the patrol of area waterways daily and the collection of marine debris near the Perdido Islands on a weekly basis from June to September each year. The City of Orange Beach will complete a summary of the outreach efforts and source tracking success measures to local businesses, as possible, as a follow up from marine debris collection. The information compiled during this effort will be used to inform outreach opportunities to the public and local businesses on marine debris issues and will be incorporated into the Conservation Management Plan. This activity will be implemented and managed by the City of Orange Beach.
- Cultural resources investigation: A cultural resources survey of the project area will document cultural resources in the immediate area and determine any conflicts with specific areas or restoration alternatives. The survey will help inform restoration alternative priorities and will be managed through The Nature Conservancy.
- Public surveys of stakeholder input will be collected and used to inform restoration alternatives. This activity will be coordinated by The Nature Conservancy.
- Recreational use monitoring: User/boat counts of current and historic use of the areas will be compiled for high-use holidays. The Nature Conservancy will use aeriels provided by the City of Orange Beach for this activity.

2. Restoration Alternatives Analysis: The engineering firm will develop restoration alternatives for the project area, given existing data, multiple uses, and stakeholder input. The engineering firm will provide a wide range of feasible alternatives while avoiding or minimizing environmental impacts and balancing human use activities. The analysis will also provide an evaluation of the comparative merits and pitfalls of the alternatives. This suite of alternatives shall include a "no-action" option along with a discussion of the impacts of the lack of implementation of a project. Restoration alternatives will account for site specific constraints, such as wind and wave energy, as well as changing climate considerations. The alternatives shall also include social and economic consequences. Engineering designs at a minimum of 30% will be developed for a minimum of three priority restoration alternatives. Environmental impacts to be considered for this project include: soils, benthic, biological resources, coastal flora and fauna, essential fish habitat, cultural resources, aesthetics, and threatened and endangered species. All reasonable alternatives should avoid, minimize, and restore affected natural resources to the extent practicable. The alternatives will be publicly vetted and incorporated into the Conservation Management Plan.

3. Designs and Cost Estimates: The engineering and design activities will commence following completion of the hydrological modeling and sediment study and should include 30% drawings for three priority restoration alternatives with input on which alternatives from TNC, the City of Orange Beach, and NOAA. Preliminary cost estimates should be developed for all alternatives. .

Deliverables

Table 2. Task Deliverables to be Provided:

TASK/ACTIVITY		DELIVERABLE(S)	DELIVERABLE FORMAT
Engineering and Design	1. Preliminary restoration analysis and draft alternatives	Summaries of the Preliminary Restoration Analysis and Draft Alternatives Document	.PDF
	2. Restoration alternatives analysis	Finalized Summaries of All Potential Restoration Alternatives with Descriptions	.PDF and Shapefile
	3. Preferred designs and cost estimates	List of Preferred Alternatives and Estimated Costs, 30% Designs for 3 Preferred Alternatives	.PDF and Shapefile

Project Schedule

Task/Activity		2019			2020				2021		
		Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep
Sediment Study and Natural Resource Inventory			<i>Conducted by ADCNR, City of Orange Beach, Auburn University, and E&D contractor TBD; not included with this project</i>								
Engineering and Design	1. Data Review			X	X	X	X	X	X	X	
	2. Restoration alternatives analysis						X	X	X		
	3. Preferred designs and cost estimates						X	X	X	X	X

Project Management

Project management will be provided by The Nature Conservancy in coordination with The City of Orange Beach.