UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

F/SER31:KL

JUL 18 2018

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

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 actions:

Permit Number	Applicant	PCTS Number	Project Types
SAJ-2017-03256 (LP-NDF)	Eric Mendelson	SER-2018-19122	Dock and Seawall

This Opinion analyzes the potential for the project's to affect loggerhead (Northwest Atlantic Distinct Population Segment [DPS]), Kemp's ridley, hawksbill, and green (North and South Atlantic DPSs) sea turtles, smalltooth sawfish (U.S. DPS), and designated critical habitat for Johnson's seagrass. This analysis is based on project-specific information provided by the US Army Corps of Engineers (USACE), the consultant, and NMFS's review of published literature. We conclude that the proposed action is likely to adversely affect, but not likely to destroy or adversely modify Johnson's seagrass critical habitat. The Opinion includes conservation recommendations for your consideration.

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 Kelly Logan, Consultation Biologist, at (727) 460-9258, or by email at Kelly.Logan@noaa.gov.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

Enc.: Biological Opinion

File: 1514-22.F.4

Biological Opinion

Agency:	United States Army Corps of Engineers (USACE), Jacksonville District
Activity:	Proposed USACE issuance of a regulatory permit in Miami Dade County, Florida (SAJ-2017-03256)
Consulting Agency:	National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), Southeast Regional Office, Protected Resources Division, St. Petersburg, Florida
	Consultation Numbers SER-2018-19122

Approved By:

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

Date Issued: July 18, 2018

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List of Acronyms

cSEL	Cumulative Sound Exposure Level
DPS	Distinct Population Segment
ESA	Endangered Species Act
MLW	Mean Low Water
MHW	Mean High Water
NMFS	National Marine Fisheries Service
USACE	U.S. Army Corps of Engineers
SAV	Submerged Aquatic Vegetation

Units of Measurement

Length and Area

ac	acres
ft	foot/feet
ft^2	square feet
km	kilometers
in	inches

Background
Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 et seq.), requires that each federal agency ensure 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 to meet these responsibilities; NMFS and the U.S. Fish and Wildlife Service 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 concludes 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.

This document represents NMFS's Opinion, based on our review of impacts associated with the proposed action to issue a permit for in-water construction activities. This Opinion analyzes the project's effects to listed species and critical habitat, in accordance with Section 7 of the ESA, and is based 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 from the USACE on February 13, 2018. We requested additional information via email on April 11, 2018, and the USACE responded to our request the same day. We initiated formal consultation on April 11, 2018.

2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

2.1 Proposed Action

The project site consists of an existing seawall with a concrete cap and a marginal wood dock. The applicant proposes to remove the existing structures, including a 180 ft² dock, and construct a new 187 linear foot concrete seawall within the same footprint with rip rap placed in front of the seawall that will extend up to 8 feet (ft) water ward. The applicant also proposes to construct a new 499-square foot (ft^2) dock with a boatlift (5 piles) and 2 dolphin piles. The proposed height of the decking is 4 ft above mean high water (MHW) with no open space between the deck boards. The dock will accommodate 1 new vessel slip in addition to the currently existing slip. The proposed action includes installation of 44 new 12-inch (in) concrete piles (limited to 5 maximum per day), 42 new 12-in wood piles, and 21 new concrete seawall panels (12 in by 10 ft) (limited to 5 maximum per day) by impact hammer. Work will be completed from shallow draft barge during daylight hours only and is expected to last less than 1 month. The applicant will use nylon cushion blocks to assist with noise abatement. Turbidity curtains will be deployed and the applicant will comply with NMFS's *Sea Turtle and Smalltooth Sawfish Construction*

Conditions,[1] which requires work to stop if sea turtles or sawfish are observed within 50 ft of operating or moving construction equipment.

Benthic surveys were conducted on November 1, 2016 and January 18, 2018. The 2018 survey noted small patches of non-listed seagrass with less than 5% coverage, noted outside of the proposed dock footprint. No ESA-listed corals, Johnson's seagrass, or mangroves were observed on-site. The project is located within designated critical habitat for Johnson's seagrass.

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 action area for this project includes the waters and submerged lands within, and in the immediate vicinity of, the project site. For the purposes of this Opinion, the "immediate vicinity" includes the behavioral response zone in which animals may be affected by pile-driving activities. As further described in Section 3.1.4, this method of installation has a behavioral response zone of up to 1,120 ft from noise associated with the pile-driving activities.

The project site is located at 6633 Allison Road, Miami Beach, Miami Dade, Florida (25.850199º N, 80.124104º W North American Datum 1983) (Figure 1)

Figure 1. Mendelson project location. (© 2018 Google Earth)

[1] NMFS. 2006. Sea Turtle and Smalltooth Sawfish Construction Conditions revised March 23, 2006. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division, Saint Petersburg, Florida. http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/documents/sea_turtle_and_smalltooth_sawfish_construction_conditions_3-23-06.pdf, accessed June 2, 2017.

3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

We believe the species and critical habitat listed in Table 1 may be present within the action area.

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

Species	ESA Listing Status	Action Agency Effect Determinations	NMFS Effect Determinations
Sea Turtles			
Green (North Atlantic distinct population segment [DPS])	T	NLAA	NLAA
Green (South Atlantic DPS)	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			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
Critical Habitat			
Johnson's seagrass Unit J		LAA	LAA, no DAM
E = endangered; T = threatened; NE = no effect; NLAA = may affect, not likely to adversely affect; LAA = likely to adversely affect; DAM = Destruction and Adverse Modification			

We do not expect leatherback sea turtles to be present within the action area due to their very specific life history requirements, which are not supported at or near the project site. Leatherback sea turtles prefer open, deepwater habitat where they forage primarily on jellyfish.

3.1 Species Not Likely to be Adversely Affected

We believe that sea turtles (green, loggerhead, hawksbill, and Kemp's ridley) and smalltooth sawfish may be found in or near the action area and may be affected by the project. We have identified the following potential effects to these species and concluded that the species are not likely to be adversely affected by the proposed action for the reasons described below.

Direct physical injury is extremely unlikely to occur and is therefore discountable. Direct physical injury to sea turtles and smalltooth sawfish is not expected from interactions with construction machinery or materials, because these species have the ability to detect and move away from the types of construction activities that will be implemented for this project. The project will adhere to NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, which will provide additional protection by requiring construction equipment to stop if a listed species is observed within 50 ft of operating machinery. Further, turbidity curtains will physically exclude species from areas where they would be most likely to be physically injured.

Effects to sea turtles and smalltooth sawfish from the temporary loss of foraging and shelter habitat, and associated avoidance behavior, will be insignificant. Sea turtles and smalltooth sawfish may be temporarily unable to use portions of 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. These effects will be temporary and of short duration (less than 1 month), intermittent (construction will occur only during daylight hours), and small in spatial scale (turbidity curtains will only be used in the immediate construction area). Also, because these species are mobile, we expect that they will move away from the construction activities to forage and shelter in adjacent areas with similar available habitat. No permanent effects are expected to the non-ESA-listed seagrasses identified outside the construction footprint.

Sea turtles and smalltooth sawfish may be at increased risk of vessel strike from additional vessel traffic associated with this project; however, we believe the effect is discountable. The proposed action includes the addition of 1 new vessel slip. The addition of 1 new slip to this area will not necessarily introduce a new vessel or increase vessel traffic in the area, as it may relocate an existing vessel or provide a slip for a vessel that was previously trailered or docked elsewhere in the region. Still, even if 1 new vessel is introduced to the area, we conclude that the effect is discountable, based on a previous NMFS analysis,[2] that found it would take the addition of 300 new vessels to result in 1 sea turtle vessel strike. Because smalltooth sawfish are a demersal (i.e., bottom-dwelling) species, we consider vessel interactions with this species as a result of the proposed action to be extremely unlikely, and therefore discountable.

Effects to listed species as a result of noise created by construction activities can be physically injurious to animals in the affected areas, or result in behavioral changes by animals in the affected areas. Physically injurious effects can occur in 2 ways. First, physically injurious effects can result from a single noise event's exceeding the threshold for direct physical injury to animals, and these constitute immediate adverse effects on affected animals. Second, physically injurious 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 depending on the circumstances in which they occur (i.e., if such effects interfere with animals' feeding, resting, or reproducing). Our evaluation of effects to listed species from noise created by construction activities is based on the analysis and calculations in the Opinion for SAJ-82.[3] Our evaluation of the radius of effects due to a single noise event is based on calculations in SAJ-82, while our evaluation of the radius for cumulative noise and behavioral effects is based on specific calculations for this project. The noise analysis in this consultation evaluates effects to smalltooth sawfish and sea turtles that may be in the project areas (see species listed in Table 1).

[2] Barnette, M. 2013. Threats and Effects Analysis for Protected Resources on Vessel Traffic Associated with Dock and Marina Construction. NMFS Southwest Regional Office Protected Resources Division Memorandum. April 18, 2013.

[3] NMFS. Biological Opinion on Regional General Permit SAJ-82 (SAJ-2007-01590), Florida Keys, Monroe County, Florida. June 10, 2014.

The proposed action includes the installation of 21 concrete seawall panels measuring approximately 0.6 ft by 9.9 ft (limited to 5 maximum per day). The applicant has stated that it will require approximately 150 strikes per panel and will use nylon cushion blocks for noise abatement. We do not have noise threshold data for these types of panels; therefore, we base our noise analysis on data for 24 in concrete piles, because they take a similar number of hammer strikes (184 strikes per pile) and we believe this is a conservative substitute for the panels as noise analysis is based on the number of strikes it takes to drive a pile or panel to it's final depth. Based on our analysis in SAJ-82, the installation of up to 5 concrete panels per day by impact hammer will not cause single-strike or peak-pressure injurious noise effects. The cumulative sound exposure level of multiple pile strikes (based on 24-in diameter concrete piles) over the course of a day, however, may cause injury to smalltooth sawfish and sea turtles up to 43 ft away from the pile if the species remain in the affected area for an entire day. Due to the mobility of sea turtles and smalltooth sawfish, we expect them to move away from noise disturbances. Because we anticipate animals will move away, we believe that it is extremely unlikely that an animal will suffer physical injury from cumulative noise exposure, and thus the effect of the noise is discountable. An animal's movement away from the injurious sound radius is a behavioral response, with the same effects discussed below.

The installation of up to 5 concrete panels per day using an impact hammer could result in behavioral effects at radii of 1,120 ft for smalltooth sawfish and 241 ft for sea turtles. We expect that sea turtles or smalltooth sawfish exposed to pile-driving noise within these zones may move away from these noise sources. We believe this effect will be insignificant. There is similar habitat available nearby, so we do not expect these movements to affect biologically important activities. 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. We believe the effect of these behavioral responses will also be insignificant. Installation will occur only during the day. These species will be able to engage in biologically important activities during quiet periods between pile installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

Based on our analysis in SAJ-82, the installation of up to 5 concrete piles (12-in diameter) per day by impact hammer will not cause single-strike or peak-pressure injurious noise effects. The cumulative sound exposure level of multiple pile strikes (up to 24-in diameter concrete piles) over the course of a day, however, may cause injury to smalltooth sawfish and sea turtles up to 72 ft (22 m) away from the pile if the species were to remain in the affected area for an entire day. Due to the mobility of sea turtles and smalltooth sawfish and because the project occurs in open water, we expect them to move away from noise disturbances. Because we anticipate animals will move away, we believe that it is extremely unlikely that an animal will suffer physical injury from noise and thus the effect of the noise is discountable. An animal's movement away from the injurious sound radius is a behavioral response, with the same effects discussed below.

The installation of up to 5 concrete piles per day (12-in diameter) using an impact hammer could also result in behavioral effects at radii of 705 ft (215 m) for smalltooth sawfish and 151 ft (46

m) for sea turtles. Due to the mobility of sea turtles and smalltooth sawfish, we expect them to move away from noise disturbances in this open-water environment. 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.

Based on our noise calculations, the installation of wood piles by impact hammer will not cause single-strike or peak-pressure injury to 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 m). We believe the risk of injury from cumulative sound exposure is discountable. We expect sea turtles and smalltooth sawfish exposed to noise within this radius would move away to avoid injury. Even in the unlikely event an animal does remains within the 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.

Impact hammer pile installation of wood piles creates behavioral impact zones with radii of up to of 151 ft (46 m) for sea turtles and 705 ft (215 m) for smalltooth sawfishes. Sea turtles or smalltooth sawfish exposed to pile-driving noise within these zones may move away from these noise sources. We believe this effect will be insignificant. There is similar habitat nearby, so we do not expect these movements to affect biologically important activities. 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. Installation will occur only during the day. These species will be able to engage in biologically important activities during quiet periods between pile installations and at night.

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 2). The total range-wide acreage of critical habitat for Johnson's seagrass is roughly 22,574 ac (NMFS 2002).

Table 2. 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 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 25º45´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.

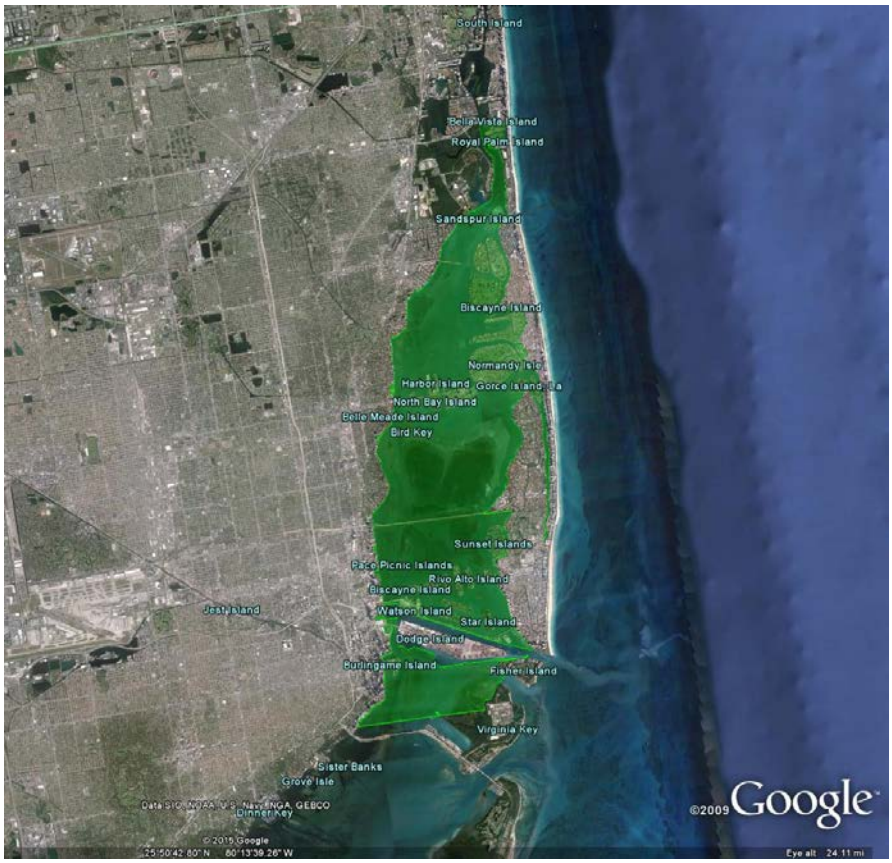

Figure 2. **Johnson's seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)**

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 resuspend 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 a description of the past and ongoing human and natural factors leading to the current status of the designated critical habitat within the action area. The environmental baseline includes state, tribal, local, and private actions already affecting the critical habitat that will occur contemporaneously with the consultation in progress. Unrelated federal actions affecting Johnson's seagrass critical habitat that have completed formal or informal consultation or are in early consultation are also part of the environmental baseline, as are federal and other actions within the action area that may benefit the critical habitat. This Opinion describes these activities in the sections below.

4.1 Status of Johnson's Seagrass Critical Habitat in the Action Area

As discussed above, this consultation focuses on activities occurring in Unit J, which encompasses the northern portion of Biscayne Bay from North East 163rd Street south to Central

Key Biscayne at 25º45´N (Figure 4). 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. All four essential features are present within the action area, but currently a seawall and a dock cover areas that would otherwise be functioning critical habitat.

4.2 Factors Affecting Johnson's Seagrass Critical Habitat in the Action Area

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. 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 in the action area, none of these past actions have destroyed or adversely modified Johnson's seagrass critical habitat.

According to our search of NMFS' previously completed consultations in Google Earth, no previous ESA Section 7 consultations have occurred within the action area.

Private Recreational Vessel Traffic

Marina and dock construction increases recreational vessel traffic within areas of Johnson's seagrass critical habitat, which increases suspended sediments from propellers and could result in propeller dredging. As mentioned above, suspended sediments are known to adversely affect Johnson's seagrass critical habitat by reducing the water transparency essential feature. Shading from dock structures and vessel mooring also affects the water transparency essential feature of the designated critical habitat. Propeller dredging and installation of piles and bridge support structures permanently removes the unconsolidated sediments essential feature of the critical habitat.

Marine Pollution and Environmental Contamination

The project is located in a highly developed coastal area. This can lead to freshwater discharges and nutrient over-enrichment due to coastal runoff and canal discharges into the Bay. Freshwater discharge affects the salinity essential feature of the designated critical habitat while excess nutrients can lead to decreased water transparency and decreased dissolved oxygen content in the water.

State and Federal Activities That May Benefit Johnson's Seagrass Critical Habitat in the Action Area

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). 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

The proposed action is located within Johnson's seagrass critical habitat, and all 4 essential features are present at the site. We believe that 2 of the 4 essential features required for functional Johnson's seagrass critical habitat will not be affected by the project. The proposed action will not affect water quality by increasing nutrient enrichment, nor will it affect salinity levels in the project area, because the activity lacks the capability to alter such features. We believe the proposed action will adversely affect Johnson's seagrass critical habitat by removing the adequate water transparency essential feature and the stable, unconsolidated sediments essential feature.

The adequate water transparency essential feature will be adversely affected by shading from the dock and vessel. We believe proposed action will adversely affect approximately 499 ft² of the adequate water transparency essential feature due to shading from the dock and an additional 1,463 ft² of the adequate water transparency essential feature will be affected by shading from the vessel.[4] However, 180 ft^2 of this area is already impacted by the existing marginal dock. Since part of the new dock will cover the footprint of the existing dock, we will subtract the existing dock footprint, which is already shaded, from the total footprint of the new dock (499 ft^2-180 ft^2=319 ft^2). Therefore, we believe that a total of 1,782 ft² (319 ft² + 1,463 ft² = 1,782 ft²) of the adequate water transparency essential feature will be affected by shading from the dock and vessel.

The stable, unconsolidated sediments essential feature will be adversely affected by the installation of new piles and by the placement of rip rap. The new seawall will be in the same footprint as the existing seawall, which is not currently functioning critical habitat, and so will not contribute to additional effects to the critical habitat. The removal of any one essential feature renders the area incapable of functioning as Johnson's seagrass critical habitat, so we do not consider effects to multiple essential features in the same area to be additive. Thus, we do not separately account for the loss of the unconsolidated sediment essential feature under the piles that support the dock structure, if the piles are located wholly underneath the dock and therefore within the critical habitat that will be lost due to shading. In addition to the piles under the dock, the proposed action includes 2 dolphin piles (4 piles total) and 5 piles for a boatlift, located outside of the shading impacts of the dock. Round, wooden piles with a 12-in diameter will be used to support the new dock and boatlift. While we recognize that the area of bottom occupied by a single, round 12-in-diameter pile is less than 1 ft^2, it is very close ($A = \pi r^2 =$

[4] Vessel specs provided by applicant indicate an area of 1,463 ft² (19 ft x 77 ft = 1,463 ft²).

$3.14 \times 0.25\ ft = 0.79\ ft$). In addition, round piles are tapered, are not perfectly round, and may be installed at varying angles, all of which will affect the actual area of bottom they cover. Therefore, we believe it is reasonable to approximate the area affected by a single, 12-in round wood pile, while erring in favor of protecting the critical habitat, as 1 ft^2. Combined, these piles would impact approximately 9 ft^2 of the sediment essential feature.

Additionally, we believe the proposed action will adversely affect 1,496 ft² of the stable, unconsolidated sediments essential feature due to installation of rip rap.[5] Therefore, an additional 1505 ft² (1,496 ft² + 9 ft² = 1505 ft²) of critical habitat will be lost due to adverse effects to the unconsolidated sediment essential feature.

In total, we believe that the proposed action will adversely affect 3,287 ft² (1,782 ft² + 1505 ft² = 3,287ft²) of Johnson's seagrass critical habitat via shading from the dock and vessel and removal of the unconsolidated sediments feature due to installation of piles and placement of rip rap.

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 action 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, and we did not identify any new future state, tribal or private actions reasonably certain to occur in the action area. Dock and marina construction will likely continue at current rates, with associated loss and degradation of seagrass habitat, including Johnson's seagrass critical habitat. Because these activities are subject to USACE permitting and thus, the ESA Section 7 consultation requirement, they do not lead to cumulative non-federal effects to be discussed in this section. NMFS and the USACE have developed protocols to encourage the use of light-transmitting materials in future construction of docks constructed in or over submerged aquatic vegetation (SAV), marsh or mangrove habitat, namely the *Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat*, and for docks within the range of Johnson's seagrass, namely NMFS and USACE's *Key for Construction Conditions for Docks or Other Minor Structures Constructed in or over Johnson's Seagrass* (*Halophila johnsonii*). Even if all new docks are constructed in full compliance with the NMFS and USACE's guidance, NMFS acknowledges that shading impacts (and thus, impacts to the water transparency essential feature) to Johnson's seagrass will continue via dock construction. As NMFS and the USACE continue to encourage permit applicants to design and construct new docks in full compliance with the construction guidelines discussed above, 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. Moreover, even with some shading from grated construction materials, researchers have found all 4 essential features necessary for Johnson's seagrass to persist under docks constructed of grated decking (Landry et al. 2008).

[5] 187 linear ft x 8 ft water ward = 1,496 ft².

Upland development and associated runoff will continue to degrade the water quality essential feature necessary for Johnson's seagrass critical habitat. Flood control and imprudent water management practices will continue to result in freshwater inputs into estuarine systems, thereby degrading and altering the water quality and salinity essential features of Johnson's seagrass critical habitat.

Increased recreational vessel traffic will continue to result in damage to Johnson's seagrass and its designated critical habitat by improper anchoring, propeller scarring, and accidental groundings. Nonetheless, we expect that ongoing boater education programs and posted signage about the dangers to seagrass habitat from propeller scarring and improper anchoring may reduce impacts to Johnson's seagrass designated critical habitat, including that in Unit J.

7 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 of 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 project's 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 at that time and we have no information indicating range stability has decreased since then. NMFS has determined that the project will adversely affect a total of 3,287 ft² of Johnson's seagrass critical habitat. However, the action area is not at a boundary of the species' range, the area that will be impacted is small, and the loss of these potential areas for colonization will not affect the stability of the species' range now or in the future. Thus, we believe the proposed action's effects will not impact the critical habitat's ability 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 species' range. As discussed in Section 3.2.1, there are approximately 22,574 ac of Johnson's seagrass critical habitat. The loss of 3,287 ft² (0.08 ac) of designated critical habitat for Johnson's seagrass would equate to a loss of .0004% of Johnson's seagrass critical habitat (0.08 ac/22,574 ac x 100). The loss of 3,287 ft² of designated critical habitat for Johnson's seagrass in Unit J specifically would equate to a loss of 0.0004% of Johnson's seagrass critical habitat in Unit J (0.08 ac/18,757 ac in Unit J x 100). This loss of Johnson's seagrass critical habitat will not significantly 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 3,287 ft² of critical habitat for this project 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 project sites will not be available for the long-term, thousands of acres of designated critical habitat are still available for long-term protection, which would include areas surrounding the action area.

Therefore, we conclude that the proposed action's adverse effects on Johnson's seagrass critical habitat will not impede achieving the recovery objectives listed above and will, therefore, not appreciably diminish the value of critical habitat for the conservation of the species.

8 CONCLUSION

We have analyzed the best available data, the current status of the species and the critical habitat, environmental baseline, effects of the proposed action, and cumulative effects to determine whether the proposed action is likely to destroy or adversely modify Johnson's seagrass critical habitat. It is our Opinion that the proposed action is likely to adversely affect, but are not likely to destroy or adversely modify Johnson's seagrass critical habitat.

9 INCIDENTAL TAKE STATEMENT

NMFS does not anticipate that the proposed action will incidentally take any species and no take is authorized. Nonetheless, any take of ESA-listed species shall be immediately reported to takereport.nmfsser@noaa.gov. Refer to the present Biological Opinion by title, Mendelson Dock and Seawall, issuance date, NMFS PCTS identifier number, SER-2018-19122 and USACE permit number, SAJ-2017-03256). At that time, consultation must be reinitiated.

10 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 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.

2. 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.

3. 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).

4. 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).

5. 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 this project, 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.

6. 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 geographic information system mapping of Johnson's seagrass and other seagrass distribution.

7. 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.

11 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) the amount or extent of taking specified in the proposed action is exceeded, (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.

12 LITERATURE CITED

Hall, L. M., M. D. Hanisak, and R. W. Virnstein. 2006. Fragments of the seagrasses *Halodule wrightii* and *Halophila johnsonii* as potential recruits in Indian River Lagoon, Florida. Marine Ecology Progress Series 310:109-117.

Kenworthy, W.J., Wyllie-Echeverria, S., Coles, R.G., Pergent, G., Pergent-Martini, C., 2006. Seagrass Conservation Biology: An Interdisciplinary Science for Protection of the Seagrass Biome. In: Larkum, A.W.D., Orth, R.J., Duarte, C.M., (Eds.), Seagrasses: Biology, Ecology, and Conservation. Springer. Dordrecht, The Netherlands, 595-623.

Landry, J. B., W. J. Kenworthy, and G. D. Carlo. 2008. The effects of docks on seagrasses, with particular emphasis on the threatened seagrass, *Halophila johnsonii*. Report submitted to NMFS Office of Protected Resources.

NMFS. 2002. Recovery plan for Johnson's seagrass (*Halophila johnsonii*). National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, Maryland.

National Marine Fisheries Service. 2007. Endangered Species Act 5-Year Review Johnson's Seagrass (*Halophila johnsonii Eiseman*). Prepared by NOAA's Johnson's Seagrass Status Review Team, Silver Spring, Maryland. 58 pp.

Shafer, D. J., J. Karazsia, L. Carrubba, and C. Martin. 2008. Evaluation of regulatory guidelines to minimize impacts to seagrasses from single-family residential dock structures in Florida and Puerto Rico. U.S. Army Engineer Research and Development Center, Vicksburg, MS.