

Chapter 12: Proposed Seagrass Recovery Project at Gulf Islands National Seashore, Florida District

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12.1 Seagrass Recovery Project at Gulf Islands National Seashore, Florida District: Project Description

12.1.1 Project Summary

The proposed Seagrass Recovery Project at Gulf Islands National Seashore's Florida District (hereafter, GUIIS) would address damage to shallow seagrass beds on DOI-managed lands in the five Gulf States by restoring injury to turtle grass (*Thalassia testudinum*) in seagrass beds located on the south side of the Naval Live Oaks Preserve in Santa Rosa Sound, in Santa Rosa County.

12.1.2 Background and Project Description

The Trustees propose to implement this project to address damage to shallow seagrass beds on DOI-managed lands in the five Gulf States by restoring injured turtle grass habitats through seagrass transplant and sediment conditioning in GUIIS. Turtle grass is a commonly-found species of submerged aquatic vegetation (SAV) along the Florida panhandle that is particularly slow to rejuvenate naturally when injured. Turtle grass beds can take many years to rejuvenate, or in severely scarred areas may never completely recover. At GUIIS, seagrass beds are injured through propeller scars, blow holes, and via repeated human foot traffic which damages root systems. Propeller scars are made when boat propellers cut up roots, stems, and leaves of seagrasses, producing long, narrow furrows devoid of vegetation.

The project would be located in Santa Rosa Sound in Santa Rosa County, on the south side of the Naval Live Oaks unit of GUIIS (see Figure 12-1 for project location). This area contains important turtle grass habitat that, if not restored, would continue to degrade and impact more of the healthy habitat surrounding the injured areas.

The objective of the proposed Seagrass Recovery Project at GUIIS is to promote full recovery of approximately 0.02 acres of seagrass injured from propeller scars, blow holes, and/or trampling from foot traffic when fishers and other recreationalists wade into the shallow seagrass beds. An initial assessment survey would be conducted in the Naval Live Oaks unit of GUIIS to identify priority restoration sites. The proposed restoration work includes: 1) harvesting seagrass (specifically shoal grass [*Halodule wrightii*], a more hardy, faster growing pioneer species of seagrass, which helps establish proper site conditions for the eventual colonization of healthy turtle grass) from nearby donor sites and transplant them into the injured areas, 2) installing bird stakes to condition the sediments to promote survival and growth of transplants and seagrass from adjacent, uninjured areas into the injured areas, and 3) monitoring sites to measure and report on the success of the restoration work. There would also be an education component which would include signage to alert visitors to the restoration project and the danger their actions pose to seagrass beds.

Figure 12-1. Location of proposed Seagrass Recovery Project at Gulf Islands National Seashore



12.1.3 Evaluation Criteria

This proposed project satisfies the evaluation criteria for OPA and the Framework Agreement. As a result of the *Deepwater Horizon* oil spill and associated response activities, submerged aquatic vegetation on DOI-managed lands in the 5 Gulf States, including the Florida Panhandle, suffered adverse physical impacts. The project seeks to restore submerged aquatic vegetation like that injured by the Spill on DOI-managed lands in the five Gulf States through the restoration of turtle grass habitats in GUIs. The ecological benefits that would be gained by this restoration project are anticipated to help compensate the public for Spill-related injuries and losses to submerged aquatic vegetation on DOI-managed lands in the five Gulf States. Thus, nexus to resources injured by the Spill is clear (see 15 C.F.R. § 990.54(a)(2); and Sections 6a-6c of the Framework Agreement).

The project is technically feasible and utilizes proven techniques with established methods and documented results. GUIs and agencies of the state of Florida have successfully completed projects of similar scope throughout Florida over many years. For these reasons, the project has a high likelihood of success. See 15 C.F.R. § 990.54(a)(3); and Section 6e of the Framework Agreement. Furthermore, the

cost estimates are based on similar past projects; therefore the project can be conducted at a reasonable cost. See 15 C.F.R. § 990.54(a)(1) and Section 6e of the Framework Agreement.

A thorough environmental assessment, including review under applicable environmental laws and regulations, indicates that adverse impacts from the project would largely be minor, localized, and of short duration. In addition, best management practices and measures to avoid or minimize adverse impacts would be implemented. As a result, collateral injury would be avoided or minimized during project implementation. See 15 C.F.R. § 990.54(a)(4). This project is consistent with GUI's management objectives. Therefore, this project is consistent with the long-term restoration needs of the National Park Service (See Section 6d of the Framework Agreement).

12.1.4 Performance Criteria and Monitoring

As part of the project cost, monitoring would be conducted to evaluate the success of the restoration project. The monitoring plan has been designed around the project objective, which is to restore seagrass.

The complete monitoring plan for this project is located in Appendix B.

12.1.5 Maintenance

This project has no long term maintenance requirements.

12.1.6 Offsets

For the purposes of negotiations of Offsets with BP in accordance with the Framework Agreement, the Trustees used Habitat Equivalency Analysis to estimate appropriate Offsets for the Seagrass Recovery Project. Habitat Offsets (expressed in Discounted Service Acre Years [DSAYs]) were estimated for seagrass/submerged aquatic vegetation habitat. Habitat enhanced by this restoration would be based on the expected spatial extent, duration and degree of improvements attributable to the project. In estimating DSAYs, the Trustees considered a number of factors, including but not limited to benefits of restoring seagrass habitat, the time period that it would take for restored habitat to provide different levels of ecological benefits, and estimated project life. The Trustees and BP agreed that if this restoration is selected for implementation, BP would receive Offsets of 1.5 DSAYs of submerged aquatic vegetation habitat. This would be applicable to injuries to submerged aquatic vegetation habitat on lands managed by DOI in the five Gulf States, as determined by the Trustees' total assessment of injury for the Spill.

In the event that the injury determination for submerged aquatic vegetation habitat is quantified in the Natural Resource Damage Assessment using a metric other than DSAYs, the Trustees agree to translate the agreed upon NRD Offsets into a currency consistent with the metric used to characterize the injury to submerged aquatic vegetation habitat. Any necessary translation of the Offsets would rely on the data and methods developed for the assessment and authorized in 15 C.F.R. §§ 990, *et seq.*

12.1.7 Estimated Cost

The total estimated cost to implement this project is \$136,700. This cost reflects current cost estimates developed from the most current information available to the Trustees at the time of the project negotiation. The cost includes provisions for planning, engineering and design, implementation, and monitoring.

12.2 Seagrass Recovery Project at Gulf Islands National Seashore: Environmental Assessment

The proposed habitat restoration project involves the restoration of seagrass beds on DOI-managed lands through the transplanting of healthy seagrasses in damaged seagrass bed areas in the Naval Live Oaks Unit of GUIIS. Seagrass beds are important wildlife habitat and food sources which also help reduce wave currents, stabilize sediments, and reduce coastal erosion. The most common species at GUIIS, turtle grass, is particularly slow to recover from physical damage, and can take many years to rejuvenate from propeller damage naturally, and in severely scarred areas may never completely recover.

12.2.1 Introduction and Background, Purpose and Need

12.2.1.1 Introduction

CEQ encourages federal agencies to “tier” their NEPA analyses from other applicable NEPA documents to create efficiency and reduce redundancy, and has issued new guidance on the use of programmatic NEPA documents for tiering (79 FR 76986, December 23, 2014).

Tiering has the advantage of not repeating information that has already been considered at the programmatic level so as to focus and expedite the preparation of the tiered NEPA review(s). When a programmatic Environmental Assessment or Environmental Impact Statement (PEA or PEIS) has been prepared and an action is anticipated in, consistent with, and sufficiently explored within the programmatic NEPA review, the agency need only summarize the issues discussed in the broader statement, incorporate discussion from the broader statement by reference, and concentrate on the issues specific to the subsequent tiered proposal (CEQ 2014).

A federal agency may prepare a PEIS to evaluate broad actions (40 C.F.R. §1502.4(b); see Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 Fed. Reg. 18026 (1981)). When a federal agency prepares a PEIS, the agency may “tier” subsequent narrower environmental analyses on site-specific plans or projects from the PEIS (40 C.F.R. § 1502.4(b); 40 C.F.R. §1508.28). Federal agencies are encouraged to tier subsequent narrower analyses from a PEIS to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review (40 C.F.R. § 1502.20). The 2014 Final Programmatic and Phase III Early Restoration Plan and Programmatic Environmental Impact Statement (Final Phase III ERP/PEIS) was prepared for use in tiering subsequent early restoration plans and projects, such as Phase IV.

This project is proposed as part of Phase IV of the Early Restoration program. This EA tiers from the programmatic portions of the Final Phase III ERP/PEIS. This EA qualifies for tiering from the Final Phase III ERP/PEIS in accordance with Department of the Interior regulations (43 CFR 46.140, Using tiered documents) under “b” and “c”. (Section 1.3, Relationship of Phase IV ERP/EA to the Final Phase III ERP/PEIS).

This project is consistent with the Final Phase III ERP/PEIS Preferred Alternative as described in the 2014 Record of Decision (79 FR 64831-64832 (October 31, 2014) and the Trustees find that the conditions

and environmental effects described in the broader NEPA document (with updates as described in Chapter 2) are valid. Specifically, this project tiers from the analyses found in the Development and Evaluation of Alternatives section (5.3.3.4) and the Environmental Consequences section (6.3.4, Project Type 4: Restore and Protect Submerged Aquatic Vegetation) of the Final Phase III ERP/PEIS. This EA incorporates by reference the analysis found in the PEIS in those sections. This EA also incorporates by reference all Early Restoration introductory, process, background, and Affected Environment information and discussion provided in the PEIS (Chapters 1 through 6).

12.2.1.2 Background

GUIS was established by the U.S. Congress on January 8, 1971. Part of the national park system, the National Seashore encompasses barrier islands and coastal mainland in Mississippi and Florida and consists of 12 separate units stretching along 160 miles from Cat Island in Mississippi to the eastern end of Santa Rosa Island in Florida.

The Naval Live Oaks unit of the Florida District, where the Seagrass Recovery Project would occur, lies on the peninsula north of Santa Rosa Island. That peninsula separates Santa Rosa Sound from the Pensacola, Escambia, and East Bays of Escambia and Santa Rosa Counties. The Naval Live Oaks area was originally purchased by the U.S. government for use in experimenting with the cultivation of live oaks. When GUIS was established, the Naval Live Oaks area came under the management of the National Seashore. The area is largely a closed canopy live oak forest with little development. However, the area does include 7.5 miles of trails, a covered picnic pavilion, a Visitor Center, and park headquarters. Visitors access the narrow beach facing Santa Rosa Sound from the parking lot at the Visitor Center. The area of Santa Rosa Sound adjacent to the Naval Live Oaks area is a low-wave energy, estuarine environment with abundant seagrass. Visitors often wade in the sound and their foot traffic, as well as traffic from boats, impacts the growth of the area's seagrass beds. The seagrass communities of the Naval Live Oaks area are dominated by turtle grass, which is the target restoration species for the project. Seagrass communities are essential breeding, rearing, and feeding grounds for many important recreational and commercial fisheries as well as wildlife, including the endangered West Indian manatee (*Trichechus manatus latirostris*) as well as various species of sea turtles.

The proposed project would address damage to shallow seagrass beds on DOI-managed lands in the five Gulf States by restoring turtle grass habitats in GUIS that have been injured by propeller scars, blow holes, or foot traffic. Scars are made when boat propellers cut up roots, stems, and leaves of seagrasses, producing long, narrow furrows devoid of vegetation. Turtle grass is a commonly found species of seagrass along the Florida panhandle that is particularly slow to rejuvenate naturally. Turtle grass with propeller damage can take many years to rejuvenate naturally when injured, and in severely scarred areas may never completely recover. The proposed project area contains important turtle grass habitat that, if not restored, would continue to erode and potentially impact surrounding healthy SAV habitat. Restoring damage to SAV habitat would enhance vital coastal ecosystems and the commercial and recreational industries dependent on them.

12.2.1.3 Purpose and Need

The purpose and need for this action falls within the scope of the purpose and need for early restoration as described in the programmatic portions of the Final Phase III ERP/PEIS because it would accelerate meaningful restoration of injured natural resources and their services resulting from the Spill. The purpose of this project is to address damage to shallow seagrass beds on DOI-managed lands in the five Gulf States by restoring turtle grass habitats in GUIs. The goal of this project is to compensate the public for seagrass habitat on DOI-managed lands in the five Gulf States that was injured as a result of the *Deepwater Horizon* oil spill and associated response activities. The restoration project would restore approximately 0.02 acres of injured seagrass habitat in the Naval Live Oaks unit of GUIs.

12.2.2 Scope of Environmental Assessment

This project is proposed as part of Phase IV of the Early Restoration plan. This EA tiers from the Final Phase III ERP/PEIS. The broader environmental analyses of actions to restore habitats, living coastal and marine resources, including seagrass restoration, are discussed in the Final Phase III ERP/PEIS from which this EA is tiered. The information and analyses in this document supplements the programmatic analyses with site-specific information. This EA provides NEPA analysis for potential impacts for site specific issues and concerns anticipated from implementation of the proposed action and the no action alternative.

12.2.2.1 Project Alternatives

Over the four years since the Spill occurred, each of the five Gulf States, DOI, and NOAA have used various means to solicit restoration ideas and proposed projects from the public. Hundreds of restoration proposals have been submitted, summarized, and made available both to the Trustees and to the public as a whole through various Trustee websites (see Section 2.1 of the Final Phase III ERP/PEIS). These project proposals have informed and helped shape the Trustees' approach to early restoration projects.

The Early Restoration project selection process, which is consistent with the Framework Agreement, constrains the range of project alternatives that can be considered formally in Early Restoration. In particular, under the Framework Agreement, the Trustees negotiate with BP concerning the amount of funding that BP would provide for a specific proposed project and the NRD Offsets that BP would receive, to reduce its liability for NRD, in return for funding that project. Given the complexity of such negotiations, it would be impractical to negotiate funding and Offsets for multiple alternatives to each proposed project. Therefore, this Phase IV DERP/EA proposes the Seagrass Recovery Project at GUIs essentially in the form negotiated with BP. The Trustees did not negotiate funding and Offsets with BP for alternatives to this proposed project.

Both OPA and NEPA require consideration of the No Action alternative. Thus for this section, there are two alternatives: 1) No Action; and 2) the Proposed Action of the Seagrass Recovery at GUIs, Florida District.

No Action

The No Action Alternative, inclusion of which is a NEPA requirement, is a viable alternative, and also provides a benchmark, enabling decision-makers to compare the magnitude of environmental effects of the action alternatives (CEQ 1502.14(d)). In this case, the No Action Alternative is to leave the seagrass beds in Naval Live Oaks unit in their current condition. The seagrass beds would likely continue to deteriorate.

Proposed Action (NPS Preferred Alternative)

The Proposed Action is the restoration of seagrass beds in GUIs' Naval Live Oaks unit, as described in sections 12.1.1 and 12.1.2. This is the NPS Preferred Alternative because it addresses the issue of declining seagrass beds discussed in the park's General Management Plan (NPS 2011).

12.2.3 Project Location

The proposed project is located in the coastal bays of the Florida panhandle region in the Gulf of Mexico. The specific area targeted for seagrass restoration is the area immediately south of the shoreline of the Naval Live Oaks unit of GUIs in Santa Rosa Sound, Santa Rosa County. Figure 12-2 depicts the proposed project area.

Figure 12-2. Location of the proposed project area in Gulf Islands National Seashore's Florida District, Santa Rosa Sound



12.2.4 Project Scope

Proposed project implementation would involve four specific tasks: seagrass transplanting, installation of bird stakes, education, and monitoring. More detailed descriptions of each task are provided below.

12.2.4.1 Task 1: Seagrass Scar Restoration

Seagrass scarring in the Naval Live Oaks unit would be surveyed and mapped. Prior to seagrass transplant, existing natural resources (e.g. macroalgae, lobster) would be manually removed from the site and relocated to a nearby location away from restoration activities.

Plugs of shoal grass (*Halodule wrightii*) would be harvested from donor sites within the project area and transplanted into the injured areas. Shoal grass is a more preferable transplant species than turtle grass because it is a hardy, fast growing pioneer species of seagrass which helps establish proper site conditions for the eventual colonization of turtle grass. The following Best Management Practices would be adhered to:

- No repeated harvest from donor sites within a calendar year;
- No harvest from high current areas;
- To the maximum extent possible, the environment at the donor site would match conditions at the restored site for salinity, sediment types, tidal current speeds, wave exposure, and temperature;
- The donor beds would be located on shallow, sandy shoals where shoal grass grows at densities of at least 3,000 shoots per square meter;
- Harvest of donor seagrass would be spaced at 3-foot radius intervals from the outer edge of any core taken at a maximum; and
- The maximum core size diameter would not exceed 20 centimeters.

Non-regulatory warning signs would be placed around the restoration area to prevent re-injury to seagrass.

The restoration technique has been scientifically reviewed and supported by NOAA, Florida Fish and Wildlife Conservation Commission (FWC), and the USFWS. Project installation activities would use best management practices (BMPs) including avoidance of existing seagrass habitat through the use of small vessels. The timing of implementation would depend on the timing of funding availability and the contract award, along with any permit constraints required as a result of listed species considerations, but would not occur during the winter months when seagrass transplants would not be likely to establish.

12.2.4.2 Task 2: Installation of Bird Stakes

Seagrass restoration would be facilitated by placing bird stakes, if necessary, in the restoration project area. The stakes would attract perching birds, which then supply natural fertilizer to the restoration area in the form of feces. Bird feces are rich in phosphorus and nitrogen, important nutrients which enhance seagrass growth.

The proposed bird stakes would be constructed of 1.5-inch-diameter polyvinyl chloride (PVC) pipe or similar material, with wooden perches, driven 2 to 3 feet into the sediment via hand-held sledgehammers or fencepost drivers from small, shallow draft vessels in such a way as to minimize bottom disturbance. The perches would remain 20 inches above mean high water elevation in water depths of less than or equal to 60 inches. The bird stakes would be installed as needed parallel to each injured area.

12.2.4.3 Task 3: Monitoring

The project would be monitored for success as described above in section 12.1.4. The complete monitoring plan for this project can be found in Appendix B.

12.2.4.4 Task 4: Education

The proposed boater outreach and education component of the project includes providing educational brochures (Figure 12-3) about best practices for protecting seagrass habitats, as well as separate, non-permanent signage alerting visitors that a seagrass restoration is in progress. Typical signs are 2.5 feet tall by 3 feet wide and are attached either to one or two posts that are driven into the sea floor. The top of the sign should be set 6 feet above the water at mean tide. One or two wayside exhibits may also be installed near where visitors enter the water, explaining the significance and fragility of seagrass, the dangers foot traffic pose to it, and how to avoid impacting it.

12.2.5 Operations and Maintenance

From the point of initiation, the project would be expected to take approximately six months to a year to complete, with the exact start and stop dates being uncertain. This project would incorporate a mix of monitoring efforts to ensure project designs were correctly implemented, and, in a subsequent period defined by contract, where corrective actions could be taken.

12.2.6 Affected Environment and Environmental Consequences

Under NEPA, federal agencies must consider environmental effects of their actions that include, among others, impacts on social, cultural, and economic resources, as well as natural resources. The following sections describe the affected resources and environmental consequences of the project.

In order to determine whether an action has the potential to result in significant impacts, the **context and intensity** of the action must be considered. **Context** refers to area of impacts (local, state-wide, etc.) and their duration (e.g., whether they are short- or long-term impacts). **Intensity** refers to the severity

of impact and could include the timing of the action (e.g., more intense impacts would occur during critical periods like high visitation or wildlife breeding/rearing, etc.). Intensity is also described in terms of whether the impact would be beneficial or adverse.

For purposes of this document, impacts are characterized as minor, moderate or major, and temporary or long-term. The analysis of beneficial impacts focuses on the duration (short- or long-term), without attempting to specify the intensity of the benefit. The definition of these characterizations is consistent with that used in the Final Phase III ERP/PEIS, and can be found in Appendix D.

Figure 12-3. Educational Seagrass Brochures Currently in Use at Gulf Islands National Seashore's Florida District

National Park Service
U.S. Department of the Interior

Gulf Islands National Seashore
Florida and Mississippi



Seagrasses at the Seashore



Manatee Grass
(*Syringodium filiforme*)



Turtle Grass
(*Thalassia testudinum*)



Shoal Grass
(*Halodule wrightii*)

What is Seagrass?

They are flowering plants that grow underwater in shallow waters on the north sides of the barrier islands. Named for their grass-like appearance, seagrass has a strong root structure that helps them withstand currents and waves on the sandy sea floor.

Why is Seagrass Important?

Seagrass meadows serve as nursery grounds, and shelter for shrimp, crabs and many species of fish. A variety of birds, sea turtles and other wildlife depend upon them to live. Seagrass also promotes water clarity. The plants' extensive system of roots and rhizomes help stabilize bottom sediments.

The Damages



Propeller Scars in seagrass bed



Blowhole created by a propeller

Seagrass habitat is declining. Seagrasses grow in shallow coastal waters and can be damaged by boaters with wakes, anchors, propellers, and fishing equipment that disturb and scar the seabed. Scaring exposes the seagrass meadow roots allowing waves and currents to erode the seabed, resulting in the loss of the seagrass habitat.

You can Help - Boating Tips

- Know the waters well and know where you plan to put your boat.
- Look before you anchor, Do not drop your anchor in a seagrass habitat.
- If you do run into a sea grass flat, stop immediately and tilt your engine.
- If you DO get in too shallow, stop your motor and trim it up.
- "Push, Pull, Drift, and Troll" your boat to deeper water.
- Never try to power off, because that creates more damage.

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The programmatic analysis looked at a series of resources as part of the biological, physical, and socioeconomic environment. As appropriate in a tiered analysis, the evaluation of each project focuses on the specific resources with a potential to be affected by the proposed project. To avoid redundant or unnecessary information, resources that are not expected to be affected are not evaluated further under a given project. Resource areas not analyzed in detail here, along with a brief rationale for non-inclusion, are:

- **Noise** – this project would have very temporary, negligible impacts from noise during seagrass plug placement. The noise generated from project implementation would be virtually indistinguishable from noise from recreational and maritime boating in the project area.
- **Socioeconomics and Environmental Justice** – this project would have a very short-term, negligible impact to the area’s socioeconomic during project implementation from wages paid as well as an increase in sales and expenditures for local and regional services, materials, and supplies. This project would not contribute in any way to environmental justice or injustice. The area is not underserved and the project would not cause environmental harm.
- **Infrastructure** – this project would not impact the infrastructure in the project area in any way. There are no roads, utility corridors, or built objects in the project area.
- **Land and Marine Management** – this project would not impact land and marine management. It would require no closures to parks or other protected areas. No changes would occur to the current land use at the Naval Live Oaks unit of GUI. Land use and management authority of the Seashore would remain under the purview of NPS, and no development at the project site would occur. The proposed project, including the addition of warning signs, would be consistent with existing management and plans at the Seashore.
- **Tourism and Recreational Use** – this project would have no effect on tourism and recreational use. The seagrass in the general project vicinity is relatively robust (approximately 75% cover), allowing plenty of opportunities for visitors who snorkel and boat to experience seagrass beds.
- **Marine Transportation** – this project would not impact marine transportation. It is small enough in scale that it can be accomplished with just one boat, and sufficiently close to shore as to not interfere with marine traffic.
- **Public Health and Safety, Including Flood and Shoreline Protection** – this project would have no impact on public health or safety. It occurs in a very small footprint, underwater, adjacent to non-residential, non-commercial property.

12.2.6.1 Physical Environment

12.2.6.1.1 Geology and Substrates

Affected Resources

In the vicinity of Naval Live Oaks, the coastal plain surface is underlain by a wide belt of mostly fluvial, late Pliocene sediments of the Citronelle formation. At several northwestern Florida locations, Citronelle deposits include interlayered estuarine lenses. When sea level was lower and climate was drier during the late Pleistocene Wisconsin glacial stage, eolian processes formed dunes and sand sheets from reworked sands of older deposits. These dunes and sand sheets cover the Gulfport Formation in the adjacent Florida and Southeastern Alabama mainlands, including the Naval Live Oaks unit of GUIIS. The soils at GUIIS can be typified as greatly weathered and leached, with little organic material, low natural fertility, and high acidity. Deposits are mostly quartz sand with varying amounts of clay, silt, and shell fragments, depending on the location (NPS 2014). In the Naval Live Oaks unit of GUIIS, seagrass beds and the substrate beneath the vegetation have been injured through propeller scarring, vessel groundings, foot traffic, and damage from anchors.

Environmental Consequences

No Action

Under the No Action Alternative, there would be no new impacts or benefits to substrates or geology from the project, however, when left untreated, propeller scars and blowholes have a tendency to expand in size. Because no action would take place, no mitigation measures would be necessary.

Proposed Action

Sections 6.3.4.1 and 6.7.1.1 of the Final Phase III ERP/PEIS describe the impacts to geology and substrates from early restoration projects intended to restore submerged aquatic vegetation. For this project, geology and substrates were analyzed adequately within the PEIS. The Seagrass Recovery Project at GUIIS would have minor, short-term local adverse effects on nearshore sediments due to temporary increase in turbidity during harvest and transplanting of seagrass plugs, and long-term benefits by stabilizing the substrate with vegetation to prevent further disturbance.

The intent of the restoration project is to restore suitable habitat for seagrass recruitment. This project is expected to cause short-term minor impacts to existing submerged substrate and seagrass habitat surrounding the propeller scars due to disturbance during harvest and transplant of seagrass plugs and installation of the bird stakes. However, tidal circulation within the water column is expected to minimize suspended sediments. In addition, there would be an overall long-term benefit of reestablishing seagrass habitat in the damaged sites through improved sediment stabilization once seagrass is established in the restoration areas. The proposed project would encourage seagrass rhizome (root structure) generation from adjacent habitat, thereby stabilizing sediment. Therefore, short-term impacts to existing substrates of the restoration sites and adjacent areas as a result of the

proposed project would be expected to be minor. Long-term adverse impacts to existing substrates are not expected as a result of the proposed project. Seagrass plugs would be taken from harvest sites in accordance with established BMPs listed above, and are not anticipated to adversely impact the substrate from which they are harvested.

12.2.6.1.2 Hydrology and Water Quality

Affected Resources

Northwest Florida has seven major watersheds, all of which have been identified as priorities under the Surface Water Management and Improvement (SWIM) program. Water quality protection is the underlying goal of SWIM, along with the preservation and restoration of natural systems and associated public uses and benefits (Northwest Florida Water Management District [NFWFMD] 2011).

Santa Rosa Sound is part of the Pensacola Bay watershed system, which includes a series of interconnected estuaries, including Escambia Bay, Pensacola Bay, Blackwater Bay, East Bay, and Santa Rosa Sound, and three major river systems: The Escambia, Blackwater, and Yellow Rivers. The entire system discharges into the Gulf of Mexico south of Pensacola, Florida (NFWFMD 2011). The system supports a rich and diverse ecology, productive fisheries, and considerable recreational activities. It is an important resource for commercial shipping and military activities. However, point and non-point source pollution, direct habitat destruction, and the cumulative impacts of development and other activities throughout the watershed have combined to degrade the health and productivity of much of the Pensacola Bay system (Thorpe et al. 1997).

Santa Rosa Sound is separated from the Gulf of Mexico by Santa Rosa Island. The sound has a surface area of 42.3 square miles, with a mean depth of 8.9 feet and an average tide fluctuation of about 1.5 feet. Salinity is fairly uniform throughout the sound (mean value of 24 ppt), receiving little fresh water inflow. Extending approximately 58 km east to west and varying in width between 0.32 and 3.5 km, the sound is a lagoon between the mainland and Santa Rosa Island which connects Pensacola Bay in the west with Choctawhatchee Bay in the east. The Intracoastal Waterway transects the sound (Thorpe et al. 1997).

The waters of Santa Rosa Sound are Class II Florida Surface Waters, meaning they are supporting, or have the capability to support recreational and commercial shellfish propagation and harvesting (Thorpe et al 1997). The waters of the Sound within GUIs are also designated as Outstanding Florida Waters. The Sound is notable as being the site of the most diverse and stable seagrass beds within the Pensacola Bay System (Thorpe et al. 1997).

Environmental Consequences

No Action

Under the No Action alternative there would be no new impacts or benefits to water quality. No project-related actions would create turbidity in the water column, and there would be no new seagrass to contribute to better water quality in the future. No mitigation measures would be necessary.

Proposed Action

Sections 6.3.4.2 and 6.7.2.1 of the Final Phase III ERP/PEIS describe the impacts to hydrology and water quality from early restoration projects intended to restore submerged aquatic vegetation. Section 6.3.4.2 of the PEIS states that negligible local disturbance could result from placement of bird stakes and minor, short-term impacts could occur from nutrient deposition from bird feces. There would be long-term beneficial effects from increased seagrasses via diffusion of storm energy, shoreline stabilization, and sediment trapping.

Project installation activities would use best management practices (BMPs) including impact avoidance of existing seagrass habitat through the use of small vessels. The timing of transplant would depend on the timing of funding availability and the contract award along with any permit constraints required as a result of listed species considerations, but would not happen during winter. Adverse impacts to hydrology and water quality would be minor, with moderate beneficial impacts expected as a result of restoring seagrass. The intent of the restoration project would be to restore shoal grass to provide suitable habitat for turtle grass recruitment. Short-term turbidity levels above background could result from shoal grass plug harvest and placement. However, tidal current is expected to minimize suspended sediments. Once seagrass planting units are installed and seagrass colonization occurs in the restoration areas, ambient water-quality parameters would be expected to improve by providing enhanced water column filtration and nutrient uptake. Long-term adverse impacts to water quality would not be expected as a result of the proposed project.

In-water work may require authorization from the USACE, pursuant to Section 10 of the Rivers and Harbors Act of 1899, 33 USC 403, and Section 404 of the Clean Water Act 33 USC 1344. The NOAA Restoration Center applied for and secured USACE Permit No. SAJ-2012-01546 (SP-SWA) on January 9, 2013, to implement a similar project in Santa Rosa Sound, as well as other authorized waterbodies. However, USACE Permit No. SAJ-2012-01546 (SP-SWA) does not specifically include the proposed project. Therefore, a modification to Permit No. SAJ-2012-01546 or procurement of a separate USACE permit may be necessary to allow the proposed activity in the Naval Live Oaks area. The existing permit will expire December 20, 2017. No in-water work would be conducted until all permits, authorizations, or amendments are issued by USACE for the work.

12.2.6.1.3 Air Quality and Greenhouse Gas Emissions

Affected Resources

The Clean Air Act (CAA) requires that the Environmental Protection Agency (EPA) set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. NAAQS have been set for six common air pollutants (also known as criteria pollutants), consisting of particle pollution or particulate matter, ozone, carbon monoxide, sulfur dioxide (SO₂), nitrogen dioxide, and lead. Particulate matter is defined as fine particulates with a diameter of 10 micrometers or less (PM₁₀), and fine particulates with a diameter of 2.5 or less (PM_{2.5}). When a designated air quality area or airshed in a state exceeds the NAAQS, that area may be designated as a “nonattainment” area. Areas with levels of pollutants below the health-based standard are designated as “attainment” areas. To determine whether an area meets the NAAQS, air monitoring networks have been established and are used to measure ambient air quality. The EPA also regulates 187 hazardous air pollutants (HAPs) that are known or suspected to cause cancer or other serious health impacts. Air quality in the Florida panhandle is in attainment with the NAAQs (EPA 2013).

Greenhouse Gases

Gases that trap heat in the air are called greenhouse gases (GHGs). The primary GHGs are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (NO_x), and fluorinated gases. Over the past century, human activities have released large amounts of GHGs into the atmosphere, which are contributing to global warming. Global warming is defined as the ongoing rise in global average temperature near the Earth’s surface and is known to cause changes in climate patterns.

According to the EPA, the average annual temperature in the southeast portion of the United States has increased by approximately 2.0 degree Fahrenheit (°F) since 1970. Winters, in particular, are getting warmer, and the average number of freezing days has decreased by 4 to 7 days per year since the mid-1970s. Most areas are getting wetter; autumn precipitation has increased by 30% since 1901 (EPA 2013b). In many parts of the region, the number of heavy downpours has increased. Despite the increases in fall precipitation, the area affected by moderate and severe drought has increased since the mid-1970s (EPA 2013b).

Average annual temperatures in the region are projected to increase from 4°F to 9°F by 2080. Hurricane-related rainfall is projected to continue to increase. Models suggest that rainfall will arrive in heavier downpours, with increased dry periods between storms. These changes would increase the risk of both flooding and drought. The coasts will likely experience stronger hurricanes and sea level rise. Storm surge could present problems for coastal communities and ecosystems (EPA 2013b).

Total GHG emissions in Florida from 1990 to 2007 have increased at an average rate of 2.1% per year. Total GHG emissions in 2007 were 290 million metric tons of CO₂ equivalents (MMTCO₂E). In 2007, 91% of GHG emissions in Florida were CO₂ emissions (FDEP 2010).

Environmental Consequences

No Action

Under the No Action alternative, there would be no impacts to air quality or greenhouse gasses. No boats or trucks would be used, so no emissions would result. No mitigation measures would be necessary.

Proposed Action

Sections 6.3.4.3 and 6.7.3.1 of the Final Phase III ERP/PEIS describe the impacts to air quality and greenhouse gases from early restoration projects intended to restore submerged aquatic vegetation. Section 6.3.4.3 of the PEIS notes that the severity of impacts for this impact topic would be highly dependent on the length and type of construction required and the location of the project. This Seagrass Recovery Project would occur on a very small scale (0.02 acres total) and as such, impacts would be very minor. The use of gasoline or diesel-powered vehicles to access the project site(s) would contribute to a short-term, minor increase in GHG emissions. Available BMPs would be employed to prevent, mitigate, and control potential air pollutants during project implementation. No air quality-related permits would be required.

A boat, truck, and hand tools would be the only construction equipment necessary for the proposed project. The boat and pickup truck would be the only equipment likely to emit GHG emissions. Using the operating assumption of 8 hours per day and 5 days per week for one month, GHG emissions from the boat and pickup truck have been estimated (Table 12-1).

Table 12-1. GHG emissions

EQUIPMENT ¹	NUMBER OF 8-HOUR DAYS	CO ₂ (METRIC TONS) ²	CH ₄ (CO ₂ E) (METRIC TONS) ³	NO _x (CO ₂ E) (METRIC TONS)	TOTAL CO ₂ E (METRIC TONS)
Boat	20	0.13	0.004	0.052	0.186
Pickup Truck	20	0.22	0.07	0.88	1.17
TOTAL		0.35	0.074	0.932	1.356

¹ Emissions assumptions for all equipment are based on 8 hours of operation.

² CO₂ emissions assumptions for diesel and gasoline engines are based on EPA 2009.

³ CH₄ and NO_x emissions assumptions and CO₂e calculations are based on EPA 2011.

⁴ Emissions assumptions for an 8-cylinder, 6.2-liter gasoline engine Ford F150 pickup based on DOE 2013 and 18-gallon (half-tank) daily fuel consumption.

Overall, impacts to air quality would be very minor and short term.

12.2.6.2 Summary of Impacts to the Physical Environment

Impacts to the physical environment from implementation of the Seagrass Recovery Project would include:

- **Geology and Substrates:** There would be very minor, short-term adverse impacts due to soil disturbance during project implementation, and long-term benefits from a more stabilized substrate after project completion.
- **Hydrology and Water Quality:** There would be very minor, short-term adverse impacts from soil disturbance and its resultant turbidity during project implementation, and long-term benefits from successful project implementation as seagrasses reestablish.
- **Air Quality and Greenhouse Gasses:** There would be very minor, short-term adverse impacts from boat traffic during project implementation. There would be no long-term adverse impacts or benefits on air quality and greenhouse gasses from this project.

12.2.6.3 Biological Environment

12.2.6.3.1 Living Coastal and Marine Resources

Section 6.3.4.6 of the Final Phase III ERP/PEIS describes the potential impacts to living coastal and marine resources from early restoration projects intended to restore submerged aquatic vegetation. Section 6.3.4.6 of the PEIS states that this project type would expand the amount of available habitat, creating a long-term beneficial effect to coastal and marine resources. Short-term, minor impacts would result from the activity, noise, vibration, turbidity, and loss of foraging habitat associated with SAV restoration implementation. However, these impacts would be temporary and would dissipate quickly.

Section 6.7.6.1 of the Final Phase III ERP/PEIS describes the range of direct and indirect impacts of its Preferred Alternative on living coastal and marine resources. The Final Phase III ERP/PEIS Preferred Alternative includes restoring submerged aquatic vegetation as well as other project types intended to restore habitats and living coastal and marine resources, and to provide and enhance recreational opportunities. The analysis below breaks the discussion of the affected biological environment and the potential environmental consequences of the proposed Seagrass Recovery Project into the following subsections:

- Vegetation
- Wildlife habitat
- Marine and estuarine fauna
- Protected species

Vegetation

Affected Resources

Santa Rosa Sound is designated by the State of Florida as an Outstanding Florida Water for its known natural resources occurrences and regional ecological significance. Seagrass communities characterize the SAV of the project area. In addition, the adjacent shoreline in the proposed project location includes a mix of mature live oak forest and sandy beach habitat.

The seagrass communities of the Naval Live Oaks unit are dominated by turtle grass, which is the target restoration species for the project. Seagrass communities are essential breeding, rearing, and feeding grounds for many important recreational and commercial fisheries as well as wildlife, including the endangered West Indian manatee (*Trichechus manatus latirostris*) as well as various species of sea turtles.

Environmental Consequences

No Action

Under the No Action alternative, there would be no new impacts or benefits to the vegetation of the area. If not restored, the damaged seagrass habitat would continue to erode and impact more of the healthy habitat surrounding the injured areas. No mitigation measures would be necessary.

Proposed Action

During harvest and transplant of shoal grass plugs, potential short-term impacts would be expected and would include temporary damage to donor shoal grass beds and inadvertent damage to vegetation during restoration. Every effort would be made to access the restoration sites during periods of high tide using shallow draft vessels to avoid potential adverse impacts to seagrass habitat as a result of navigation. At the harvest site, shoal grass would be anticipated to quickly recolonize the small areas where donor plugs are removed. Shoal grass was chosen for this project because of the species' ready colonization and pioneer characteristics. Therefore, impacts to shoal grass at the harvest site would be temporary and negligible. The long-term benefits of the seagrass recovery effort would outweigh potential temporary adverse impacts, and include restoration of this community type, water quality enhancement, and increased habitat for commercial and recreational fisheries.

The FDEP would require permits and impose reasonable conditions as are necessary to ensure that project implementation would comply with the provisions of Chapter 62-346.050 (3) of the Florida Administrative Code (FAC), which states in part that dredging and filling in, on, or over surface waters of the state remains subject to the requirements of FAC Chapter 62-312, including the need to obtain a separate permit under that chapter until the effective date of the rules adopted under Section 373.4145(1)(b), Florida Statutes (FS). The FDEP permit also grants state-owned Submerged Lands Authorization from the Board of Trustees of the Internal Improvement Trust Fund, pursuant to Article X, Section 11 of the Florida Constitution, and Section 253.77, F.S. This permit also would constitute a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the Coastal Management Act, and a water quality certification under Section 401 of the Clean Water Act, 33 U.S.C., 1341. This permit is applied for with the same application as the USACE permit.

Pursuant to the Coastal Zone Management Act of 1972, federal activities must be consistent to the maximum extent practicable with the federally approved coastal management programs for states where the activities would affect a coastal use or resource. Federal Trustees are submitting consistency determinations for state review coincident with public review of this document.

On August 17, 2012, the NOAA Restoration Center secured FDEP Environmental Resource Permit No. 17-0312090-001-EI to construct a similar project in Santa Rosa Sound as well as at other authorized waterbodies. However, FDEP Permit No. 17-0312090-001-EI does not specifically include the currently proposed construction, and the permit was issued to NOAA. Therefore, a permit modification to FDEP Permit No. 17-0312090-001-EI or a procurement of separate FDEP permit may be necessary to allow the proposed activity. The existing FDEP permit will expire August 17, 2017.

The potential introduction of terrestrial and aquatic non-native invasive species of plants, animals, and microbes is a concern for any proposed project. Non-native invasive species could alter existing terrestrial or aquatic ecosystems, may cause economic damages and losses, and are the second most common reason for protecting species under the Endangered Species Act. The species that are or may become introduced, established, and invasive are difficult to identify. The analysis focuses on pathway control or actions/mechanisms that may be taken or implemented to prevent the spread of invasive species on site or introduction of species to the site.

This project involves the use of boats and hand tools as well as the placement of bird stakes and temporary signage. Each of these actions and pieces of equipment serve as a potential pathway to introduce or spread invasive species. BMPs would be implemented to ensure these pathways are “broken” and do not spread or introduce species (See BMPs listed below). The implementation of these BMPs meets the spirit and intent of EO 13112. Due to the implementation of BMPs, the Trustees expect risk from invasive species introduction and spread to be short-term and minor. The Final Phase III ERP/PEIS provided mitigation measures in Appendix 6A. The following mitigation measures and environmental review would result in the avoidance and minimization of the introduction and spread of invasive species:

- All equipment to be used during the project, including personal gear, would be inspected and cleaned such that there is no observable presence of mud, seeds, vegetation, insects and other species.

Wildlife Habitat

Affected Resources

Santa Rosa Sound provides crucial nursery and forage habitat for many commercial and recreational fisheries and wildlife, including marine and estuarine invertebrates, wading birds (herons and egrets), and birds of prey that feed on juvenile and adult fish (FDEP 2008). Protected wildlife (such as sea turtles, dolphins, and manatee, are discussed in detail below) also forage on or within seagrass communities at the project site.

Environmental Consequences

No Action

Under the No Action alternative, there would be no new impacts to wildlife habitat. If not restored, there would be no increase in the seagrass bed area at Naval Live Oaks, and therefore there would be no new habitat for wildlife utilization. No mitigation measures would be necessary.

Proposed Action

Section 6.3.4.5 of the Final Phase III ERP/PEIS describes the potential impacts to habitat from early restoration projects intended to restore submerged aquatic vegetation, stating that this project type would be expected to enhance adjacent wetland, barrier island, beach, or other coastal habitats, and over the long term, SAV restoration could improve water quality. “Temporary adverse effects could result from short-term increases in sediment disturbance and turbidity associated with in-water activities such as SAV planting and fertilization, but this would be expected to settle quickly and be limited to the localized area where restoration activities occurred.”

The proposed project would likely result in short-term minor impacts due to turbidity resulting from the harvest and transplant of shoal grass. This turbidity would be extremely localized, and any wildlife that uses the seagrass as habitat would likely move to a more suitable location to continue foraging or feeding. There would be long-term beneficial effects to wildlife habitat from the restoration of seagrass because it would provide animals who utilize seagrass habitat more area in which to forage, loaf, and feed.

Marine and Estuarine Fauna (Fish, Shell Beds, and Benthic Organisms)

Affected Resources

A number of aquatic species are found in the project area. More than 200 species of fish occur within the waters of GUIIS (NPS 2014). Myriad larval and young fish occupy shallow waters around the islands and find food and protection in the seagrass beds. Several commercially and recreationally important species are within the waters of the National Seashore, including speckled sea trout, kingfish, jack, flounder, mackerel, and snapper. Cobia, tarpon, mullet, rays, and several species of sharks are also present. Benthic organisms such as bivalves, gastropods and other mollusks, anemones, amphipods, annelids, crustaceans, and echinoderms are also abundant in these waters.

Environmental Consequences

No Action

Under the No Action alternative, seagrass would not be restored. There would be no new impacts or benefits to seagrass. Any wildlife which utilizes seagrass as habitat or as a food source would not be benefited by increased availability of seagrass in the area. No mitigation measures would be necessary.

Proposed Action

The proposed project would likely result in temporary minor impacts due to harvest and transplant placement of shoal grass plugs. Invertebrates or sessile organisms may have established themselves and be present. Small fish that may seek protection in the scars are highly mobile and would be displaced to more suitable habitat in the project area. In addition, sessile invertebrates occupying the submerged substrate and fish may be disturbed or displaced in the short term from areas where bird stakes would

be placed. However, these species are numerous in Gulf of Mexico waters and typically recolonize quickly.

The proposed project would result in long-term benefits to marine and estuarine fauna by providing additional fish habitat, increased benthic productivity, and enhanced recruitment and production of fish and crustaceans. Restoration of the seagrass habitat would benefit numerous aquatic species, including but not limited to blue crab (*Callinectes sapidus*), red drum (*Sciaenops ocellatus*), and speckled sea trout (*Cynoscion nebulosus*). Over the life of the project, the quality of the aquatic habitat would increase. The overall benefits to marine habitats that would result from seagrass restoration would outweigh potential short-term impacts to these species and their habitats.

During in-water work periods, the *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS, 2006) and *Standard Manatee Conditions for In-Water Work* (USFWS 2011) would be implemented to minimize risks/impacts to aquatic species. Those conditions are listed below in the Environmental Consequences portion of the Protected Species section (12.2.6.2.2).

12.2.6.3.2 Protected Species

Affected Resources

The U.S. Fish and Wildlife Service (USFWS) lists species as threatened or endangered when they meet criteria detailed under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. §§1531 et seq.). Section 7(a)(2) of the ESA requires that each federal agency ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of those species. When the action of a federal agency may affect a protected species or its critical habitat, that agency is required to consult with either the NMFS or the USFWS, depending upon the protected species that may be affected. Endangered Species Act Section 7 consultations would be conducted and the appropriate recommendations incorporated into the proposed project.

Protected species and their habitats include ESA-listed species and designated critical habitats, which are regulated by either the USFWS or the NMFS. Protected species also include marine mammals protected under the Marine Mammal Protection Act, essential fish habitat (EFH) protected under the Magnuson-Stevens Fishery Conservation and Management Act, migratory birds protected under the Migratory Bird Treaty Act (MBTA) and bald eagles protected under the Bald and Golden Eagle Protection Act (BGEPA).

The federally listed threatened and endangered species reported for the project area in Escambia and Santa Rosa Counties, and which are likely to occur in the project area, include five species of sea turtles, the West Indian manatee, the piping plover, red knot, and the Gulf sturgeon (USFWS 2013a).

Endangered Species Act Section 7 Consultations with U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Services (NMFS) would be completed prior to the issuance of the Final Phase IV EA and commencement of project implementation. Appropriate recommendations would be

incorporated into the proposed project. The Trustees would review the proposed project for potential impacts to listed, candidate, and proposed species and designated and proposed critical habitats in accordance with Section 7 of the ESA for species managed by USFWS. The Trustees reviewed the species list for Escambia and Santa Rosa counties, Florida¹. Table 12-2 presents a summary of these potentially affected species/critical habitats and the nature of the potential impact that could result from project implementation.

Table 12-2. Potential Impacts to Species/Critical Habitats managed by USFWS

SPECIES/CRITICAL HABITAT	SPECIES/CRITICAL HABITAT IMPACTS
Green turtle, Hawksbill turtle, Kemp's ridley turtle; Leatherback turtle, Loggerhead turtle	<p>No work would occur in the terrestrial environment; therefore no impacts would occur to sea turtle species in the terrestrial environment. The main risk to sea turtles during implementation of this project would come from boat collisions which could result in harm or mortality.</p> <p>Manatees could be present in the project waters and would potentially seek out shallow seagrass areas as they are preferred feeding habitat. Turbidity of the water may increase during project completion. We expect sea turtles to naturally avoid any areas of increased turbidity as they are not known to use turbid habitats. We do not expect this avoidance of the Action area to result in changes to normal behaviors. Conservation measures should reduce the potential risks to sea turtles from in-water work to an insignificant and discountable level.</p>
West Indian manatee	<p>The main risk to manatees during implementation of this project would come from boat collisions which could result in harm or mortality. The overall goal of the project is to improve the quantity and quality of the seagrass habitat that manatees prefer.</p> <p>Manatees could be present in the project waters and would potentially seek out shallow seagrass areas as they are preferred feeding habitat (U.S. Department of the Interior, 2011). Turbidity of the water may increase during project completion. We expect West Indian manatee to naturally avoid any areas of increased turbidity as they are not known to use turbid habitats. We do not expect this avoidance of the Action area to result in changes to normal behaviors. Conservation measures should reduce the potential risks to manatees from in-water work to an insignificant and discountable level.</p>
Piping plover and Red knot	<p>No Effect is anticipated on these species because the project would take place in water, and the staging would take place from established boat ramps in the Gulf Breeze area. Noise from the project may reach the shore, but we do not anticipate the noise to startle birds. Additionally, red knots and piping plovers are not known to utilize the small beach areas in the project vicinity. Since the project would not take place on shore, we do not anticipate these species to be affected.</p>

¹The U.S. Fish and Wildlife, Panama City office website (<http://www.fws.gov/panamacity/specieslist.html>) provides a county-based list of federal threatened, endangered, and other species of concern likely to occur in the Florida Panhandle. Information downloaded February 18, 2015.

SPECIES/CRITICAL	SPECIES/CRITICAL HABITAT IMPACTS
Gulf sturgeon	<p>Gulf sturgeon is a highly mobile species that utilizes riverine, estuarine, and marine habitats throughout its lifecycle. Turbidity of the water may increase during project completion and the noise from the boats may affect species within the area. If transiting the area, Gulf sturgeon could be startled by in-water work or have difficulty navigating due to turbidity. We expect Gulf sturgeon to naturally avoid any areas of increased turbidity as they are not known to use turbid habitats. We do not expect this avoidance of the project area to result in changes to normal behaviors. Conservation measures should reduce the potential risks to Gulf sturgeon from in-water work to an insignificant and discountable level.</p> <p>The applicable PCE's for Gulf sturgeon in estuarine environments include 1) abundant food items, 5) appropriate water quality, 6) appropriate sediment quality, and 7) safe and unobstructed migratory pathways.</p> <p>No long-term impacts to Gulf sturgeon's critical habitat or PCE's are expected because of this project. There may be a temporary increase in turbidity, as well as changes in food abundance and water quality during project completion. However, these changes would be temporary and extremely localized and would not affect the open waters of Santa Rosa Sound. Conservation measures would be implemented to ensure this project has no effect on Gulf sturgeon critical habitat.</p>

Additional information for some of the species listed above is provided below.

Sea Turtles and Marine Mammals

Five species of endangered or threatened sea turtles may occur or have potential to occur in the project areas. These are the green turtle, hawksbill turtle, Kemp's ridley turtle, leatherback turtle, and loggerhead turtle. Sea turtles forage in the waters of the coastal Florida panhandle region and are likely to occur in the project area.

The endangered West Indian manatee has the potential to occur in project area waters and seek out shallow seagrass areas as preferred feeding habitat, and it is known to occur in the Santa Rosa Sound.

Gulf Sturgeon and Gulf Sturgeon Critical Habitat

Gulf sturgeon are restricted to the Gulf of Mexico and its drainages, occurring primarily from the Pearl River in Louisiana to the Suwannee River, in Florida (NMFS 2009). Adult fish reside in rivers for 8 to 9 months each year and in estuarine or Gulf of Mexico waters during the 3 to 4 cooler months of each year (NMFS 2009). Important marine habitats include seagrass beds with sand and mud substrates (Mason and Clugston 1993).

Gulf sturgeon critical habitat was jointly designated by the NMFS and USFWS on April 18, 2003 (50 Code of Federal Regulations [C.F.R.] 226.214). The proposed project area is located within the Florida Santa Rosa Sound Critical Habitat Unit 10, which was designated as critical habitat because it is believed the

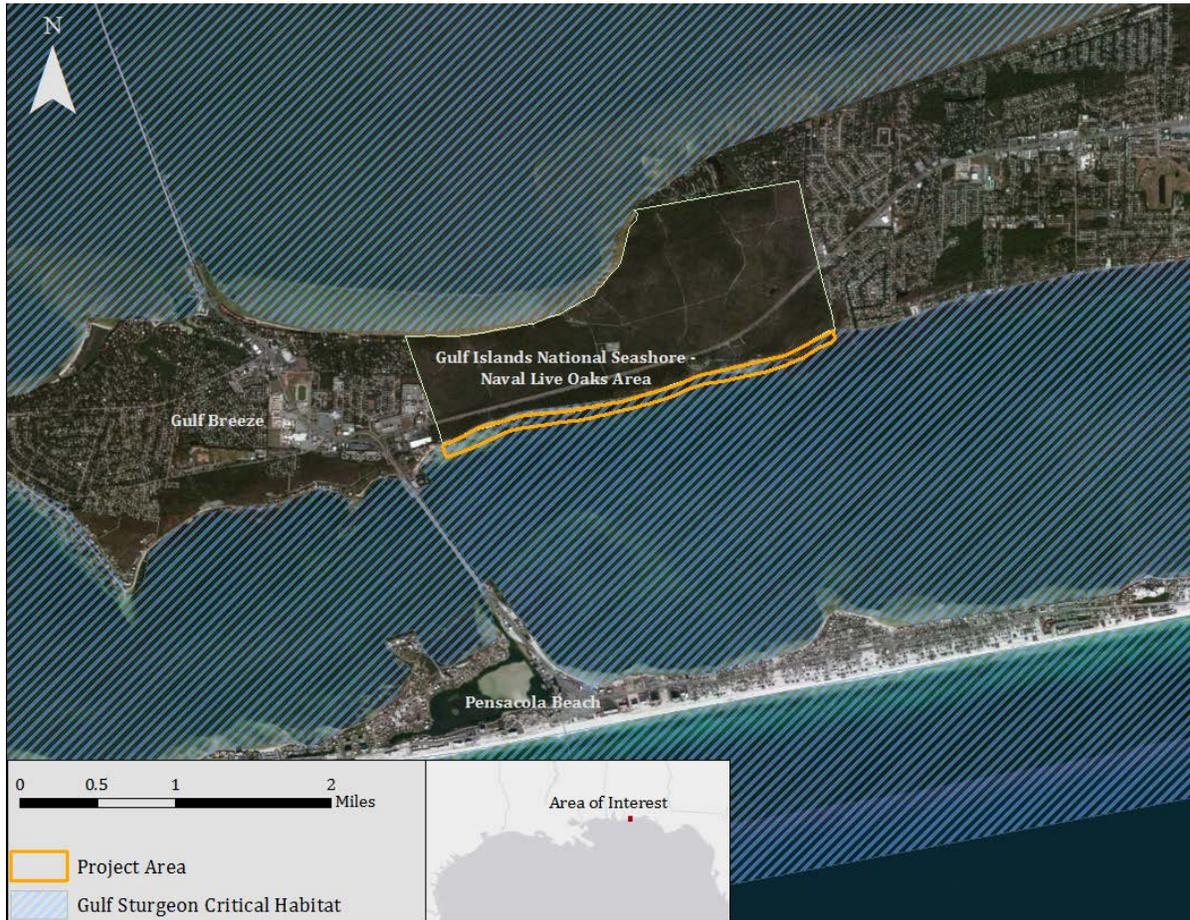
sound provides one continuous migratory pathway between Choctawhatchee Bay, Pensacola Bay, and the Gulf of Mexico for feeding and genetic interchange. Critical habitat was designated based on seven primary constituent elements essential for Gulf sturgeon conservation, as defined in the 2003 *Federal Register*.

These seven elements are listed below. PCEs 1, 5, 6, and 7 are present in the project area.

1. Abundant food items such as detritus, aquatic insects, worms, and/or mollusks, within riverine habitats for larval and juvenile life stages; and abundant prey items such as amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, mollusks and/or crustaceans, within estuarine and marine habitats and substrates for subadult and adult life stages.
2. Riverine spawning sites with substrates suitable for egg deposition and development, such as limestone outcrops and cut limestone banks, bedrock, large gravel or cobble beds, marl, soapstone, or hard clay.
3. Riverine aggregation areas, also referred to as resting, holding, and staging areas, used by adult, subadult, and/or juveniles, and generally but not always located in holes below normal riverbed depths, believed necessary for minimizing energy expenditures during fresh water residency and possibly for osmoregulatory functions.
4. A flow regime (i.e., the magnitude, frequency, duration, seasonality, and rate-of-change of fresh water discharge over time) necessary for normal behavior, growth, and survival of all life stages in the riverine environment, including migration, breeding site selection, courtship, egg fertilization, resting, and staging, and for maintaining spawning sites in suitable condition for egg attachment, egg sheltering, resting, and larval staging.
5. Water quality, including temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics necessary for normal behavior, growth, and viability of all life stages.
6. Sediment quality, including texture and chemical characteristics necessary for normal behavior, growth, and viability of all life stages.
7. Safe and unobstructed migratory pathways necessary for passage within and between riverine, estuarine, and marine habitats (e.g., an unobstructed river or a dammed river that still allows for passage).

Figure 12-4 shows Gulf sturgeon critical habitat areas in relation to the potential project locations. Gulf Sturgeon critical habitat is within the project area.

Figure 12-4. Gulf Sturgeon Critical Habitat in the Naval Live Oaks Unit of Gulf Islands National Seashore's Florida District



Essential Fish Habitat (EFH)

The 1996 Magnuson-Stevens Fishery and Conservation Act requires cooperation among NOAA Fisheries, anglers, and federal and state agencies to protect, conserve, and enhance Essential Fish Habitat (EFH). EFH is defined as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity." The designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. NOAA's Estuarine Living Marine Resources Program developed a database on the distribution, relative abundance, and life history characteristics of ecologically and economically important fishes and invertebrates in the nation's estuaries. NOAA has designated EFH for more than 30 estuaries in the northern Gulf of Mexico for a number of species of finfish and shellfish. EFH consists of the following waters and substrate areas in the Gulf of Mexico (GMFMC 2005,) and the project area: estuarine water columns for species of fish, such as sharks, red drum, trigger fishes, jacks, wrasses, snappers, groupers, tilefishes, and coastal pelagics, as well as brown shrimp, pink shrimp, and white shrimp. There are no Habitat Areas of Particular Concern or EFH Areas Protected from Fishing in the project vicinity.

Piping Plover

There are numerous sandy beaches and shorelines within 1-2 miles of the project area which offer suitable foraging and resting habitat for the piping plover during the winter migratory season, and piping plover may forage in the shallow waters of the project area. Natural shorelines in the proposed project vicinity provide suitable winter migration resting habitat for the piping plover. Piping plover wintering habitat includes beaches, mudflats, and sandflats, as well as barrier island beaches and spoil islands (Haig 1992, as cited by USFWS, accessed September 30, 2013). On the Gulf Coast, preferred foraging areas were associated with wider beaches, mudflats, and small inlets (USFWS 2013a). No piping plover critical habitat is located in the project area.

Red Knot

The red knot, a federally threatened species, uses the state of Florida both for wintering habitat and migration stopover habitat for those that continue to migrate to specific wintering locations in South America (Niles et al. 2008). Wintering and migrating red knots forage along sandy beaches, tidal mudflats, saltmarshes, and peat banks (Harrington 2001). Observations indicate that red knots also forage on oyster reef and exposed bay bottoms, and roost on high sand flats, reefs, and other sites protected from high tides (Niles et al. 2008). In wintering and migration habitats, red knots commonly forage on bivalves, gastropods, and crustaceans. Threats to wintering and stopover habitat in Florida include shoreline development, hardening, dredging, deposition, and beach raking (Niles et al. 2008).

State-Listed Birds, MBTA and BGEPA

The proposed project was also reviewed for impacts to bald eagles and migratory birds in accordance with the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-712), respectively. Table 12-3 provides a summary of the different migratory bird groups specifically addressed by this review and summarizes the potential impacts to these groups and associated habitats that could result from the implementation of this project.

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) of 1940 (BGEPA) prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. BGEPA provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." Golden eagles are not present along the Gulf Coast.

The Trustees have reviewed the project site and determined that migratory bird nesting is not known or likely as the work would occur in-water, although some migratory birds may nest in the vicinity of the project. The MBTA requires the protection of all migratory bird species and protection of ecosystems of special importance to migratory birds against detrimental alteration, pollution, and other environmental degradation. Coordination under MBTA is ongoing between the Trustees and the U.S. Fish and Wildlife Service.

There are numerous birds protected by the MBTA and the State of Florida with potential to occur in and around the seagrass restoration sites. These include the peregrine falcon (*Falco peregrinus*), American kestrel (*Falco sparverius*), snowy plover (*Charadrius alexandrinus*), piping plover (discussed above), and red knot (discussed above). GUIs species lists indicate numerous state-listed birds as well as bird species of special concern that are known to occur in the project area.

While ospreys are known to nest in the vicinity of the project area, bald eagles are not. Bald eagles and osprey feeds on fish and other readily available mammalian and avian species, and are dependent on large, open expanses of water for foraging habitat.

Table 12-3. Potential project impacts to different migratory bird groups

SPECIES	BEHAVIOR	SPECIES/HABITAT IMPACTS
Seabirds (terns, gulls, skimmers, double-crested cormorant, American white pelican, brown pelican)	Foraging, feeding, resting, roosting	Seabirds forage, feed, rest, and roost in the project area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting. These birds primarily roost in the dunes. Therefore the Trustees do not anticipate impacts.
Shorebirds	Foraging, feeding, resting, roosting	Shorebirds are likely to be present conducting all routine behaviors in the general project vicinity. As such they may be impacted locally and temporarily by the project. Foraging may occur along the shoreline near the project area. However it is expected that birds would move to another nearby location to continue foraging, feeding, and resting if disturbed by the noise. These birds primarily nest and roost in the dunes rather than at the boat ramps that would be used for access.

Environmental Consequences

No Action

Under the No Action alternative, there would be no new impacts or benefits to protected species. Protected species who utilize seagrass beds would not experience short-term, minor impacts from turbidity during project implementation, and they would not benefit in the future from increased seagrass bed area in the project vicinity. No mitigation measures would be necessary.

Proposed Action

The proposed project restoration activities would restore seagrass habitat that many protected species rely on for forage, refuge, and nursery areas essential for the marine and estuarine ecosystems of GUIs

and nearby Gulf of Mexico waters. The proposed project has been evaluated for potential short- and long-term impacts to state-listed and federally listed threatened and endangered species that may occur in and adjacent to the project areas, based on available suitable habitat and restoration goals. Table 12-4 lists conservation measures that would be implemented to reduce impacts to protected species. Descriptions of the evaluation for these species are provided below.

Table 12-4. Explanation of actions (conservation measures) to be implemented to reduce impacts to protected species

SPECIES/CRITICAL HABITAT	ACTIONS TO MINIMIZE IMPACTS
Gulf Sturgeon	<ul style="list-style-type: none"> • The Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006) would be implemented as applicable to protect Gulf sturgeon. • Instruct all personnel associated with the project in the potential presence of Gulf sturgeon. Furthermore, inform the project personnel of the civil and criminal penalties for harming, harassing, or killing species that are protected. • Keep noise low (in air and in water) to the greatest extent possible. • Care shall be taken in lowering equipment or material below the water surface and into the sediment. These precautions would be taken to ensure no harm occurs to any sturgeon which may have entered the project area undetected. • In the unlikely event that a protected Gulf sturgeon approaches any near-shore areas of the proposed project, work would immediately cease until the sturgeon moves away from the area on its own volition. •
Sea Turtles (Loggerhead Turtle, Green Sea Turtle, Leatherback Turtle, Hawksbill Sea Turtle, Kemp’s Ridley Sea Turtle)	<ul style="list-style-type: none"> • The Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006), listed below, would be implemented as applicable to protect in-water sea turtles. • Vehicles and equipment would be driven to avoid nests by a minimum of 10 feet. • All personnel would be notified of the potential presence of sea turtles both on the beach and in the water and would be reminded of the need to avoid sea turtles. • All personnel would be notified of the criminal and civil penalties associated with harassing, injuring, or killing sea turtles. • All personnel would be trained/instructed as to what they are to do in the presence of a sea turtle. • Project activities would occur during daylight hours and noise would be kept to the minimum feasible.
Piping Plover and Red Knot	<ul style="list-style-type: none"> • If piping plovers or red knots are present, work would not occur until the birds have moved from the area by 150 feet.
West Indian manatee	<ul style="list-style-type: none"> • Standard Manatee Conditions for In-Water Work (FWS 2011), listed below, would be followed.

Sea Turtles and Marine Mammals

For projects in waters accessible to sea turtles, NMFS has developed standardized *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS 2006). These conditions, listed below, are typically applied to projects as part of the Clean Water Act Section 404 permit issued for in-water work. To minimize risks in the aquatic environment, all construction conditions identified in the *Sea Turtle and Smalltooth Construction Conditions* would be implemented and adhered to during project construction to minimize the risk of collisions. Because of adherence to the measures below, we anticipate that this project would have no effect on sea turtles of any species.

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

- a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.
- c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.
- d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels would preferentially follow deep-water routes (e.g., marked channels) whenever possible.
- e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.
- g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, would be addressed in the primary consultation.

Noise and other activity associated with proposed in-water work may temporarily disturb manatees and dolphin species in the vicinity of the project area through temporary impacts on prey abundance, water quality (turbidity), and underwater noise. *Standard Manatee Conditions for In-Water Work* (USFWS 2011), listed below, would be implemented and adhered to during project construction. It is anticipated that these conservation measures would minimize impacts to temporary and minor if manatees are present in the proposed project area. Dolphins are highly mobile species and would be expected to

move away from the construction area during in-water activities. Because of adherence to the measures below, we anticipate this project may affect, but would not be likely to adversely affect manatees.

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK, 2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

- a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.
- b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels would follow routes of deep water whenever possible.
- c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.
- d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shut down if a manatee(s) comes within 50 feet of the operation. Activities would not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
- e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or in Vero Beach (1-772-562-3909) for south Florida, and emailed to FWC at ImperiledSpecies@myFWC.com.
- f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads Caution: Boaters must be posted. A second sign measuring at least 8½ " by 11" explaining the requirements for "Idle Speed/No Wake" and the shutdown of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related

activities. These signs can be viewed at

<http://www.myfwc.com/wildlifehabitats/managed/manatee/signs/sign-vendors/>

Questions concerning these signs can be forwarded to the email address listed above.

Gulf Sturgeon and Gulf Sturgeon Critical Habitat

If transiting the area, Gulf sturgeon could be startled by in-water work or have difficulty navigating due to turbidity. We expect Gulf sturgeon to naturally avoid any areas of increased turbidity as they are not known to use turbid habitats. We do not expect this avoidance of the project area to result in changes to normal behaviors. Conservation measures in Table 12-4 should reduce any impacts to Gulf sturgeon from in-water work to only short-term, minor impacts.

No long-term impacts to Gulf sturgeon's critical habitat or PCEs are expected from this project. There may be a temporary increase in turbidity, as well as changes in food abundance and water quality at the project site during project implementation but not throughout the critical habitat unit. These changes would be temporary and extremely localized and would not affect the open waters of Santa Rosa Sound. Conservation measures (see Table 12-4) would be implemented to ensure this project has no impacts to Gulf sturgeon critical habitat. This project may affect, but would not be likely to adversely affect Gulf sturgeon. It would have no effect on Gulf sturgeon critical habitat.

Piping Plover and Red Knot

Although they could use the area for foraging and roosting, piping plover and red knot are not expected to be in the project area. Negligible to short term, minor impacts to these species are anticipated because the project would take place in water, and the staging would take place from established boat ramps in the Gulf Breeze area. Noise from the project may reach the shore, but we do not anticipate the noise to startle birds. Since the project would not take place on shore, it would have no effect on piping plover and red knot.

State-Listed Birds, MBTA and BGEPA

Migratory birds may nest, forage, and/or rest on beaches or mudflats in the vicinity of seagrass restoration activities. If seagrass restoration occurs during the nesting season (February 15 to August 13), these birds could be disturbed by noise generated from in-water activities. This would be a short-term minor impact. To avoid this impact, work within 300 feet of suitable nesting habitat would be avoided during the nesting season. If project implementation could not avoid the nesting season, a pre-project survey would be conducted by a qualified biologist, and if nesting birds were identified within 300 feet of project activities, the USFWS would be contacted regarding the placement of appropriate buffers to ensure no impacts to nesting birds would occur. Contractors would be required to be aware of and comply with applicable laws prohibiting harm to migratory birds and endangered species.

The project is proposed to occur in open water near the shoreline. Open-water seagrass restoration activities would include in-water work that would disturb seabirds or other wildlife due to turbidity, acoustical vibration, and noise impacts during project implementation by small draft vessels, outboard

engine operation, and hammering impacts during installation of the bird stakes or signs. Avoidance and minimization measures to prevent impacts to these migratory birds include minimizing noise and vibration near areas where foraging or resting birds were encountered (USFWS 2013a). All disturbances would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity, when given the opportunity. Additionally, foraging habitat is abundant near the restoration site, and the seagrass restoration activities would take place in only a small portion of the area. Therefore, foraging birds or other wildlife would not be impacted as a result of seagrass restoration activities. Roosting should not be impacted because the project would occur during daylight hours only. Nesting would not be impacted because the project would be limited to open water areas.

Considering the nature of the potential project and the potential impacts to migratory bird groups and associated habitats, conservation measures were identified and would be followed to minimize potential impacts. These measures are summarized in Table 12-5.

Table 12-5. Conservation measures to minimize impacts to migratory bird groups

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Seabirds (terns, gulls, skimmers, double-crested cormorant, American white pelican, brown pelican)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbances would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. Nesting would not be impacted because the project is limited to open water areas.
Shorebirds	<p>Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbances would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. Should nesting birds be discovered in the boat ramp areas, nesting would not be impacted because the following measures would be implemented.</p> <p>Nesting Shorebirds:</p> <ul style="list-style-type: none"> • All personnel would be notified of the potential presence of nesting shorebirds and seabirds within the project area. • All personnel would be instructed and trained in the protection of shorebirds and seabirds. • Activities would be conducted in accordance with the Florida Fish and Wildlife Conservation Commission’s guidelines developed to protect nesting shorebirds. • Personnel would be notified of the criminal and civil penalties associated with harassing, injuring, or killing shorebirds and seabirds. • Noise would be kept to the minimum feasible.

Bald eagles are not known to nest near the Naval Live Oaks unit of the Seashore (personal communication with District Biologist Nicholas, 2/19/2015). If bald eagle breeding or nesting behaviors are observed, or an active nest is determined to be within the project vicinity, conservation measures from USFWS would be implemented avoid impacts to breeding and nesting bald eagles. To minimize potential for impacts to nesting bald eagle, consultation protection measures may include 1) addressing prescribed nest tree protection zones, and 2) preparation of a bald eagle nest protection plan (including nesting behavior disturbance monitoring). Bald eagles have been known to be tolerant of certain potential disturbances within their breeding territories. Should these conservation measures be implemented for active nest sites adjacent to restoration activities in the Naval Live Oaks project area, potential impacts to the bald eagle would be short term and minor.

Bald eagles and ospreys are not present at the proposed project location within a distance that would require conservation measures so they would not be affected. At the same time, implementation of the conservation measures previously identified in the review of potential impacts to migratory birds would prevent take of the identified migratory bird groups.

12.2.6.4 Summary of Impacts to Biological Resources

Impacts to biological resources from the implementation of the Seagrass Recovery Project would be as follows:

- **Vegetation:** This project would have temporary and negligible impacts to donor shoal grass beds from inadvertent damage to vegetation during restoration. The long-term benefits of the seagrass recovery effort would outweigh potential temporary adverse impacts, and include restoration of this community type, water quality enhancement, and increased habitat for commercial and recreational fisheries;
- **Wildlife Habitat:** The proposed project would likely result in short-term minor impacts to wildlife habitat due to turbidity resulting from the harvest and transplant of shoal grass. This turbidity would be extremely localized, and any wildlife that uses the seagrass as habitat would likely move to a more suitable location to continue foraging or feeding. There would be long-term beneficial effects to wildlife habitat from the restoration of seagrass because it would provide animals who utilize seagrass habitat more area in which to forage, loaf, and feed;
- **Marine and Estuarine Fauna:** The proposed project would likely result in temporary, minor impacts due to harvest and transplant placement of shoal grass plugs. The proposed project would result in long-term benefits to marine and estuarine fauna by providing additional fish habitat, increased benthic productivity, and enhanced recruitment and production of fish and crustaceans; and
- **Protected Species:** This project would be anticipated to have no effect piping plover, red knots, or any other birds protected under the MBTA and the BGEPA because these species would not be anticipated to utilize the project area. Because of adherence to the conservation measures found in Table 12-4 and Table 12-5, this project would be anticipated to have no effect on sea turtles or gulf sturgeon critical habitat. This project may affect, but would not be likely to adversely affect, Gulf sturgeon and West Indian manatee.

12.2.6.5 Human Uses and Socioeconomics

12.2.6.5.1 Cultural Resources

Affected Resources

Cultural resources include historic properties listed in, or eligible for listing in the National Register of Historic Places (36 C.F.R. §60[a-d]). The National Historic Preservation Act of 1966, as amended (NHPA; 16 U.S.C. §470[f]), defines an historic property as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register [of Historic Places].” The definition of historic properties also includes significant traditional religious and cultural properties important to Indian tribes. Historic properties include built resources (bridges, buildings, piers, etc.), archaeological sites, and Traditional Cultural Properties, which are significant for their association with practices or beliefs of a living community that are both fundamental to that community’s history and a piece of the community’s cultural identity. Although often associated with Native American traditions, such properties also may be important for their significance to ethnic groups or communities. Historic properties also include submerged resources.

Previously recorded archaeological sites, shipwrecks, ruins and obstructions were reviewed. The review of the previously recorded archaeological sites using Florida Bureau of Historic Preservation (FBHP) records revealed that there are several Native American archaeological sites adjacent to the project area that may have components that are now submerged due to past erosion.

Environmental Consequences

No Action

Under the No Action alternative, there would be no impacts to cultural resources. No actions would be taken in the project area, so no impacts to the cultural and historical resources would occur. No mitigation measures would be necessary.

Proposed Action

This project is anticipated to be minimally invasive. Only hand tools would be used for seagrass harvest and transplant, which would minimize ground disturbance to the greatest extent possible. Because of the very small footprint of the project, the actions taken to minimize ground disturbance, the extensive existing maps of the cultural and historic resources in the area, and the availability of archaeological and tribal monitors for project monitoring if needed, we anticipate no impacts to cultural or historical resources from the Seagrass Recovery Project.

The National Historic Preservation Act of 1966 (NHPA) charges the federal government with protecting the cultural heritage and resources of the nation. A complete review of this project under Section 106 of the NHPA has begun and would be completed as environmental assessment continues. This project would be implemented in accordance with all applicable laws and regulations concerning the protection of cultural and historic resources.

12.2.6.5.2 Aesthetics and Visual Resources

Affected Resources

The land use immediately adjacent to the proposed project site is the Naval Live Oaks forest. The general visual character of the Naval Live Oaks unit and the waters off its shore can be described as undeveloped live oak forest and estuarine habitat separated from the Gulf of Mexico by Santa Rosa Island.

Environmental Consequences

No Action

Under the No Action alternative, there would be no impacts to aesthetics and visual resources. No project activities would occur in the area to impact the area's aesthetics or view shed. No mitigation measures would be necessary.

Proposed Action

Temporary impacts to visual resources would result from implementation of the proposed restoration activity. Boats and equipment would be temporarily visible to visitors and recreational users at the project access points (i.e., boat ramps and launch areas). These project-implementation-related impacts to visual resources would be minor, and equipment would only be visible to visitors arriving at the boat ramp areas to launch. Because the seagrass restoration would consist of the manual placement of shoal grass transplant plugs and bird stakes from boats in the large expanse of open-water estuarine areas, no impacts to visual resources would be anticipated. Seagrass restoration would be anticipated to result in a long-term, minor visual enhancement to the Seashore, as the project is intended to mimic the natural process associated with estuarine systems. Therefore, the proposed project impacts would be minor and would not be expected to adversely affect current aesthetics or visual resources.

12.2.6.5.3 Summary of Impacts to Human Uses and Socioeconomics

Impacts to human uses and socioeconomics from the implementation of the Seagrass Recovery Project would be as follows:

- Cultural Resources: There are no anticipated impacts to cultural resources from this project.
- Aesthetics and Visual Resources: There could be very short-term, negligible impacts to aesthetics and visual resources during project implementation. There would be long-term beneficial impacts resulting from the visual appeal of more robust seagrass growth.

12.2.7 Cumulative Impacts

As discussed in Chapter 4, the CEQ NEPA regulations require the assessment of cumulative impacts in the decision-making process for federal projects, plans, and programs. Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added

to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 C.F.R. §1508.7).

The Seagrass Recovery at GUIs’s cumulative impacts analysis tiers from the Final Phase III ERP/PEIS cumulative impact analysis of Alternative 4 (Contribute to Restoring Habitats, Living Coastal and Marine Resources, and Recreational Opportunities), found in Section 6.8 of that document, which evaluated the type of restoration activity proposed for this Seagrass Recovery Project. The Final Phase III ERP/PEIS identified nine major action categories, as well as examples of past, present, and reasonably foreseeable future actions in the study area (see Sections 6.8.2 and 6.8.3). The categories of potentially relevant past, present, and reasonably foreseeable future actions included: Restoration related to the *Deepwater Horizon* spill, other relevant environmental stewardship and restoration activities, military operations, marine transportation, energy activities, marine mineral mining (including sand and gravel mining), coastal development and land use, fisheries and aquaculture, and tourism and recreation.

The Final Phase III ERP/PEIS analysis of cumulative impacts relevant to the proposed Seagrass Recovery at GUIs are incorporated by reference into the following cumulative impacts analysis, which focuses on the potential additive effects of the proposed Seagrass Recovery at GUIs, Florida District to the effects of past actions evaluated in the Final Phase III ERP/PEIS cumulative impacts analysis and the effects of some past, present, and reasonably foreseeable future actions not analyzed in the Final Phase III ERP/PEIS (see below). The contribution that the proposed project makes to the cumulative impacts is then stated.

12.2.7.1 Site Specific Review and Analysis of Cumulative Impacts to Relevant Resources

This section describes past, present, and reasonably foreseeable future actions that were not discussed in the Final Phase III ERP/PEIS, but which are relevant to identifying any cumulative impacts the proposed Seagrass Recovery at GUIs Project may have on a local scale. Context and intensity, defined in Section 6.2.4 of the Final Phase III ERP/PEIS, are used to determine whether a potential significant cumulative impact from the Seagrass Recovery Project exists.

For the Seagrass Recovery Project at GUIs, specifically, the relevant affected resources analyzed in this EA are:

- Geology and Substrates
- Hydrology and Water Quality
- Air Quality and Greenhouse Gas Emissions
- Living Coastal and Marine Resources (including vegetation, wildlife habitat, marine and estuarine fauna, and protected species)
- Cultural Resources
- Aesthetics and Visual Resources

Local and site-specific past, present and reasonably foreseeable future actions not analyzed in the Final Phase III ERP/PEIS were identified through conversations with Park staff and searching websites relevant to GUIs. The local area is defined as the southern portion of the Naval Live Oaks unit and its immediate

surroundings. Actions that would be relevant to this Seagrass Recovery Project's cumulative impacts analysis are defined here as those with similar scope, timing, impacts, or location. Websites searched include:

- <http://www.nfwf.org/whoweare/mediacenter/pr/Pages/gulf-main-pr-14-1117.aspx>
- <http://eli-ocean.org/gulf/restoration-projects-database/>

This search provided no additional information on actions that are relevant to the Seagrass Recovery Project at GUIIS.

Two projects from the Phase III ERP are or could be sited within the immediate vicinity of this Seagrass Recovery Project, and are considered along with the Seagrass Recovery Project in the following cumulative impacts analysis:

1. Scallop Enhancement for Increased Recreational Fishing Opportunity in the Florida Panhandle Project (for an in depth project description and analysis see Final Phase III ERP/PEIS Sections 12.22 and 12.23) would involve enhancing local scallop populations in targeted areas in the Florida Panhandle. The proposed improvements include the harvesting and redistribution of naturally-occurring juvenile scallops supplemented with stocking from a commercial scallop hatchery.
2. Bob Sikes Pier, Parking and Trail Restoration Project (for an in-depth project description and analysis see Final Phase III ERP/PEIS Sections 12.16 and 12.17) would improve access to a fishing pier in the Pensacola area in Escambia County as well as enhancing the quality of the experience for its recreational users. The proposed improvements include renovating parking areas, enhancing bicycle/pedestrian access, and aesthetic improvements to the surrounding area.

Cumulative impacts from these two actions are determined below for each resource and for each of the two Alternatives. The analysis follows the same structure as the Affected Environment and Environmental Consequences section. Also as in the Environmental Consequences section above, spatial and temporal boundaries were established to identify the past, present, and reasonably foreseeable future actions whose resources overlapped in space and time with those in the Seagrass Recovery Project area. These actions are listed for each resource impact topic below. The type of impact (adverse or beneficial), level of intensity (minor, moderate, or major), and duration (short- or long-term) are stated after each action. Then, 1) the cumulative impacts of the listed actions are assessed and 2) added to the impacts (if any) of the Seagrass Recovery Project, and 3) a cumulative impact is stated for the additive impact of both the listed projects and Seagrass Recovery Project together. Finally, an approximation of the increment added to the cumulative impact by the Seagrass Recovery Project is stated.

The impact thresholds used tier from the Final Phase III ERP/PEIS, specifically Table 6.2 of Chapter 6 (see Appendix D of this document). Each of the summary statements below about the cumulative impacts to a resource under a given Alternative is based on an assessment made using those definitions.

As noted above, some resource impact topics did not require further consideration because the Seagrass Recovery Project at GUIS would not impact them. Those impact topics are not considered in the cumulative impacts analysis below. Those topics removed from further consideration are:

- Noise
- Socioeconomics and Environmental Justice
- Infrastructure
- Land and Marine Management
- Tourism and Recreational Use
- Marine Transportation
- Public Health and Safety

12.2.7.1.1 Physical Environment

Geology and Substrates

Impacts of the Proposed Action

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.1.1 Geology and Substrates, Table 6-4. As discussed in that document, actions to restore habitats and living coastal and marine resources vary from seagrass restoration to creation of wetlands and restoration of barrier islands. The effects of restoring habitats and living coastal and marine resources would vary depending on geographic location, proximity of restoration projects to one another, and spatial scale. Generally, these actions are expected to result in minor to moderate short-term construction-related adverse impacts to geology and substrates, primarily related to equipment staging and use, and rutting.

The placement of new structures such as piers, dune walkovers, or viewing platforms could result in minor to moderate long-term adverse effects by changing the natural processes of sediment accretion and erosion, preventing washover events, and causing erosion in offsite locations. Removal of borrow materials would cause long-term minor impacts to localized areas. Construction activities could also cause long-term soil compaction. However, long-term benefits to geology and substrates are also expected related to sediment deposition on beaches and creation of artificial reefs. In addition to these adverse effects, countervailing impacts associated with reduced erosion or increasing sediment availability from restoration, conservation and recovery efforts associated with other environmental stewardship and restoration activities in the Gulf of Mexico would occur. Additional benefits could accrue where projects improve existing outdated or degraded infrastructure that cause erosion. Alternative 4 was not expected to contribute substantially to cumulative adverse impacts. The Seagrass Recovery Project at GUIS would be anticipated to fall within the expected range of the Final Phase III ERP/PEIS cumulative impact.

In addition to the Final Phase III ERP/PEIS cumulative impacts analysis, the past, present, and reasonably foreseeable future actions from the Final Phase III ERP/PEIS are in the project area and could impact the geology and substrates of the area as follows:

1. Scallop Enhancement - Bay scallop enhancement would have no effect on geology or substrates in the proposed project areas because there would be no construction activities that would disturb geology or substrate. Bay scallops would be placed in areas where existing habitat conditions, including naturally occurring geologic features and substrate, are appropriate for bay scallops.
2. Bob Sikes Pier would have the relatively small area and amount of soils impacted and the nature of construction activities, alterations to soil through fill, compaction, grading, and earth moving activities would result in long and short-term, minor adverse impacts to affected soils. However, given that there would be no substantial change in uses at the project area following implementation of the proposed rehabilitation activities, it is anticipated that there would be no long-term negative impacts to soils as a result of site use.

The impact of the Seagrass Recovery Project at GUIS to geology and substrates is expected to be short-term and minor, resulting from disturbance during placement of shoal grass plugs and installation of the bird stakes. However, tidal circulation within the water column is expected to dilute suspended sediments generated from installation. In addition, there would be overall long-term benefit of reestablishing seagrass habitat in the damaged sites from improved sediment stabilization once seagrass is established in the restoration areas.

The past, present, and reasonably foreseeable future actions (including 1 and 2 immediately above, as well as those analyzed in the Final Phase III ERP/PEIS and discussed briefly above) would result, on balance, in both short and long-term, minor adverse and long-term minor benefits to the cumulative impacts to geology and substrates of the area. When combined with the short-term, minor adverse impacts of the Seagrass Recovery Project, as well as the project's long-term benefit of reestablishing seagrass and improving sediment stabilization, on balance, the result is short and long-term, minor, adverse impacts with some long-term beneficial cumulative impacts. The Seagrass Recovery Project at GUIS, Florida District, would contribute a very short-term, minor, adverse increment, as well as a minor long-term beneficial increment, to this cumulative impact.

Impacts of the No Action Alternative

Under the No Action alternative, the past, present, and reasonably foreseeable future actions discussed above would still occur. These actions would result, on balance, in both short and long-term, minor adverse and long-term minor benefits to the geology and substrates of the area. The Seagrass Recovery at GUIS would not occur under the No Action Alternative. The substrates in damaged seagrass beds would continue to be compromised. When left untreated, propeller scars and blowholes have a tendency to expand in size. Therefore, not completing the Seagrass Recovery Project would contribute a long-term, minor adverse impact to the geology and substrates of the area. When combined with the short and long-term, minor adverse and long-term minor benefits from the other projects in the action area, the balance would be short and long-term minor, adverse impacts and long-term minor benefits to the geology and substrates of the area. However, the Seagrass Recovery would contribute an incremental amount to the long-term, minor, adverse impacts to geology and substrates. The Seagrass Recovery Project would not contribute an incremental amount to the long-term beneficial impacts.

Hydrology and Water Quality

Impacts of the Proposed Action

This analysis tiers from the Final Phase III ERP/PEIS 6.8.4.1.2, Hydrology and Water Quality, Table 6-5. As discussed in that document, actions to restore habitats and living coastal and marine resources vary widely from seagrass restoration to creation of wetlands and restoration of barrier islands. Generally, these actions are expected to result in short-term construction-related adverse impacts, primarily increases in turbidity. However, long-term benefits to hydrology and water quality are also expected, including reduction in the inland flow of salt water, reduction in nutrient and sediment runoff, and reduction in erosion. Alternative 4 was not expected to contribute substantially to cumulative adverse impacts. The Seagrass Recovery Project at GUIS would be anticipated to fall within the expected range of the Final Phase III ERP/PEIS cumulative impact.

Other ongoing and future activities described above under the No Action Alternative in the Final Phase III ERP/PEIS would be expected to continue. As described above, these impacts would include disruption of sediments, increased turbidity, and increased releases of contaminants. Countervailing impacts associated with water quality improvement from restoration, conservation and recovery efforts associated with other environmental stewardship and restoration activities in the Gulf of Mexico would occur. These efforts include those being conducted under Phase I and Phase II Early Restoration.

In addition to the Final Phase III ERP/PEIS cumulative impacts analysis, the past, present, and reasonably foreseeable future actions from the Final Phase III ERP/PEIS are in the project area and could impact the hydrology and water quality as follows:

1. Scallop Enhancement - Although unlikely, water quality would be potentially impacted during placement of the scallops from equipment leaks or spills or disturbance of sediments that result in siltation, turbidity, and the release of chemicals from sediments. With required mitigation in place, the effect on hydrology and water quality would be measurable or detectable but small, short term, and localized. Water quality impacts would quickly become undetectable, and the area's hydrology would be only temporarily altered during construction. This project would not impact groundwater, wetlands, or floodplains.
2. Bob Sikes Pier - based on construction activities on-land it is possible that some impacts via turbidity and the potential for increased sediment released into water could occur. It is anticipated that all impacts would be short-term in nature occurring only during construction resulting in short-term, minor, adverse impacts to water quality. Long-term, the planned improvements to the parking area, including re-paving and planting native vegetation in appropriate areas, would have a minor beneficial impact on water quality.

The impacts of the Seagrass Recovery Project at GUIS to hydrology and water quality are expected to be short-term, minor, and adverse. Negligible local disturbance could result from placement of bird stakes and minor, short-term impacts could occur from turbidity caused by shoal grass plug harvest and

placement and nutrient deposition from bird feces. There would also be long-term beneficial effects from increased seagrasses via diffusion of storm energy, shoreline stabilization, and sediment trapping.

The past, present, and reasonably foreseeable future actions (including 1 and 2 above, as well as those analyzed in the Final Phase III ERP/PEIS) would result, on balance, in short-term, minor, adverse cumulative impacts to the hydrology and water quality of the area, as well as long-term beneficial impacts. When combined with the short-term, minor, and adverse impact of the Seagrass Recovery Project, as well as the project's long-term benefit of sediment trapping, on balance, the result is short-term, minor, adverse impacts with some long-term beneficial cumulative impacts. The Seagrass Recovery Project at GUIs would contribute a minor, adverse increment as well as a long-term beneficial increment to this cumulative impact.

Air Quality and Greenhouse Gas Emissions

Impacts of the Proposed Action

This analysis tiers from the Final Phase III ERP/PEIS 6.8.4.1.3, Hydrology and Water Quality, Table 6-6. As discussed in that document, actions to restore habitats and living coastal and marine resources vary widely from seagrass restoration to creation of wetlands and restoration of barrier islands.

Construction activities associated with natural resource restoration would contribute to impacts to air quality and greenhouse gas emissions in the short-term. However, some level of countervailing beneficial impacts associated with restoration, conservation and recovery efforts from other environmental stewardship and restoration activities in the Gulf of Mexico that increase the ability of the region's natural resources to absorb emissions would occur. Alternative 4 was not expected to contribute substantially to cumulative adverse impacts. The Seagrass Recovery Project at GUIs would be anticipated to fall within the expected range of the Final Phase III ERP/PEIS cumulative impact.

When analyzed in combination with other past, present, and reasonably foreseeable future actions, the habitat restoration project types in the Final Phase III ERP/PEIS would not contribute substantially to short-term or long-term cumulative adverse impacts to air quality or greenhouse gas emissions. To the extent that they increase CO₂ absorption, habitat restoration projects carried out in conjunction with other environmental stewardship and restoration efforts may result in some long-term beneficial cumulative impacts to greenhouse gas emissions because of the potential for synergistic effects of those project types with these other environmental stewardship and restoration activities.

In addition to the Final Phase III ERP/PEIS cumulative impacts analysis, the past, present, and reasonably foreseeable future actions from the Final Phase III ERP/PEIS in the project area could impact the air quality and greenhouse gas emissions in the area as follows:

1. Scallop Enhancement - Project implementation would require the use of outboard motors and tow vehicles, which would lead to temporary air pollution (e.g., criteria pollutants, HAPs, GHGs) due to emissions. Any air quality impacts that occur would be short-term and minor due to their localized nature, short-term duration, and the small size of the project.

2. Bob Sikes Pier - Any air quality impacts that would occur would be localized, short in duration and minimal based on the fact that the majority of construction would consist primarily of renovations to existing structures overall impacts to air quality would be short-term and minor. The implementation of solar-powered lighting along the pier as opposed to fossil fuel powered lights would result in a minor beneficial impact on air quality and GHG emissions through the reduction in the amount of fossil fuel used. Long-term, the site may experience some increase in use by the public but the renovations are expected to improve efficiency. Changes in air quality and GHG are expected to be minor in the long-term.

The impact of the Seagrass Recovery Project at GUIS to air quality and greenhouse gases is expected to be very minor, short term, and adverse. The use of gasoline or diesel-powered vehicles to access the project site(s) would contribute to a very short-term, minor impact from the temporary increase in GHG emissions.

The past, present, and reasonably foreseeable future actions (including 1 and 2 immediately above, as well as those analyzed in the Final Phase III ERP/PEIS) would result, on balance, in short and long-term, minor, adverse cumulative impacts to air quality from greenhouse gas emissions in the project area. When combined with the short-term, minor adverse impact of the Seagrass Recovery Project, on balance, the result is short and long-term, minor, adverse impacts to the air quality of the area. The Seagrass Recovery Project at GUIS would contribute a minor, adverse increment to this cumulative impact.

12.2.7.1.2 Biological Impacts

Living Coastal and Marine Resources (including habitat, vegetation, wildlife habitat, marine and estuarine fauna, and protected species)

Impacts of the Proposed Action

This analysis tiers from the Final Phase III ERP/PEIS 6.8.4.2, Biological Resources, Tables 6-8 and 6-9. As discussed in that document, actions to restore habitats and living coastal and marine resources vary widely from seagrass restoration to creation of wetlands and restoration of barrier islands. Generally, these actions would result in short-term minor to moderate adverse impacts to habitat and living coastal and marine resources as a result of construction activities. Adverse impacts could include: increased soil erosion, vegetation damage or removal, changes in water quality from turbidity and substrate disturbance from in-water work, and the potential introduction or opportunity for establishment of invasive species. Marine species such as the endangered manatee, protected marine mammals, and listed fish could be affected by noise (construction equipment, drilling, military operations), water quality and substrate disturbances and degradation, vessel operation and habitat loss. Species such as manatees, sea turtles and listed fish have been adversely affected by habitat loss (nesting/spawning/rearing, foraging), reduced prey abundance, overfishing, incidental catch, and increased human presence and activity. Alternative 4 was not expected to contribute substantially to

cumulative adverse impacts. The Seagrass Recovery Project at GUI5 would be anticipated to fall within the expected range of the Final Phase III ERP/PEIS cumulative impact.

Long-term minor to moderate adverse impacts may also occur from habitat restoration projects where one habitat type is permanently converted to another target habitat type (e.g. displacement of unvegetated open water habitat to restore wetlands or oyster reef). However, since many of these project types focus on restoring or protecting natural resources, Gulf Coast habitats would largely experience long-term beneficial impacts through improved health, stability and resiliency of habitats, including sensitive habitats such as wetlands, barrier islands, areas of SAV, and reefs. These project types could help reestablish native plant communities, stabilize substrates and support sediment deposition, strengthen shorelines, reduce erosion, increase species populations, and decrease species stressors.

Past, present and reasonably foreseeable future actions described above under the Final Phase III ERP/PEIS No Action alternative would be expected to continue. As described in the Final Phase III ERP/PEIS, activities including energy and mining, coastal development and land use, military activities, and marine transportation would result in short- and long-term adverse impacts to habitats including habitat degradation through reduced quality (e.g., reduced water quality or introduction of invasive species), habitat fragmentation, and habitat loss. Construction activities from habitat restoration, conservation and recovery efforts associated with other environmental stewardship and restoration activities would also contribute short term adverse impacts, including the potential for some species to relocate (such as migratory birds). However, countervailing beneficial impacts from habitat restoration, conservation and recovery efforts associated with other environmental stewardship and restoration activities in the Gulf of Mexico would also occur. These actions would likely create new or restore degraded habitats, protect habitats from fragmentation, and preserve unaffected quality habitats, especially sensitive habitats.

In addition to the Final Phase III ERP/PEIS cumulative impacts analysis, two of the past, present, and reasonably foreseeable future actions from the Final Phase III ERP/PEIS are in the project area and could impact the habitats and living coastal and marine resources as follows:

1. Scallop Enhancement - Project installation activities would use BMPs, including impact avoidance of existing seagrass habitat through the use of small vessels for placement of scallops. Every effort would be made to access the scallop placement sites during periods of high tide using shallow draft vessels to minimize potential adverse impacts to seagrass habitat as a result of navigation. Therefore, impacts to seagrass would be short term and minor. The project would result in minor short-term impacts to vegetation. Impacts may be detectable, but would not alter natural conditions and would be limited to localized areas. The proposed project would result in long-term benefits to marine and estuarine fauna by providing additional fish habitat, increased benthic productivity, and enhanced recruitment and production of fish and crustaceans. Disturbance to any EFH and species using the Seagrass habitat in areas adjacent to locations where scars would be restored would be minor and short in duration, with risks further mitigated by following identified best management practices during construction.

2. Bob Sikes Pier – The Trustees determined the project would have no effect to listed, proposed, or candidate species and would not result in adverse modification or destruction of proposed or designated critical habitat under the jurisdiction of the USFWS or the NMFS, including EFH.

The Seagrass Recovery Project at GUIS may have short-term minor adverse impacts to animals and their habitats because of temporary damage to seagrass surrounding the propeller scars as a result of watercraft access to the restoration sites, harvest and placement of seagrass plugs from nearby beds, and inadvertent damage during restoration. The long-term benefits of the seagrass recovery effort would outweigh potential temporary adverse impacts, and include restoration of this community type, water quality enhancement, and increased habitat for commercial and recreational fisheries.

The past, present, and reasonably foreseeable future actions (including 1 and 2 immediately above, as well as those analyzed in the Final Phase III ERP/PEIS) would result in temporary, short and long-term, minor adverse impacts during project implementation, as well as long-term benefits to habitats and living and coastal marine resources after project completion. When combined with the temporary minor adverse impacts, and the long-term beneficial impacts of the Seagrass Recovery Project on improving habitat, on balance, the result is short and long-term, minor adverse impacts with some long-term beneficial cumulative impacts. The Seagrass Recovery Project at GUIS would contribute both a minor, short-term, adverse impact, as well as a long-term beneficial increment to this cumulative impact.

12.2.7.1.3 Human Uses and Socioeconomics

Cultural Resources

Impacts of the Proposed Action

This analysis tiers from the Final Phase III ERP/PEIS 6.8.4.3.2, Socioeconomics and Environmental Justice, Table 6-11. As discussed in that document, actions to restore habitats and living coastal and marine resources vary widely from seagrass restoration to creation of wetlands and restoration of barrier islands. The effects of these project types would vary depending on geographic location.

Past, present, and reasonably foreseeable future activities described under the Final Phase III ERP/PEIS No Action Alternative would be expected to continue. As described above, these impacts would include impacts on known as well as not-yet-documented cultural resources, and would vary by activity and location. In addition to adverse effects, countervailing impacts to cultural resources of restoration, conservation and recovery efforts associated with other environmental stewardship and restoration activities in the Gulf of Mexico could occur. These beneficial impacts could include the identification and subsequent protection of cultural resources that may otherwise have been unknown or unprotected.

When analyzed in combination with other past, present, and reasonably foreseeable future actions, the preferred alternative of the Final Phase III ERP/PEIS (Alternative 4) is not expected to contribute substantially to short-term or long-term adverse or beneficial cumulative impacts to cultural resources.

In addition to the Final Phase III ERP/PEIS cumulative impacts analysis, the past, present, and reasonably foreseeable future actions from the Final Phase III ERP/PEIS are in the project area, however there are currently no known impacts to cultural resources from these two projects:

1. Scallop Enhancement - No known impacts identified in the Final Phase III ERP/PEIS
2. Bob Sikes Pier – No known impacts identified in the Final Phase III ERP/PEIS

The Seagrass Recovery Project at GUI is not anticipated to have any impacts on cultural resources. This project would be implemented in accordance with all applicable laws and regulations concerning the protection of cultural and historic resources.

The past, present, and reasonably foreseeable future actions (including 1 and 2 immediately above, as well as those analyzed in the Final Phase III ERP/PEIS) are not anticipated to have any impacts on cultural resources in the project area.

12.2.8 Summary and Next Steps

The proposed Seagrass Recovery Project would include surveying and mapping scarring within the seagrass habitats in the Naval Live Oaks unit of the Seashore. Additionally, shoal grass plugs would then be harvested and transplanted in 0.02 acres of seagrass bed areas in need of re-vegetation. The project is consistent with the selected alternative in the Final Phase III ERP/PEIS (Alternative 4), under which the Trustees propose to implement projects emphasizing the restoration of habitat and living coastal and marine resources as well as projects emphasizing the restoration of recreational opportunities.

NEPA analysis of the environmental consequences suggests that while minor adverse impacts may occur to some resource categories, no moderate to major adverse impacts are anticipated to result. The project would provide long-term benefits by restoring approximately 0.02 acres of seagrass habitat. The Trustees have started coordination and reviews under the Endangered Species Act, the Magnuson-Stevens Fishery and Conservation Act, the National Historic Preservation Act, the Marine Mammal Protection Act, the Bald and Golden Eagle Protection Act, Coastal Zone Management Act, and other federal statutes. Pursuant to the Coastal Zone Management Act of 1972, federal activities must be consistent to the maximum extent practicable with the federally approved coastal management programs for states where the activities would affect a coastal use or resource. Federal Trustees are submitting consistency determinations for state review coincident with public review of this document. The Trustees will consider public comment and information relevant to environmental concerns bearing on the proposed actions or their impacts.

12.3 References

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