Sunset Island Seagrass Restoration Project
Comprehensive Description

Overall Description:

The Sunset Island Seagrass Restoration Project is a habitat and water quality improvement project located near the County-owned Galvez Boat Ramp, Perdido Key, Escambia County, Florida. The Sunset Island Seagrass Restoration Project will restore and protect water quality and estuarine habitat, increase recreation and ecotourism opportunities, and provide a future site for placement of dredged sand from maintenance of the Intracoastal Waterway (ICW). This proposed living shoreline project will include an offshore rock/oyster reef breakwater to protect transplanted estuarine emergent marsh and SAV around two existing islands. Water quality will be improved through filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the emergent marsh and SAV. Recreation and ecotourism opportunities will be enhanced for kayaking and paddleboarding from the nearby County owned Galvez Boat Ramp. A snorkeling trail will be established with underwater educational signage describing the functions and values of SAV. Deep holes in the project area will be filled with sand from maintenance dredging of the ICW west of the Theo Baars Bridge to provide a suitable water depth for the transplanting of SAV and emergent marsh vegetation from donor sites. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project.

Budget:

Planning, Design and Permitting: $90,000
Construction: $700,000
Monitoring: $50,000
TOTAL REQUEST: $840,000

Budget Narrative: Planning, design and permitting for this project will be $90,000. Construction of the 1000 feet of offshore rock/oyster reef breakwater, transplanting of emergent marsh and SAV vegetation, and installation of educational signage will be $700,000. Pre- and post-construction monitoring of water quality, habitat utilization, and vegetation will be $50,000.

Timing:

Planning, design and permitting will occur during the summer of 2016. Pre-construction monitoring will occur during the summer of 2016. Project construction will occur during the winter of 2016 and be completed by the spring of 2017. Post-construction monitoring will occur during the summer of 2017.

Public Interest:

The Sunset Island Seagrass Restoration Project will benefit the public and will involve public support. As with the very successful Project Greenshores along the north shore of Pensacola Bay and Bayfront Parkway, there will be many civic groups, school groups, church groups, and scout groups who will want to participate in planting the SAV and marsh vegetation and enhancing the reef with oyster shells. The public will benefit from water quality improvement through filtration by oysters and uptake of pollutants by vegetation. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the emergent marsh and SAV. Public fishing and crabbing opportunities will be enhanced. A protected and calm swimming and kayaking area for residents and tourists will be provided by the offshore reef structure. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project.

Monitoring:

Pre- and post-construction monitoring of water quality, habitat utilization, and vegetation will provide the metrics for success measurements. Water quality parameters that will be measured include dissolved oxygen, total nitrogen, total phosphorus, fecal coliform bacteria, total suspended solids, turbidity, and clarity. Habitat utilization will be measured by surveying and quantifying birds, fish, shrimp, oysters, and crabs. Vegetation monitoring will include plant species composition, plant density, and plant percent survival. Post-construction data will be compared to pre-construction data to determine project success, water quality improvement, and fishery habitat improvement. Human usage of the recreational site and snorkeling trail will also be monitored.

Habitat Restoration and Conservation:

The Sunset Island Seagrass Restoration Project will improve water quality, improve estuarine emergent marsh and SAV habitat, reduce shoreline erosion, and improve resiliency to sea level rise. This proposed living shoreline project will include an offshore rock/oyster reef breakwater to protect estuarine emergent marsh and SAV habitat. Water quality will be improved through filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the emergent marsh and SAV. Increased biodiversity will be achieved by colonization of the offshore reef by encrusting organisms, polyps, and anemones. Vegetation species diversity will be increased by the transplanting of emergent marsh vegetation and SAV. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project. Native emergent marsh and SAV vegetation density will be increased, flora and fauna species biodiversity will be increased with the oyster reef breakwater and emergent marsh and SAV, and critical habitat for threatened and endangered fish and bird species will be increased by this living shoreline project.

The Sunset Island Seagrass Restoration Project will improve water quality, improve estuarine emergent marsh and SAV habitat, reduce shoreline erosion, and improve resiliency to sea level rise. This proposed living shoreline project will include an offshore rock/oyster reef breakwater to protect estuarine emergent marsh and SAV habitat. Water quality will be improved through filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the emergent marsh and SAV. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project. Native emergent marsh and SAV vegetation density will be increased. Flora and fauna species biodiversity will be increased with the oyster reef breakwater and emergent marsh and SAV habitat. Critical habitat for threatened and endangered fish and bird species will be increased by this living shoreline project. The ecological function of this area of Perdido Bay will be improved because of the species diversity and colonization of the offshore reef, emergent marsh and SAV habitat.

Water Quality:

The Sunset Island Seagrass Restoration Project will improve water quality, improve estuarine emergent marsh and SAV habitat, reduce shoreline erosion, and improve resiliency to sea level rise. This proposed living shoreline project will include an offshore rock/oyster reef breakwater to protect estuarine emergent marsh and SAV. Water quality will be improved through filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Each oyster can filter up to 50 gallons of water per day. Emergent marsh vegetation and SAV removes nutrients and other pollutants from the water column. Water clarity is improved and turbidity decreases with the wave attenuation due to the addition of emergent marsh, SAV, and the reef. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the emergent marsh. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project. Native emergent marsh and SAV vegetation density will be increased. Flora and fauna species biodiversity will be increased with the oyster reef breakwater and emergent marsh and SAV. Critical habitat for threatened and endangered fish and bird species will be increased by this living shoreline project.

Natural Systems Resiliency:

The Sunset Island Seagrass Restoration Project will improve water quality, improve estuarine emergent marsh and SAV habitat, reduce shoreline erosion, and improve resiliency to sea level rise. This proposed living shoreline project will include an offshore rock/oyster reef breakwater to protect estuarine emergent marsh and SAV. Water quality will be improved through filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the vegetation. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project. Native emergent marsh and SAV vegetation density will be increased. Flora and fauna species biodiversity will be increased with the oyster reef breakwater and vegetation. Critical habitat for threatened and endangered fish and bird species will be increased by this living shoreline project. Natural systems resiliency will be increased because of the ability of the offshore reef structure, emergent marsh and SAV to attenuate wave energy and reduce shoreline erosion.

Tourism and Tourism Opportunities:

The Sunset Island Seagrass Restoration Project will improve water quality, improve estuarine emergent marsh and SAV habitat, reduce shoreline erosion, and improve resiliency to sea level rise. This proposed living shoreline project will include an offshore rock/oyster reef breakwater to protect estuarine emergent marsh and SAV. Recreation and ecotourism opportunities will be increased for residents and tourists who can utilize the nearby County-owned Galvez Boat Ramp. The offshore breakwater will provide a protected and calm swimming and kayaking area for residents and tourists. Fishing and crabbing opportunities will be enhanced for the residents and tourists. Water quality will be improved through filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the emergent marsh and SAV. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project. Native emergent marsh and SAV vegetation density will be increased. Flora and fauna species biodiversity will be increased with the oyster reef breakwater and vegetation. Critical habitat for threatened and endangered fish and bird species will be increased by this living shoreline project.

Recreational Fishing and Local Seafood

The Sunset Island Seagrass Restoration Project will improve water quality, improve estuarine emergent marsh and SAV habitat, reduce shoreline erosion, and improve resiliency to sea level rise. This proposed living shoreline project will include an offshore rock/oyster reef breakwater to protect an estuarine emergent marsh and SAV. Recreation and ecotourism opportunities will be increased for residents and tourists who can utilize the nearby County-owned Galvez Boat Ramp. Water quality will be improved through filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the vegetation. Recreational fishing opportunities and local seafood will be enhanced by the newly created offshore reef and emergent marsh and SAV fishery habitat. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project. Native emergent marsh and SAV vegetation density will be increased. Flora and fauna species biodiversity will be increased with the oyster reef breakwater and vegetation. Critical habitat for threatened and endangered fish and bird species will be increased by this living shoreline project.

Job Creation:

The Sunset Island Seagrass Restoration Project will provide temporary full time jobs during design, permitting, construction, and monitoring. A recent study conducted by the National Oceanic and Atmospheric Administration (NOAA) Habitat

Restoration Center found coastal restoration projects can be expected to create 17-33 jobs per million dollars spent. The proposed project includes $840,000 in direct expenditures for design, permitting, construction, and monitoring. Based on NOAA's findings, the proposed project can be expected to create up to 30 jobs tied to restoration activities. Most of these jobs are higher wage jobs for engineers, design professionals, and marine biologists.

Industry and Business Growth:

Living shorelines (offshore reef and emergent marsh) are becoming a more popular and environmentally friendly shoreline protection method as opposed to seawalls and rock revetments that have no vegetation or "living" component. Since over 50 living shoreline projects have been constructed in the area, this is becoming a new niche industry with local specialized job opportunities. Living shoreline projects can cost less than $50,000 for a private homeowner and increase up to $10,000,000 or more for larger projects that are several miles long.

Workforce Development:

Living shorelines (offshore reef and emergent marsh) are becoming a more popular and environmentally friendly shoreline protection method as opposed to seawalls and rock revetments that have no vegetation or "living" component. Since over 50 living shoreline projects have been constructed in the area, this is becoming a new niche industry with local specialized job opportunities. This project will provide job training and career development for the new living shoreline industry, and it will increase the skilled workforce pool with training opportunities in STEM field.

Transportation Network Improvements:

The Sunset Island Seagrass Restoration Project will add a new feature to the State of Florida Circumnavigational Saltwater Paddling Trail that passes by this project site between Perdido Bay and Pensacola Bay. The paddling trail is a 1,515-mile sea kayaking paradise. The trail includes every Florida coastal habitat type, from barrier island dune systems to salt marsh to mangroves. Numerous historical sites and points of interest are accessible by kayak along with colorful fishing communities and urban centers. Sunset Island, with a new offshore reef breakwater, will provide a protected resting site and camping area for transient paddlers. The new snorkeling trail will also provide a recreational and educational opportunity for paddlers.

Flooding Improvements:

The Sunset Island Seagrass Restoration Project will improve water quality, improve estuarine emergent marsh and SAV habitat, reduce shoreline erosion, and improve resiliency to sea level rise. This proposed living shoreline project will include an offshore rock/oyster reef breakwater to protect transplanted estuarine emergent marsh and SAV. Water quality will be improved through filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the vegetation. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project. This project provides a structural improvement (breakwater and vegetation) that will reduce flooding and reduce overall disaster costs.

Community Resiliency:

The Sunset Island Seagrass Restoration Project will improve water quality, improve estuarine emergent marsh and SAV habitat, reduce shoreline erosion, and improve resiliency to sea level rise. This proposed living shoreline project will include an offshore rock/oyster reef breakwater to protect transplanted estuarine emergent marsh and SAV. Water quality will be improved through filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the vegetation. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project. Native emergent marsh and SAV vegetation density will be increased. Flora and fauna species biodiversity will be increased with the oyster reef breakwater and emergent marsh and SAV. Increased species biodiversity is a positive measure of the improved stability and resiliency of an ecosystem.

Benefits Traditionally Underserved Persons or Areas:

Efforts will be made to encourage participation in the planting of vegetation from disadvantaged and traditionally underserved populations. Opportunities to participate in the planting of marsh vegetation and SAV will be advertised at community centers and Boys and Girls Clubs in underserved neighborhoods.

Community Health:

The Sunset Island Seagrass Restoration Project will improve the physical and mental health of the community through participation and improved quality of life. The BP Oil Spill had a very negative effect on the psyche of the boating, fishing, and outdoor recreation enthusiasts. Many felt that their way of life would change for the worse and that their recreational opportunities would be diminished forever. Living shoreline projects such as this one help to restore people's faith that they can make a positive contribution to the health of the environment, and they can be proactive in restoring the ecology of an estuary, even after an environmental disaster. The Sunset Island Seagrass Restoration Project will provide a new recreational and educational opportunity for boaters, fishermen, and outdoor enthusiasts who were emotionally depressed about the BP Oil Spill.

Neighborhood Benefits:

The Sunset Island Seagrass Restoration Project will provide a significant aesthetic improvement to the Perdido Key and Perdido Bay area. Because Perdido Bay is shared by Alabama and Florida with the state line running down the middle of the bay, it is often neglected when environmental restoration projects are discussed and designed. This proposed project will help with the perception that Perdido Bay has been ignored over the years and has not received the restoration funding that Pensacola Bay has received.

Education and Awareness:

There are many educational outreach opportunities provided by the Sunset Island Seagrass Restoration Project. To increase awareness and education about the benefits of living shorelines, participation in the planting of emergent marsh vegetation and SAV will be encouraged for civic groups and school groups. After completion of the project, there will be numerous opportunities for school groups to tour the project site and assist in the monitoring of birds and aquatic organisms.

Environmental Outreach:

The Sunset Island Seagrass Restoration Project will improve water quality, improve estuarine emergent marsh and SAV habitat, reduce shoreline erosion, and improve resiliency to sea level rise. Environmental outreach opportunities will include water quality benefits due to filtration by oysters and uptake of pollutants by emergent marsh vegetation and SAV. Critical habitat for commercially and recreationally important seafood species will be provided by the offshore oyster reef structure and the emergent marsh and SAV. Wave attenuation, reduced shoreline erosion, and resiliency to sea level rise will be provided by this living shoreline project. Native emergent marsh and SAV vegetation density will be increased. Flora and fauna species biodiversity will be increased with the oyster reef breakwater and emergent marsh and SAV. Critical habitat for threatened and endangered fish and bird species will be increased by this living shoreline project. Citizens will be engaged in the active process of transplanting emergent marsh vegetation and SAV and monitoring usage by birds and aquatic organisms. Educational signage at the nearby County-owned Galvez Boat Ramp will provide information about the ecosystem services and attributes of SAV, emergent marsh, and the living shoreline project.

Cultural and Historic Resources:

Perdido Bay is known as the "Lost Bay". Historical signage will be incorporated into this restoration project to tell the story of local Indian cultures and civilization. In 1693 noted cartographer and scientist Carlos de Sigüenza y Góngora was sent by the Spanish government to locate the entrance to Perdido Bay. Even after he located the mouth of the bay, he was unable to find a waterway deep enough to sail through. According to legend, Siquenza's ship had been blown off course as he was again searching for the pass into the deep inland waters. The ship was spotted by an Indian chief camped with his tribe at Bear Point. As the chief was walking next to the water, he spotted Carlos de Sigüenza y Góngora attempting to reef his sails. He offered to guide Siquenza and his men to a connecting deep water channel from the Gulf of Mexico into the more tranquil bay. When the search party finally located the elusive bay, they called it Perdido, which in Spanish means "lost" or "hidden". Historical signage will be installed at the nearby County-owned Galvez Boat Ramp.

Consistency with Local Plans:

The Perdido Bay Ecosystem Management Plan was developed by the Florida Department of Environmental Protection and local stakeholders in 1999. The Perdido Bay SWIM Plan was developed by the Northwest Florida Water management District in 2004. Strategies and action plans were developed to improve water quality, habitat, and fisheries in Perdido Bay. The Sunset Island Seagrass Restoration Project is consistent with the action items specified in these management plans, and this proposed project addresses the major ecological concerns of the bay.

Green Design:

Living shoreline projects are an example of a green design that is a more environmentally friendly alternative than seawalls and rock revetments. The offshore oyster reef, emergent marsh, and SAV improve water quality and provide fishery habitat that would not be provided by a seawall. Recycled concrete from old runways at NAS Pensacola and Bronson Field is available and will be used for the base of the offshore reef breakwater. Similar recycled concrete was used in the construction of Project Greenshores in Pensacola Bay. Removing sections of old runways also reduces impervious surfaces and reduces stormwater runoff into Perdido Bay and Pensacola Bay.

Leverages funds:

The Sunset Island Seagrass Restoration Project will utilize volunteers from civic groups and schools to assist with the transplanting of emergent marsh vegetation and SAV. Additional grant funding will be sought from the U.S. Fish & Wildlife Service Coastal Program, the USEPA Gulf of Mexico Program, and RESTORE. All of these programs have provided funds for similar living shoreline restoration projects in the past.

Sustainability and Efficiency:

The Sunset Island Seagrass Restoration Project is a sustainable project that will build upon existing community assets, minimize negative environmental impacts, and has long-term benefits beyond the life of the funding period. Living shoreline projects are community assets. They improve water quality, provide fishery habitat, reduce shoreline erosion, and improve the quality of life

and recreational opportunities for residents and tourists. Living shoreline projects improve the environment. While the project funding period is only a couple of years, the Sunset Island Seagrass Restoration Project will continue to provide long-term ecological benefits for 30 years or more. Project Greenshores in Pensacola Bay is 15 years old and continues to mature and provide ecological services and benefits year after year.

Planning and Partnerships:

The Sunset Island Seagrass Restoration Project includes beneficial partnerships with the Naval Air Station, local schools, and civic groups. NAS Pensacola is a vital economic asset for Escambia County. Partnering with NAS to recycle concrete from old runways and using the recycled material on environmental restoration projects such as this living shoreline project strengthens this beneficial relationship. Local civic groups and students from local schools will participate in the transplanting of emergent marsh vegetation and SAV. This activity strengthens community support and awareness for the project and instills a sense of ownership in all who participate.

Enhanced Tourism Opportunities

The Sunset Island Seagrass Restoration Project will enhance tourism during the fall and winter off season. Many snowbirds spend their winter months in Escambia County, and many are retired military. The nearby Bronson Field Recreational Area in Perdido Bay, Big Lagoon State Park, and NAS Pensacola are visited year round. Many of these visitors enjoy kayaking and fishing, and the Sunset Island Seagrass Restoration Project will provide a destination for these off season activities. This offshore reef breakwater and SAV restoration project will provide a protected and calm area for kayaking and fishing during the off season and enhance the ecotourism experience for visitors to our area of Florida.

Required Permits:

Permits will be required from the US Army Corps of Engineers and the Florida Department of Environmental Protection. Similar projects, such as Project Greenshores in Pensacola Bay, have been permitted by these agencies with no major issues or concerns.


Perdido Bay / Sunset Islands Seagrass Restoration Project
Location Map
Escambia
Seagrass Restoration Areas
Segmented Breakwater
0
0.5
1
Mile