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 National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
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F/SER31: TWD

Chief, Miami Permits Section
 Jacksonville District Corps of Engineers
 Department of the Army
 9900 Southwest 107th Avenue, Suite 203
 Miami, Florida 33176

MAY 24 2017

Dear Sir or Madam:

The enclosed Biological Opinion (“Opinion”) responds to your request for consultation with us, the National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA) for the following action.

Permit Number	Applicant	PCTS Number	Project Types
SAJ-2016-00821 (LP-AG)	Mr. Bart Reines	SER-2016-18323	Dock Removal; Dock Construction

The Opinion considers the effects of removal of a marginal dock and construction of a new dock by Mr. Bart Reines on the following listed species and critical habitat: green (North Atlantic and South Atlantic distinct population segments (DPSs), hawksbill, Kemp's ridley, and loggerhead (Northwest Atlantic DPS) sea turtles; smalltooth sawfish (U.S. DPS); and Johnson's seagrass critical habitat. NMFS concludes that the proposed action is not likely to adversely affect green, hawksbill, Kemp's ridley, or loggerhead sea turtles, or smalltooth sawfish. NMFS also concludes that the proposed action is not likely to result in the destruction or adverse modification of designated critical habitat for Johnson's seagrass.

We look forward to further cooperation with you on other USACE projects to ensure the conservation and recovery of our threatened and endangered marine species. If you have any questions regarding this consultation, please contact Dr. Thomas Dolan, Consultation Biologist, at (727) 551-5741, or by email at thomas.dolan@noaa.gov.

Sincerely,

Roy E. Crabtree, Ph.D.
 Regional Administrator

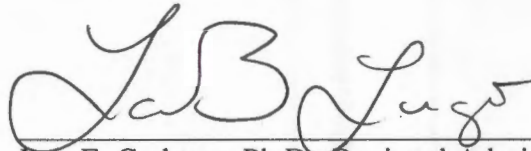
Enc.: Biological Opinion
 File: 1514-22.F.4



**Endangered Species Act - Section 7 Consultation
Biological Opinion**

Action Agency: United States Army Corps of Engineers, Jacksonville District
Applicant: Bart Reines
Activity: Removal of a marginal dock and construction of a new dock in
Miami Beach, Miami-Dade County, Florida
Consulting Agency: Protected Resources Division
Southeast Regional Office
National Marine Fisheries Service
Consultation Number SER-2016-18323

Approved by:



Roy E. Crabtree, Ph.D., Regional Administrator
NMFS, Southeast Regional Office
St. Petersburg, Florida

MAY 24 2017

Date Issued:

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Acronyms and Abbreviations

cSEL	cumulative sound exposure level
ESA	Endangered Species Act
NMFS	National Marine Fisheries Service
RPMs	reasonable and prudent measures
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Units of Measurement

ac	acre
ft	foot/feet
ft ²	square foot/feet
in	inch(es)
km	kilometer(s)
lin ft	linear foot/feet
m	meter(s)

Background

Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 et seq.), requires each federal agency to “insure that any action authorized, funded, or carried out by such 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 such species.” Section 7(a)(2) requires federal agencies to consult with the appropriate Secretary on any such action. National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) share responsibilities for administering the ESA.

Consultation is required when a federal action agency determines that a proposed action “may affect” listed species or designated critical habitat. Consultation is concluded after NMFS determines that the action is not likely to adversely affect listed species or critical habitat or issues a Biological Opinion (“Opinion”) that identifies whether a proposed action is likely to jeopardize the continued existence of a listed species, or destroy or adversely modify critical habitat. The Opinion states the amount or extent of incidental take of the listed species that may occur, develops measures (i.e., reasonable and prudent measures - RPMs) to reduce the effect of take, and recommends conservation measures to further the recovery of the species. The Opinion may also recommend discretionary conservation measures. No incidental destruction or adverse modification of designated critical habitat may be authorized. The issuance of an Opinion detailing NMFS’s findings concludes ESA Section 7 consultation.

This document represents NMFS’s Opinion based on our review of impacts associated with the proposed action to issue a permit within Miami-Dade County, Florida. This Opinion analyzes the project’s effects on threatened and endangered species and designated critical habitat, in accordance with Section 7 of the ESA. We based it on project information provided by the USACE and other sources of information, including the published literature cited herein.

1 CONSULTATION HISTORY

NMFS received a request for ESA consultation from the U.S. Army Corps of Engineers (USACE) on November 2, 2016. NMFS requested additional information on November 28, 2016. A response was received from the USACE on November 29, 2016, and consultation was initiated on that date.

2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

2.1 Proposed Action

The site of the proposed project is a single-family residence located on a 144-foot (ft) wide residential canal, in the Biscayne Bay Aquatic Preserve (Figure 1). The project site currently consists of a 120-linear-foot (lin ft) seawall with an 18-inch (in)-wide concrete cap, supported by batter and king piles, and a 200-square-foot (ft²) marginal dock with mooring piles and a boat lift for storage of a 30-ft by 10-ft vessel on the southern margin of the dock, and fenders along the seawall to allow mooring of vessels at either end of the dock. The benthos consists of unconsolidated sediment colonized by seagrasses. A benthic survey conducted on November 5, 2015, documented the following organisms at the project location. East of the dock, paddle grass

and manatee grass provide 20% and 5% cover, respectively. To the west of the dock, paddle grass and shoal grass provide 10% and 5% cover, respectively. South of the dock, including the area under the existing lift, turtlegrass, paddle grass, and shoal grass provide less than 5% cover in total. No Johnson's seagrass was found during the survey. Although provisions were made to moor vessels at either end of the dock, the established seagrass beds in those areas indicate that they have not been shaded. Therefore, the total area shaded by the dock and vessel is approximately 500 ft² (200-ft² dock + 300-ft² vessel [30 ft × 10 ft = 300 ft²]).

The applicant proposes to remove the existing 200-ft² marginal dock, including 3 supporting piles, a 10-ft by 12-ft boat lift, and 2 mooring piles and to construct a 490-ft² marginal dock with a new double Jet Ski lift in its place. The applicant has also proposed to repair the existing seawall by adding 13 new 12-in concrete batter piles (13 ft²) for support and replacing the current seawall cap. The USACE permitted the pile installation associated with the seawall repair under SAJ-42, which gives limited authority to Miami-Dade County for some in-water construction activities, including shoreline stabilization. The effects of SAJ-42 are considered in and covered by the programmatic consultation on SAJ-42 (SER-2008-01790). As of the writing of this Opinion, these repairs are ongoing.¹

The 490-ft² marginal dock will extend 14 ft into the water and 35 ft along the shoreline, supported by ten 12-in, round wood pilings. The new dock will be built over the footprint of the existing dock and extend west of the existing dock. The decking of the dock will be 4.83 ft above Mean High Water, and no spacing will be provided between boards. The structure will provide storage for one 30-ft by 10-ft vessel on its southern margin. A new, double Jet Ski lift, supported by 2 steel I-beams attached to 2 additional 12-in, round wood pilings, will be installed at the western end of the dock to provide storage for two 12-ft by 5-ft Jet Skis. The area shaded by vessels is expected to be 420 ft² (300 ft² vessel + 2 × [12 ft × 5ft Jet Skis] = 420 ft²), and the total area shaded will be 910 ft² (490 ft² dock + 420 ft² vessels = 910 ft²), of which only 410 ft² will be new shading (910 ft² shading from proposed dock and vessels - 500 ft² existing shading = 410 ft² new shading).

Following installation of turbidity curtains, the existing dock, boatlift, and associated piles will be removed by direct pulling using barge-mounted mechanical equipment (e.g., trackhoe, crane), and the resulting debris will be disposed of at an approved upland landfill. The 12 wood piles will then be installed using a barge-mounted impact driver. The remaining dock construction will be conducted from land, including installation of the double Jet Ski lift. The two steel I-beams for the lift will be installed using a land-based vibratory hammer. All in-water work is expected to be completed within 1 week of commencement, and land-based operations (e.g., construction of the dock and double Jet Ski lift) are expected to require an additional 2 weeks.

The applicant will follow NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, dated March 23, 2006. This includes the use of turbidity curtains that are made of material in which a sea turtle or smalltooth sawfish cannot become entangled. All construction workers will

¹ Because the proposed seawall repair is currently ongoing, we anticipate that construction activities associated with the seawall repair will be complete prior to the commencement of the construction of the proposed action. Adverse effects to Johnson's seagrass critical habitat in the action area as a result of the seawall repair are accounted for in Section 4 (Environmental Baseline).

observe the work area for the presence of these species. All in-water operations will cease if a sea turtle or smalltooth sawfish is observed within 50 ft of construction equipment, and will not resume until the animal leaves of its own accord. All work will take place between 8:00 a.m. and 4:00 p.m., and will occur only Monday-Friday each week.

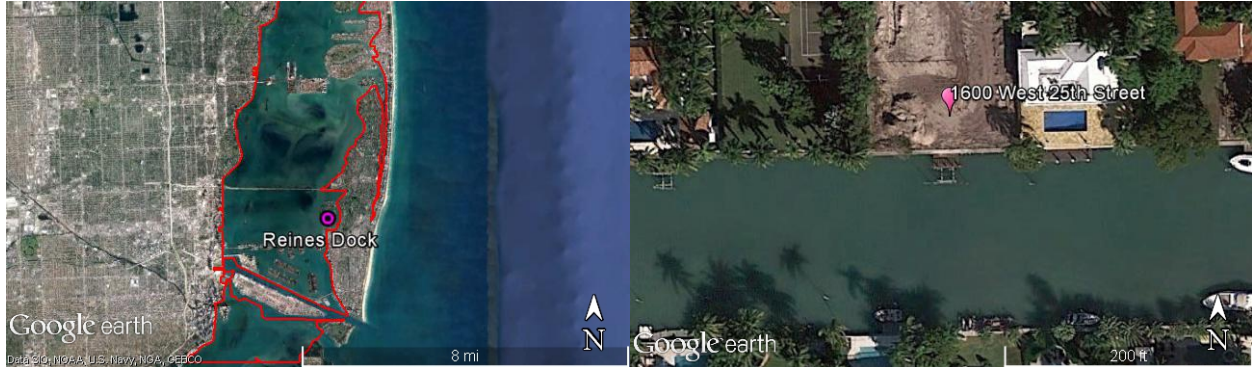


Figure 1. Images of the Bart Reines dock project site showing its location in Biscayne Bay within the boundaries of Johnson's seagrass critical habitat, outlined in red (left), and the local environment and existing structures at the site (right). (©2017 Google, TerraMetrics, data SIO, NOAA, U.S. Navy, NGA, GEBCO)

2.2 Action Area

50 CFR 404.02 defines action area as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” The project site is located at 1600 West 25th Street, Miami Beach, Florida, latitude 25.800627°N, longitude 80.144205°W (North American Datum 1983). The action area includes the waters and submerged lands within and in the immediate vicinity of the project site, and within a radius of 705 ft around each pile, the maximum distance at which endangered species could be exposed to potentially harmful noise levels caused by pile driving. The action area is entirely within the boundary of Johnson's seagrass critical habitat Unit J (Figure 1).

3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

Table 1. Effects Determinations and Status for Species and Critical Habitat in or Near the Action Areas that Either the Action Agency or NMFS Believes May Be Affected by the Proposed Action

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (North and South Atlantic distinct population segments [DPSs])	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NE
Loggerhead (Northwest Atlantic Ocean DPS)	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
Critical Habitat			
Johnson's seagrass Unit J		NLAA	LAA/No DAM
E = endangered; T = threatened; DAM = destruction or adverse modification; LAA = likely to adversely affect; NLAA = may affect, not likely to adversely affect; NE = no effect			

We believe that green sea turtles from the North and South Atlantic DPSs, Kemp's ridley sea turtles, loggerhead sea turtles from the Northwest Atlantic Ocean DPS, hawksbill sea turtles, and smalltooth sawfish from the U.S. DPS may be within the action area and may be affected by the project. The USACE determined that leatherback sea turtles also may be affected. However, we believe this proposed action will have no effect on leatherback sea turtles due to their very specific life history strategy, which is not supported in the action area. Leatherback sea turtles have a pelagic, deepwater life history, and they forage primarily on jellyfish. The action area is also within the boundary of Johnson's seagrass Critical Habitat Unit J, but Johnson's seagrass does not occur within the action area.

3.1 Species Not Likely to be Adversely Affected

Green sea turtles from the North and South Atlantic DPSs, Kemp's ridley sea turtles, loggerhead sea turtles from the Northwest Atlantic Ocean DPS, hawksbill sea turtles (collectively, "sea turtles," hereafter), and smalltooth sawfish from the U.S. DPS may be found in or near the action area and may be affected by the project. We have identified the following potential adverse effects to these species and concluded that they are not likely to be adversely affected by the proposed action for the reasons described below in Sections 3.1.1, 3.1.2, and 3.1.3.

3.1.1 Direct Physical Effects

Direct, physical injury to sea turtles and smalltooth sawfish is not expected from construction machinery or materials because we expect sea turtles and smalltooth sawfish to detect and move away from the types of construction activities that are proposed for this project. Additionally, turbidity controls may act as a physical barrier to species presence during construction, preventing access to the project site during construction. The project will adhere to NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, dated March 23, 2006 (enclosed), which will provide additional protection by requiring work to stop if a listed species is observed within 50 ft of operating machinery. Thus, direct physical impacts are considered extremely unlikely to occur and adverse effects are therefore discountable.

3.1.2 Noise Effects

Effects to listed species as a result of noise created by construction activities can physically injure animals in the affected areas or change animal behavior in the affected areas. Injurious effects can occur in 2 ways. First, immediate adverse effects can occur to listed species if a single noise event exceeds the threshold for direct physical injury. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals, and these can constitute adverse effects if animals are exposed to the noise levels for

sufficient periods. Behavioral effects can be adverse if such effects interfere with migrating, feeding, resting, or reproducing, for example. Our evaluation of effects to listed species as a result of noise created by construction activities is based on the analysis prepared in support of the Opinion for SAJ-82 (NMFS 2014). The noise analysis in this consultation evaluates effects to ESA-listed fish and sea turtles identified by NMFS as potentially affected in the table above.

Table 2. Summary of Noise-Producing Activities Proposed in the Project

Number of Piles	Size and Type of Piles	Installation Method
2	steel I-beam	vibratory hammer
12	12-in wood	impact hammer

Installation of metal boatlift I-beam [up to 2 piles] using a vibratory hammer:

Based on our noise calculations, installation of metal boatlift I-beam using a vibratory hammer will not result in injurious noise effects or behavioral noise effects.

Installation of wood piles (up to 14-in diameter) by an impact hammer:

Based on our noise calculations, the installation of wood piles by impact hammer will not cause single-strike or peak-pressure injury to ESA-listed sea turtles or smalltooth sawfish. The cumulative sound exposure level (cSEL) of multiple pile strikes over the course of a day may cause injury to smalltooth sawfish and sea turtles at a radius of up to 30 ft (9 meters [m]). Due to the mobility of sea turtles and smalltooth sawfish, we expect them to move away from noise disturbances. Because we anticipate the animal will move away, we believe that an animal suffering physical injury from noise is extremely unlikely to occur. Even in the unlikely event an animal does not vacate the daily cumulative injurious impact zone, the radius of that area is smaller than the 50-ft radius that will be visually monitored for listed species. Construction personnel will cease construction activities if an animal is sighted per NMFS’s *Sea Turtle and Smalltooth Sawfish Construction Conditions*. Thus, we believe any injurious cSEL effects are extremely unlikely to occur and therefore discountable. An animal’s movement away from the injurious impact zone is a behavioral response, with the same effects discussed below.

Based on our noise calculations, impact hammer pile installation could also cause behavioral effects at radii of 151 ft (46 m) for sea turtles and 705 ft (215 m) for smalltooth sawfish. Due to the mobility of sea turtles and smalltooth sawfish, we expect them to move away from noise disturbances. Because there is similar habitat nearby, we believe behavioral effects will be insignificant. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise impacts during pile installation. Since installation will occur only during the day, these species will be able to resume normal activities during quiet periods between pile installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

3.1.3 Foraging and Refuge

Sea turtles and smalltooth sawfish may be temporarily unable to use the action area for forage and shelter habitat due to avoidance of construction activities, related noise, and physical exclusion from areas blocked by turbidity curtains. We expect these effects will be temporary and of short duration (total duration of in-water work will be 1 week), intermittent (impact hammering and construction will only occur during daylight hours), and small in nature

(turbidity curtains will only be used in the immediate area of the impact hammering). Also, because these species are mobile, we expect that they will move away from the construction activities and forage in adjacent areas with similar available habitat. Therefore, the effects to sea turtles and smalltooth sawfish from the impacts of temporary loss of foraging and refuge habitat will be insignificant.

In addition, green sea turtles, hawksbill sea turtles, and smalltooth sawfish foraging behavior may be affected by the permanent loss of forage habitat. Green sea turtles feed on seagrasses, and some of the prey species on which hawksbill sea turtles and smalltooth sawfish feed (echinoderms, mollusks, arthropods, and juvenile fishes) can be found in seagrass beds. The action may reduce the amount of seagrasses growing within the action area by increased shading of an area comprised of approximately 410 ft² of sparsely inhabited (up to 10% cover) seagrass beds. However, any loss of this area of seagrass beds will be insignificant to ESA-listed species due to the availability of large areas of similar habitat nearby.

3.2 Status of Critical Habitat Likely to be Adversely Affected

The term “critical habitat” is defined in Section 3(5)(A) of the ESA as (i) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (1) essential to the conservation of the species and (2) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. “Conservation” is defined in Section 3(3) of the ESA as “...the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which listing under the ESA is no longer necessary.”

3.2.1 Johnson’s seagrass critical habitat

Description

NMFS designated Johnson’s seagrass critical habitat on April 5, 2000 (65 FR 17786; see also, 50 CFR 226.213). The specific areas occupied by Johnson’s seagrass and designated by NMFS as critical habitat are those with 1 or more of the following criteria:

1. Locations with populations that have persisted for 10 years
2. Locations with persistent flowering populations
3. Locations at the northern and southern range limits of the species
4. Locations with unique genetic diversity
5. Locations with a documented high abundance of Johnson’s seagrass compared to other areas in the species’ range

Ten areas (Units) within the range of Johnson’s seagrass (approximately 200 kilometers (km) of coastline from Sebastian Inlet to northern Biscayne Bay, Florida) are designated as Johnson’s seagrass critical habitat (Table 3). The total range-wide acreage of critical habitat for Johnson’s seagrass is roughly 22,574 acres (ac) (NMFS 2002).

Table 3. Designated Critical Habitat Units for Johnson’s Seagrass

Unit A	A portion of the Indian River, Florida, north of the Sebastian Inlet Channel
Unit B	A portion of the Indian River, Florida, south of the Sebastian Inlet Channel
Unit C	A portion of the Indian River Lagoon, Florida, in the vicinity of the Fort Pierce Inlet
Unit D	A portion of the Indian River Lagoon, Florida, north of the St. Lucie Inlet
Unit E	A portion of Hobe Sound, Florida, excluding the federally marked navigation channel of the Intracoastal Waterway
Unit F	A portion of the south side of Jupiter Inlet, Florida
Unit G	A portion of Lake Worth, Florida, north of Bingham Island
Unit H	A portion of Lake Worth Lagoon, Florida, located just north of the Boynton Inlet
Unit I	A portion of northeast Lake Wyman, Boca Raton, Florida, excluding the federally marked navigation channel of the Intracoastal Waterway
Unit J	A portion of northern Biscayne Bay, Florida, including all parts of the Biscayne Bay Aquatic Preserve excluding the Oleta River, Miami River, and Little River beyond their mouths, the federally marked navigation channel of the Intracoastal Waterway, and all existing federally authorized navigation channels, basins, and berths at the Port of Miami to the currently documented southernmost range of Johnson’s seagrass, Central Key Biscayne

The physical habitat that supports Johnson’s seagrass includes both shallow intertidal and deeper subtidal zones. The species thrives either in water that is clear and deep (2-5 meters [m]) or in water that is shallow and turbid. In tidal channels, it inhabits coarse sand substrates. The spread of the species into new areas is limited by its reproductive potential. Johnson’s seagrass possesses only female flowers; thus vegetative propagation, most likely through asexual branching, appears to be its only means of reproduction and dispersal. If an established community is disturbed, regrowth and reestablishment are extremely unlikely. This species’ method of reproduction impedes the ability to increase distribution as establishment of new vegetation requires considerable stability in environmental conditions and protection from human-induced disturbances.

Essential Features of Critical Habitat

NMFS identified 4 habitat features essential for the conservation of Johnson’s seagrass: (1) adequate water quality, defined as being free from nutrient over-enrichment by inorganic and organic nitrogen and phosphorous or other inputs that create low oxygen conditions; (2) adequate salinity levels, indicating a lack of very frequent or constant discharges of fresh or low-salinity waters; (3) adequate water transparency, which would allow sunlight necessary for photosynthesis; and (4) stable, unconsolidated sediments that are free from physical disturbance. All 4 essential features must be present in an area for it to function as critical habitat for Johnson’s seagrass.

Critical Habitat Unit Impacted by this Action

This consultation focuses on an activity that occurs in Unit J, which encompasses the northern portion of Biscayne Bay from Northeast 163rd Street south to Central Key Biscayne at 25°45' N (Figure 2). This portion of Biscayne Bay is bound by heavy residential and commercial development, though a few areas of mangrove shoreline remain. Dredge and fill projects have resulted in a number of spoil islands and channels too deep for seagrass growth. Biscayne Bay supports a diversity of biological communities including intertidal wetlands, seagrasses, hard bottom, assemblages, and open water. Unit J is wholly within the Biscayne Bay Aquatic Preserve.

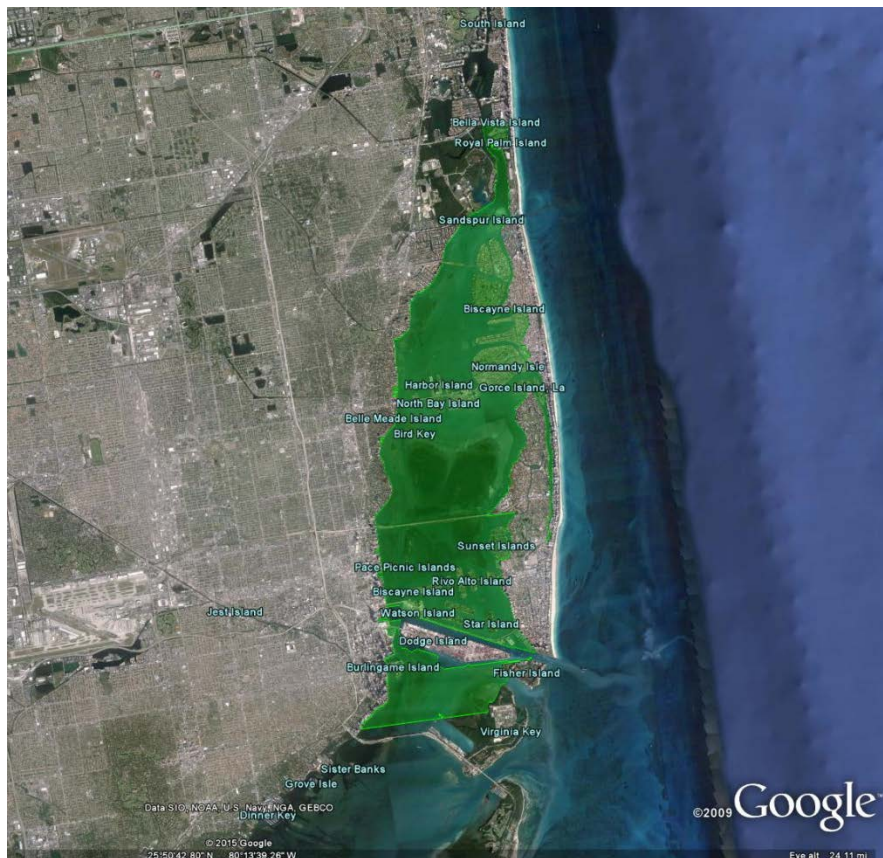


Figure 2. Johnson's seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)

Status and Threats

A wide range of activities, many funded authorized or carried out by federal agencies, have and will continue to affect the essential habitat requirements of Johnson's seagrass. These are generally the same activities that may affect the species itself, and include: (1) vessel traffic and the resulting propeller dredging; (2) dredge and fill projects; (3) dock, marina, and bridge construction; (4) water pollution; and (5) land use practices (shoreline development, agriculture, and aquaculture).

Vessel traffic has the potential to affect Johnson's seagrass critical habitat by reducing water transparency. Operation of vessels in shallow water environments often leads to the suspension of sediments due to the spinning of propellers on or close to the bottom. Suspended sediments reduce water transparency and the depth to which sunlight penetrates the water column.

Populations of Johnson's seagrass that inhabit shallow water and water close to inlets where vessel traffic is concentrated are likely to be most affected. This effect is expected to worsen with increases in boating activity.

The dredging of bottom sediments to maintain, or in some cases create, inlets, canals, and navigation channels can directly affect essential features of Johnson's seagrass critical habitat. Dredging results in turbidity through the suspension of sediments. As discussed previously, the suspension of sediments reduces water transparency and the depth to which sunlight can penetrate the water column. The suspension of sediments from dredging can also re-suspend nutrients, which could result in over-enrichment and/or reduce dissolved oxygen levels. Further, dredging can destabilize sediments and alter both the shape and depth of the bottom within the dredged footprint. This may affect the ability of the critical habitat to function through the removal or modification of essential features.

Dock, marina, and bridge construction leads to loss of habitat via construction impacts (e.g., pile installation) and shading. Similar to dredging, installation of piles for docks or bridges can result in increased turbidity that can negatively impact water transparency over short durations. Additionally, installed piles also replace the stable, unconsolidated bottom sediments essential for the species. Completed structures can have long-term effects on critical habitat in the surrounding area because of the shade they produce. While shading does not affect water transparency directly, it does affect the amount and/or duration of sunlight that can reach the bottom. The threat posed by dock, marina, and bridge construction is especially apparent in coastal areas where Johnson's seagrass is found.

Other threats include inputs from adjacent land use. Johnson's seagrass critical habitat located in proximity to rivers, canal mouths, or other discharge structures is affected by land use within the watershed. Waters with low salinity that are highly colored and often polluted are discharged to the estuarine environment. This can impact salinity, water quality, and water transparency, all essential features of Johnson's seagrass critical habitat. Frequent pulses of freshwater discharge to an estuarine area may decrease salinity of the habitat and provoke physiological stress to the species. Nutrient over-enrichment, caused by inorganic and organic nitrogen and phosphorous loading via urban and agricultural land run-off, stimulates increased algal growth, decreased water transparency, and diminished oxygen content within the water. Low oxygen conditions have a demonstrated negative impact on seagrasses and associated communities. Discharges can also contain colored waters stained by upland vegetation or pollutants. Colored waters released into these areas reduce the amount of sunlight available for photosynthesis by rapidly reducing the amount of shorter wavelength light that reaches the bottom. In general, threats from adjacent land use will be ongoing, randomly occurring events that follow storm events.

4 ENVIRONMENTAL BASELINE

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat (including designated critical habitat), and the ecosystem, within the action area. It does not include the effects of the action under review in this consultation.

By regulation, environmental baselines for Biological Opinions include the past and present impacts of all state, federal, or private actions and other human activities in the action area. We identify the anticipated impacts of all proposed federal projects in the specific action area of the consultation at issue, that have already undergone formal or early Section 7 consultation as well as the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

Focusing on the impacts of the activities in the action area specifically allows us to assess the prior experience and state (or condition) of the designated critical habitat in an action area, which will be exposed to effects from the actions under consultation. This consideration is important because in some areas, critical habitat features will commonly exhibit, or be more susceptible to, adverse responses to stressors than they would be in other areas. These localized stress responses or stressed baseline conditions may increase the severity of the adverse effects expected from the proposed action.

4.1 Status of Johnson's seagrass critical habitat within the Action Area

As discussed above, this consultation focuses on activities occurring in Unit J, which encompasses the northern portion of Biscayne Bay from NE 163rd Street south to Central Key Biscayne at 25° 45' N (Figure 2). This portion of Biscayne Bay is bound by heavy residential and commercial development, though a few areas of mangrove shoreline remain. Dredge-and-fill projects have resulted in a number of spoil islands and channels too deep for seagrass growth. Biscayne Bay supports a diversity of biological communities including intertidal wetlands, seagrasses, hard bottom, assemblages, and open water. Unit J is wholly within the Biscayne Bay Aquatic Preserve. Within the action area, the presence of other seagrasses indicates that the essential features of Johnson's seagrass critical habitat are present throughout most of the area. However, 200 ft² are shaded by a marginal dock, 300 ft² are shaded by a vessel, and an additional 180 ft² are shaded by the seawall cap (120 lin ft × 1.5 ft). Two 12-in, round, wood mooring piles, currently occupy approximately 2 ft² ($2 \times \pi \times 0.5 \text{ ft radius} \times 0.5 \text{ ft radius} = 1.57 \text{ ft}^2$) of the benthos, presumably replacing stable, unconsolidated sediment.

4.2 Factors Affecting Johnson's seagrass critical habitat within the Action Area

4.2.1 Federal Actions

A wide range of activities funded, authorized, or carried out by federal agencies may affect the essential features of critical habitat for Johnson's seagrass in the action area. These include actions permitted or implemented by the USACE such as dredging; dock/marina construction; bridge/highway construction; residential construction; shoreline stabilization; breakwaters; and the installation of subaqueous lines or pipelines. Other federal activities that may affect Johnson's seagrass critical habitat include actions by the Environmental Protection Agency and the USACE to manage freshwater discharges into waterways; management of National Parks; regulation of vessel traffic to minimize propeller dredging and turbidity; and other activities by the U.S. Coast Guard and U.S. Navy. Although these actions have probably affected Johnson's seagrass critical habitat, none of these past actions have destroyed or adversely modified Johnson's seagrass critical habitat.

The Miami-Dade Programmatic General Permit (SAJ-42) authorizes docks that may affect Johnson's seagrass and its designated critical habitat. NMFS issued a biological opinion concerning the effects of the Programmatic General Permit on endangered species February 10, 2011, and the USACE issued the permit on April 29, 2013. Under this authority, a new concrete cap and 13 concrete batter piles are being installed to repair the seawall in the action area. The cap will replace an existing cap, and will not result in additional shading. The concrete batter piles will replace approximately 13 ft² of sediment that will probably not be shaded by the seawall cap.

According to NMFS's Public Consultation Tracking System database, there have been no additional activities subject to ESA Section 7 consultation completed on activities with the potential to affect Johnson's seagrass critical habitat within the action area.

4.2.2 State or Private Actions

4.2.2.1 Development and Urbanization

The action area is located in a highly developed coastal area with an extensive canal system. Freshwater discharges and nutrient over-enrichment due to coastal runoff and discharge into Biscayne Bay may be increased by upland development. Freshwater discharge may reduce salinity to inadequate levels for survival of Johnson's seagrass, thus affecting the second essential feature of the designated critical habitat, adequate water quality. Similarly, nutrient over-enrichment can lead to planktonic algae blooms, decreasing water transparency, the third essential feature of the designated critical habitat. Death and decomposition of the algal bloom typically decrease dissolved oxygen content in the water, thus affecting the first essential feature of the designated critical habitat, adequate water quality, defined as being free from nutrient over-enrichment by inorganic and organic nitrogen and phosphorous or other inputs that create low oxygen conditions. These processes affect all of the waters of Biscayne Bay to varying degrees due to large-scale mixing of waters, diffusion, and currents. Thus activities outside of the action area may affect the essential features of Johnson's seagrass critical habitat within the action area.

4.2.2.2 Recreational Vessel Traffic

Marina and dock construction in Biscayne Bay may increase recreational vessel traffic in the action area. Increased vessel traffic may be associated with increases in turbidity, propeller dredging, and vessel grounding incidents, which may affect water transparency and stable, unconsolidated sediments that are free from physical disturbance, two of the essential feature of Johnson's seagrass critical habitat. The magnitudes of these effects are difficult to estimate. However, most of the increase in traffic would be restricted to the deeper water in the channel through the action area, which should minimize these effects.

4.2.3 Conservation and Recovery Actions Shaping the Environmental Baseline

State and federal conservation measures exist to protect Johnson's seagrass and its habitat under an umbrella of management and conservation programs that address seagrasses in general (Kenworthy et al. 2006). Johnson's seagrass habitat is also included in the designation of critical habitat for the Florida manatee and is therefore subject to ESA Section 7 consultation by the USFWS, which has ESA jurisdiction over that species. These conservation measures must be continually monitored and assessed to determine if they will ensure the long-term protection of

the species and the maintenance of environmental conditions suitable for its continued existence throughout its geographic distribution.

5 EFFECTS OF THE ACTION ON JOHNSON'S SEAGRASS CRITICAL HABITAT

Effects of the action include direct and indirect effects of the action under consultation. Indirect effects are those that result from the proposed action, occur later in time (i.e., after the proposed action is complete), but are still reasonably certain to occur.

Effects of the proposed action also include effects of other activities that are interrelated or interdependent with the proposed action. Interrelated actions are those that are part of a larger action and depend on that larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Thus these actions are also described and their effects on listed species and critical habitat are evaluated as effects of the proposed action. We have identified no interrelated or interdependent actions relative to the proposed action.

All four essential features of Johnson's seagrass critical habitat are present within the proposed action area. The proposed action will not affect the essential features for adequate water quality or adequate salinity within the action area. The proposed action is likely to adversely affect water transparency by shading resulting from the construction of overwater structures (490 ft²) and moored vessels (420 ft²). The new facility replaces a 200-ft² dock and 300-ft² vessel slip that are entirely within the planned footprint of the new dock and vessel slip. Thus, the placement of non-grated overwater structures and vessels will affect water transparency by reducing transmission of sunlight necessary for photosynthesis in an area of approximately 410 ft² (490 ft² new structures + 420 ft² new vessel mooring - 500 ft² previous dock and vessel = 410 ft²).

The removal of all existing piles by direct pulling will result in deep (approximately 12 ft), 12-in-diameter holes. Unlike methods that loosen sediment around the piles, e.g., jetting or removal with a vibratory hammer, direct pulling does not necessarily result in backfilling of the void left by the pile, and it is not clear how long it will take for sediment to naturally fill the void. In addition, small diameter holes, such as these, may be kept open by organisms that use it for shelter, or it might be overgrown by sessile organisms, either of which would prevent natural infilling. Therefore, NMFS believes that the effect of the existing piles on stable, consolidated sediments that are free from disturbance will continue after their removal. The 2 piles that currently support the boatlift are not within the footprint of the proposed new structure, so their effects will not be considered further.

The placement of new piles will result in the loss of stable, unconsolidated sediments that are free from physical disturbance. A permanent loss of any one of the essential features renders the area incapable of supporting Johnson's seagrass and constitutes a total loss of the conservation function of the critical habitat in the area of the loss. The piles supporting the existing dock are within the approximate footprint of the dock, so the area of unconsolidated sediments (including remaining effects following removal) affected by these piles is not added to the area of shading affected by removal of the existing dock. In addition, the construction plans indicate that 5 of

the 12 piles will be placed beneath the decking, and the loss of critical habitat that would be due to these 5 piles is not added to the effect of shading in the same area. Therefore, replacement of stable, unconsolidated sediments that are free from disturbance by piles will result in the loss of approximately 6 ft² of critical habitat ([10 dock piles - 5 shaded dock piles + 2 Jet Ski lift piles] × $\pi \times 0.5 \text{ ft} \times 0.5 \text{ ft} \approx 5.5 \text{ ft}^2$, rounded to 6 to simplify conversion into acres). Therefore, this proposed action will result in the loss of approximately 416 ft² (~0.0096 ac) of Johnson's seagrass critical habitat (410 ft² shaded + 6 ft² replaced by piles).

6 CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, or local private actions that are reasonably certain to occur in the action area considered in this Opinion. Future federal actions that are unrelated to the proposed actions are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

No categories of effects beyond those already described are expected in the action area. Dock and marina construction will likely continue at current rates, with concomitant loss and degradation of seagrass habitat, including Johnson's seagrass. However, these activities are subject to USACE permitting and thus the ESA Section 7 consultation requirement. Furthermore, NMFS and the USACE have developed protocols to encourage the use of light-transmitting materials in future construction of docks within the range of Johnson's seagrass. However, even if all new docks are constructed in full compliance with the NMFS and USACE's *Construction Guidelines for Minor Piling-Supported Structures in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat*, there will still be shading impacts to Johnson's seagrass from new docks (but shading impacts would be reduced if guidelines are followed). Landry et al. (2008) found that Johnson's seagrass persisted under docks constructed of grated decking versus non-grated decking. Although it was reduced in frequency under grated docks, Johnson's seagrass was observed in higher densities under grated versus non-grated docks. In summary, NMFS acknowledges that shading impacts to Johnson's seagrass will continue via dock construction in the action area. As NMFS and the USACE continue to encourage permit applicants to design and construct new docks in full compliance with the NMFS and USACE's *Construction Guidelines for Minor Piling-Supported Structures in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat*, the NMFS and USACE's *Key for Construction Conditions for Docks or Other Minor Structures Constructed in or Over Johnson's seagrass (Halophila johnsonii)*, and the recommendations in Landry et al. (2008) and Shafer et al. (2008), NMFS believes that shading impacts to Johnson's seagrass will be reduced in the short- and long-term.

Upland development and associated runoff will continue to degrade water quality and decrease water clarity necessary for growth of seagrasses in the action area. Flood control and imprudent water management practices will continue to result in freshwater inputs into estuarine systems, thereby degrading water quality and altering salinity. Long-term, large-scale reduction in salinity has been identified as a potentially significant threat to the persistence and recovery of Johnson's seagrass.

7 CRITICAL HABITAT DESTRUCTION/ADVERSE MODIFICATION ANALYSIS

NMFS's regulations define destruction or adverse modification to mean "a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features" (50 CFR § 402.02). Alterations that may destroy or adversely modify critical habitat may include impacts to the area itself, such as those that would impede access to or use of the essential features. We intend the phrase "significant delay" in development of essential features to encompass a delay that interrupts the likely natural trajectory of the development of physical and biological features in the designated critical habitat to support the species' recovery. NMFS will generally conclude that a federal action is likely to "destroy or adversely modify" designated critical habitat if the action results in an alteration that diminishes the quantity or quality of the essential physical or biological features of designated critical habitat or that precludes or significantly delays the capacity of that habitat to develop those features over time, and if the effect of the alteration is to appreciably diminish the value of critical habitat for the conservation of the species. This analysis takes into account the geographic and temporal scope of the proposed action, recognizing that "functionality" of critical habitat necessarily means that it must now and must continue in the future to support the conservation of the species and progress toward recovery. Destruction or adverse modification does not depend strictly on the size or proportion of the area adversely affected, but rather on the role the action area serves with regard to the function of the overall designation, and how that role is affected by the action.

Recovery for Johnson's seagrass as set forth in the final recovery plan (NMFS 2002), will be achieved when the following recovery objectives are met: (1) the species' present geographic range remains stable for at least 10 years, or increases; (2) self-sustaining populations are present throughout the range at distances less than or equal to the maximum dispersal distance to allow for stable vegetative recruitment and genetic diversity; and (3) populations and supporting habitat in its geographic range have long-term protection (through regulatory action or purchase acquisition). We evaluated the projects' expected impacts on critical habitat to determine whether it will be able to continue to provide its intended functions in achieving these recovery objectives and supporting the conservation of the species.

The first recovery criterion for Johnson's seagrass is for its present range to remain stable for 10 years or to increase during that time. NMFS's 5-year review (2007) of the status of the species concluded that the first recovery objective had been achieved as of 2007. In fact, the range had increased slightly northward, and we have no information indicating range stability has decreased since then. In Section 5, we determined that this proposed action will result in the loss of approximately 416 ft² (0.0096 ac) of Johnson's seagrass critical habitat by placement of piles and shading by non-grated, overwater structures and vessels. However, the action area is not at a boundary of the species' range; the area that will be impacted is very small; and the loss of the potential areas for colonization will not affect the stability of the species' range now or in the future. Thus, even when considered in the context of the environmental baseline, we believe the proposed action will not appreciably diminish the ability of the critical habitat to contribute to range stability for Johnson's seagrass.

The second recovery criterion for Johnson's seagrass requires that self-sustaining populations be present throughout the range at distances less than or equal to the maximum dispersal distance for the species. Due to its asexual reproductive mode, self-sustaining populations are present throughout the range of species. As discussed in Section 3.2.1, there are approximately 22,574 ac of Johnson's seagrass critical habitat. The loss of 416 ft² (0.0096 ac) of designated critical habitat for Johnson's seagrass in Unit J would equate to a loss of approximately 0.00004% of Johnson's seagrass critical habitat ($0.0096 \text{ ac} \times 100 / 22,574 \text{ ac} = 0.0000423\%$). This loss, even when considered in the context of the environmental baseline, will not affect the conservation value of available critical habitat to an extent that it would impact Johnson's seagrass self-sustaining populations by adversely affecting the availability of suitable habitat in which the species can spread/flow in the future. Drifting fragments of Johnson's seagrass can remain viable in the water column for 4-8 days (Hall et al. 2006), and can travel several kilometers under the influence of wind, tides, and waves. Because of this, we believe that the removal of 416 ft² of critical habitat by this action will not appreciably diminish the conservation value of critical habitat in supporting self-sustaining populations.

The final recovery criterion is for populations and supporting habitat in the geographic range of Johnson's seagrass to have long-term protection (through regulatory action or purchase acquisition). Though the affected portions of the action area will not be available for the long-term, thousands of acres of designated critical habitat are still available for long-term protection, which include areas surrounding the action areas.

The proposed action will not affect the stability of the geographic range of the species; it will not appreciably diminish the conservation value of the critical habitat in supporting self-sustaining populations; and it will not prevent the long-term protection of the species and its supporting habitat in the remainder of its geographic range. Therefore, we conclude that the adverse effects of the proposed action on Johnson's seagrass critical habitat will not impede achieving the recovery objectives listed above and will, therefore, not appreciably diminish the value of the critical habitat for the conservation and recovery of the species.

8 CONCLUSION

We have analyzed the best available scientific and commercial data, the current status of the species, environmental baseline, effects of the proposed actions, and cumulative effects to determine whether the proposed action is likely to destroy or adversely modify Johnson's seagrass critical habitat. Because the proposed action will not appreciably diminish the value of the critical habitat for the conservation and recovery of Johnson's seagrass, it is our Opinion that the proposed action is likely to adversely affect, but not likely to destroy or adversely modify Johnson's seagrass critical habitat.

9 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid

adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

NMFS believes the following conservation recommendations are reasonable, necessary, and appropriate to conserve and recover Johnson's seagrass. NMFS strongly recommends that these measures be considered and adopted.

1. NMFS recommends that a report of all current and proposed USACE projects in the range of Johnson's seagrass be prepared and used by the USACE to assess impacts on the species from these projects, to assess cumulative impacts, and to assist in early consultation that will avoid and/or minimize impacts to Johnson's seagrass and its critical habitat. Information in this report should include location and scope of each project and identify the federal lead agency for each project. The information should be made available to NMFS.
2. NMFS recommends that the USACE conduct and support research to assess trends in the distribution and abundance of Johnson's seagrass. Data collected should be contributed to the Florida Fish and Wildlife Conservation Commission's Florida Wildlife Research Institute to support ongoing GIS mapping of Johnson's and other seagrass distribution.
3. NMFS recommends that the USACE, in coordination with seagrass researchers and industry, support ongoing research on light requirements and transplanting techniques to preserve and restore Johnson's seagrass, and on collection of plants for genetics research, tissue culture, and tissue banking.
4. NMFS recommends that the USACE prepare an assessment of the effects of other actions under its purview on Johnson's seagrass for consideration in future consultations.
5. NMFS recommends that the USACE continue promoting the use of the October 2002 *Key for Construction Conditions for Docks or other Minor Structures Constructed in or over Johnson's Seagrass* as the standard construction methodology for proposed docks located in the range of Johnson's seagrass.
6. NMFS recommends that the USACE review and implement the recommendations in the July 2008 report, *The Effects of Docks on Seagrasses, With Particular Emphasis on the Threatened Seagrass, Halophila johnsonii* (Landry et al. 2008).
7. NMFS recommends that the USACE review and implement the Conclusions and Recommendations in the October 2008 report, *Evaluation of Regulatory Guidelines to Minimize Impacts to Seagrasses from Single-family Residential Dock Structures in Florida and Puerto Rico* (Shafer et al. 2008).

10 REINITIATION OF CONSULTATION

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is

authorized by law) and if (1) any take of ESA-listed species occurs, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the Biological Opinion, or (4) a new species is listed or critical habitat designated that may be affected by the identified action.

11 LITERATURE CITED

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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 will 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, will be addressed in the primary consultation.

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