



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>

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SER-2018-19168

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

Ref.: SAJ-2018-00617 (NW-NML), Diane Walder, Seawall Repair, Miami Beach, Miami-Dade County, Florida

Dear Sir or Madam,

The enclosed Biological Opinion ("Opinion") was prepared by the National Marine Fisheries Service (NMFS) pursuant to Section 7(a)(2) of the Endangered Species Act (ESA). The Opinion considers the effects of a proposal by the Jacksonville District of the U.S. Army Corps of Engineers (USACE) to authorize a new dock under the authorities of Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act on the following listed species and/or critical habitat: green sea turtle (North Atlantic [NA] and South Atlantic [SA] Distinct Population Segments [DPSs]), hawksbill sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, loggerhead sea turtle (Northwest Atlantic [NWA] DPS), smalltooth sawfish (U.S. DPS), and Johnson's seagrass critical habitat. NMFS concludes that the proposed action may affect, but is not likely to adversely affect: green sea turtle (NA and SA DPS), hawksbill sea turtle, Kemp's ridley sea turtle, loggerhead sea turtle (NWA DPS), and smalltooth sawfish (U.S. DPS). NMFS concludes that the proposed action is likely to adversely affect, but will not destroy or adversely modify, Johnson's seagrass critical habitat.

Please direct questions regarding this Opinion to Dana M. Bethea, Consultation Biologist, by phone at (727) 209-5974, or by email at Dana.Bethea@noaa.gov.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

Enclosures:
Biological Opinion

File: 1514-22 F.4



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

Action Agency: U.S. Army Corps of Engineers (USACE), Jacksonville District

Applicant: Diane Walder


Permit Number SAJ-2018-00617 (NW-NML)

Activity: Seawall Repair in Miami Beach, Miami-Dade County, Florida

Consulting Agency: National Oceanic and Atmospheric Administration (NOAA),
National Marine Fisheries Service (NMFS), Southeast Regional
Office, Protected Resources Division, St. Petersburg, Florida

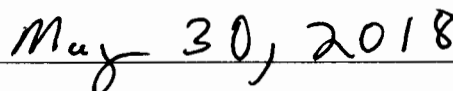
Consultation Number SER-2018-19168

Approved By:



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

Date Issued:





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Acronyms and Abbreviations

CFR	Code of Federal Regulations
DPS	Distinct Population Segment
ESA	Endangered Species Act
MHW	Mean High Water
NMFS	National Marine Fisheries Service
NOAA	National Ocean and Atmospheric Administration
Opinion	Biological Opinion
PCTS	Public Consultation Tracking System
PRD	NMFS Southeast Regional Office Protected Resources Division
U.S.	United States of America

USACE U.S. Army Corps of Engineers

Units of Measurement

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

1 INTRODUCTION

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 in carrying out these responsibilities. The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and the United States (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. Informal consultation is concluded after NMFS determines that the action is not likely to adversely affect listed species or critical habitat. Formal consultation is concluded after NMFS 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, in which case reasonable and prudent alternatives to the action as proposed must be identified to avoid these outcomes. 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) to reduce the effect of take, and recommends conservation measures to further the recovery of the species.

This document represents NMFS’s Opinion based on our review of impacts associated with the proposed action 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 our Opinion on project information provided by the Jacksonville District of the U.S. Army Corps of Engineers (USACE) and other sources of information, including the published literature cited herein.

2 CONSULTATION HISTORY

The following is the consultation history for Public Consultation Tracking System (PCTS) identifier number SER-2018-19168, Diane Walder Seawall:

- On March 13, 2018, NMFS received a request for formal consultation under Section 7 of the ESA in a letter dated March 13, 2018, from the USACE for construction permit application SAJ-2018-00617 (NW-NML).
- NMFS requested additional information on March 22, 2018, received response on March 30, 2018, and initiated formal consultation that day.
- NMFS requested additional information during the review process on May 22, 2018, and received response on May 23, 2018.

3 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

3.1 Proposed Action

The USACE proposes to permit the applicant to:

1. Remove the existing wood dock and boatlift. The decking will be removed from land. The existing piles will be removed using a crane and barge.
2. Install a new 246.75-linear foot (lin ft) reinforced concrete seawall directly in front of the existing seawall using 25 new 10-foot (ft)-wide by 8-inch (in)-thick pre-fabricated concrete panels, construct a new seawall cap, install 52 new 12-in batter and 52 new 12-in king piles, and install a riprap toe.

The seawall cap will be installed from land. The piles will be installed using an impact hammer and barge; no more than 8 piles will be installed per day. Seawall panels will be set in place using a barge. Riprap will extend 8 ft waterward from the toe of the seawall, covering approximately 1,974 ft² of bottom habitat. In-water work is expected to take 4 weeks to complete during daylight hours only. The applicant will comply with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, and will use turbidity curtains.¹

3.2 Action Area

The proposed project site is located at 1365 North View Drive, Miami Beach, Miami-Dade County, Florida (25.805508°N, 80.141449°W [North American Datum 1983 (NAD83)]) in Biscayne Bay approximately 4.6 miles (mi) from the nearest opening to the Atlantic Ocean (Figure 1). The project site is located approximately 134 ft from the nearest shoreline structure.

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 (PRD), 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.



Figure 1. Image showing the project site (yellow pin) in Biscayne Bay at 1365 North View Drive, Miami Beach, Miami-Dade County, Florida, in relation to the nearest opening to the Atlantic Ocean (©2018 Google).

A benthic survey was performed on October 3 and 25, 2017. There were no mangroves, corals, or sponges within the survey area. Approximately 537 ft² of patchy, sparse (5-10% bottom density) paddle grass was observed between the seawall and 3 ft waterward. Beyond 3 ft, only clusters of green macroalgae were observed. Johnson's seagrass was not present within the survey area. Depths adjacent to the seawall were 3.1-4.2 ft MLW. The project site is single-family residential property with an existing seawall adjacent to other residential properties with existing seawalls, docks, and boat slips (Figure 2).



Figure 2. Image showing the project site in Biscayne Bay at 1365 North View Drive, Miami Beach, Miami-Dade County, Florida, in relation to the immediate surrounding area (©2018 Google).

The action area is defined by regulation as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action” (50 Code of Federal Regulations [CFR] 402.02). As such, the action area includes the areas in which construction will take place, as well as the immediately surrounding areas that may be affected by direct effects and indirect effects of the proposed action. Based on our noise analysis in SAJ-82,² the action area is equivalent to the radius of behavioral noise effects to ESA-listed fishes based on the proposed action’s installation of 12-in piles using impact hammer (i.e., 705-ft behavioral noise radius; Figure 3).

² NMFS. Biological Opinion on Regional General Permit SAJ-82 (SAJ-2007-01590), Florida Keys, Monroe County, Florida. June 10, 2014.



Figure 3. Image showing the action area defined by the extent of behavioral noise effects based on the proposed action’s installation of 12-inch concrete piles using impact hammer (©2018 Google).

4 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

Table 1 provides the effect determinations for ESA-listed species the USACE and/or NMFS believe may be affected by the proposed actions. We believe the project will have no effect on leatherback sea turtle due to the species’ very specific life history strategies, which are not supported at the project site. Leatherback sea turtles have pelagic, deepwater life history, where they forage primarily on jellyfish. We believe the proposed action will have no effect on Nassau grouper. Based on the best available scientific information, we do not believe Nassau grouper will be present in waters of Florida Bay (inside of the Everglades National Park (ENP) Boundary), the Gulf of Mexico, and all locations along the Atlantic coast north of Government Cut. In Section 4.1, we describe why we believe green sea turtle (North Atlantic [NA] and South Atlantic [SA] distinct population segments [DPSs]), hawksbill sea turtle, Kemp’s ridley sea turtle, loggerhead sea turtle (Northwest Atlantic [NWA] DPS), and smalltooth sawfish (U.S. DPS) may be affected, but are not likely to be adversely affected, by the proposed project.

Table 1. Effects Determinations for Species the Action Agency and/or NMFS Believe May Be Affected by the Proposed Actions

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (NA DPS)	T	NLAA	NLAA
Green (SA DPS)	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NE
Loggerhead (NWA DPS)	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
Nassau grouper	T	NLAA	NE
E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect; NE = no effect			

Table 2 provides the effects determinations for designated critical habitat occurring in the action area that the USACE and/or NMFS believe may be affected by the proposed actions.

Table 2. Effects Determinations for Designated Critical Habitat the Action Agency and/or NMFS Believe May Be Affected by the Proposed Actions

Species	Unit	USACE Effect Determination	NMFS Effect Determination
Johnson's seagrass	Unit J	NLAA	LAA, no DAM
LAA = likely to adversely affect; DAM = destruction or adverse modification			

4.1 Analysis of Potential Routes of Effects to Listed Species

NMFS has analyzed the routes effect from the proposed action to green sea turtle (NA and SA DPS), hawksbill sea turtle, Kemp's ridley sea turtle, loggerhead sea turtle (NWA DPS), and smalltooth sawfish (U.S. DPS). We have determined the potential routes of effect not likely to adversely affect these species include physical injury from construction activities, temporary habitat loss due to avoidance or exclusion from the action area, permanent habitat loss, and noise from pile driving, as described below.

Effects to sea turtles and smalltooth sawfish include the risk of injury from construction equipment or materials, which will be discountable due to the species' ability to move away from the project site if disturbed. The applicants' implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce the risk by requiring all construction workers to watch for sea turtles and smalltooth sawfish. Operation of any mechanical construction equipment will cease immediately if a sea turtle or smalltooth sawfish is

seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the project area of its own volition.

The action areas contain shallow water habitat and seagrass that may be used by sea turtles species and smalltooth sawfish for foraging and refuge. We believe the effect to sea turtle species and smalltooth sawfish from the temporary loss of foraging and refuge habitat will be insignificant. During the proposed action, these species may be unable to use the project sites due to the avoidance of construction activities and installation of turbidity curtains. These effects will be temporary (up to 4 weeks), intermittent (except for the turbidity curtains, activities will be limited to daylight hours only), and will only occur within a small area adjacent to otherwise open water. Because these species are mobile, we expect that they will move away from construction activities and forage in adjacent areas with similar habitat.

Sea turtle foraging and refuge habitat may be affected by the permanent loss of paddle grass beds due to the placement of the riprap 8 ft waterward of the new seawall. We believe the effect to sea turtle species and smalltooth sawfish from the permanent loss of foraging and refuge habitat will be insignificant. Placement of riprap will affect approximately 537 ft² of paddle grass beds. Because these species are mobile, we expect that they will move away from construction activities and forage in adjacent open-water areas with similar habitat nearby.

The establishment of riprap may affect sea turtle foraging behavior in other ways. It has been shown that similar structures in this area accumulate encrusting organisms such as sponges, tunicates, corals, sea-whips, gorgonians, and algae, on which these species feed. Thus, the proposed action may provide higher quality forage habitat for these species in the future than the existing silty bottom, which may be a beneficial effect.

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 animals 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. The noise analysis in this consultation evaluates effects to ESA-listed fish and sea turtles identified by NMFS as potentially affected in Table 2 above.

Based on our noise calculations, installation of concrete piles by impact hammer will not cause single-strike or peak-pressure injurious noise effects. However, the cumulative sound exposure level of multiple pile strikes over the course of a day may cause injury to ESA-listed fishes and sea turtles up to 72 ft (22 m) away from the pile. The proposed action will occur approximately 134 ft from the nearest shoreline; however, this is not considered a confined space because any species located within the action area will be able to move away using routes to the north and south. Due to the mobility of sea turtles and ESA-listed fish species, and because the project occurs in an area where species will be able to freely move away, we expect them to move away

from noise disturbances. Because we anticipate the animal will move away, we believe that an animal's suffering physical injury from noise is extremely unlikely to occur and is therefore discountable. An animal's movement away from the injurious sound radius is a behavioral response, with the same effects discussed below.

The installation of piles using an impact hammer could also result in behavioral effects at radii 705 ft (215 m) for ESA-listed fishes and 151 ft (46 m) for sea turtles. Due to the mobility of sea turtles and ESA-listed fish species, we expect them to move away from noise disturbances using routes to the north and south of the action area. 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.

4.2 Potential Routes of Effect to Critical Habitat

4.2.1 Johnson's Seagrass Critical Habitat

The proposed action area is within the boundary of Johnson's seagrass (Unit J). The physical and biological features essential to the conservation of Johnson seagrass are: (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 the area to function as critical habitat for Johnson's seagrass.

Because the proposed action lacks any potential to affect adequate salinity levels in the action area, we believe the proposed action will have no effect on the adequate salinity levels essential feature of Johnson's seagrass designated critical habitat.

The adequate water quality and adequate water transparency essential features of Johnson's seagrass critical habitat at the project site may be affected by increased turbidity due to pile installation; however, we believe this effect will be insignificant. Turbidity is expected to be temporary and contained to the immediate areas by the use of turbidity curtains.

We believe the removal of the existing dock and boatlift is likely to benefit the water transparency essential feature of Johnson's seagrass critical habitat at the project site in the future.

We believe the proposed action is likely to adversely affect Johnson's seagrass designated critical habitat due to permanent effects to the stable and unconsolidated sediments essential feature of Johnson's seagrass critical habitat. The stable and unconsolidated sediments essential feature is like to be adversely affected by the installation of new, permanent piles and riprap toe associated with the seawall replacement; pile installation and riprap placement results in the

complete loss of the stable, unconsolidated sediments essential feature of Johnson's seagrass critical habitat. We discuss the effects of the permanent loss of the essential features on critical habitat in the Effects of the Action on Critical Habitat section below.

4.3 Status of the Critical Habitat Likely to be Adversely Affected

4.3.1 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 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 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.

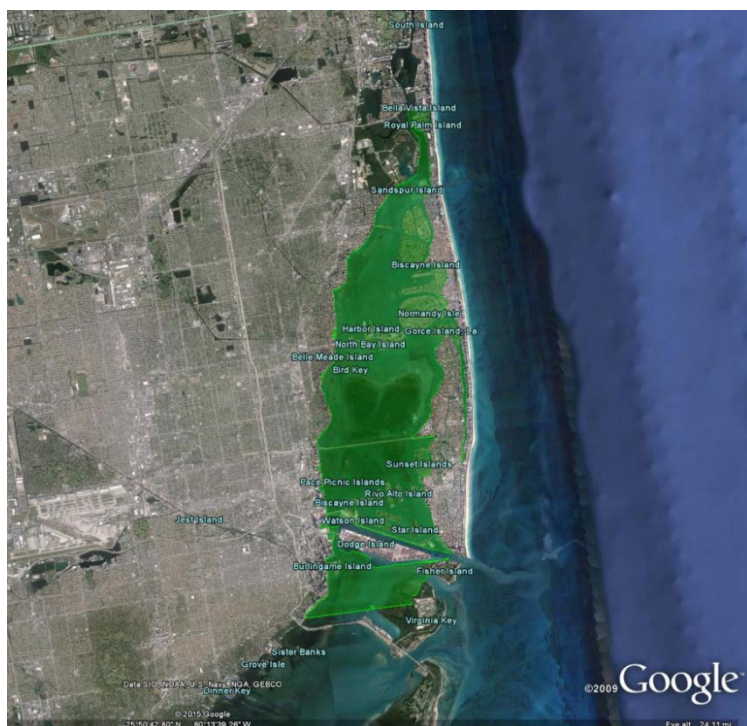


Figure 4. Johnson’s seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)

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.

5 ENVIRONMENTAL BASELINE

This section describes the effects of past and ongoing human and natural factors contributing to the current status of the affected Johnson's seagrass critical habitat in the action area. The environmental baseline describes the critical habitat's health based on information available at the time of this consultation.

By regulation (50 CFR 402.02), environmental baselines for Opinions include the past and present impacts of all state, federal, or private actions and other human activities in, or having effects 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 defined in 50 CFR 402.11), as well as the impact of state or private actions, or the impacts of natural phenomena, which are concurrent with the consultation in process (50 CFR 402.02).

Focusing on the current state of critical habitat 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, or may have been exposed to unique or disproportionate stresses. These localized stress responses or stressed baseline conditions may increase the severity of the adverse effects expected from the proposed action.

5.1 Status of Designated Critical Habitat within the Action Area

5.1.1 Johnson's Seagrass Critical Habitat

As discussed above, this Opinion focuses on an activity occurring in Unit J, which encompasses the northern portion of Biscayne Bay from North East 163rd Street south to Central Key Biscayne at 25°45' N. This portion of Biscayne Bay is bounded 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, and open water. Unit J is wholly within the Biscayne Bay Aquatic Preserve.

5.2 Factors Affecting Designated Critical Habitat within the Action Areas

5.2.1 Johnson's Seagrass Critical Habitat

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/or 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/or 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. Other than the proposed action, no other federally permitted projects have had effects to Johnson's seagrass critical habitat within action area, as per a review of the NMFS PRD's completed consultation database by the consulting biologist on May 15, 2018.

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 dock support structures permanently removes the unconsolidated sediments essential feature of the critical habitat.

Marine Pollution and Environmental Contamination

The project is located in highly developed coastal areas with extensive canal systems. 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.

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.

6 EFFECTS OF THE ACTION ON CRITICAL HABITAT

6.1 Johnson's Seagrass Critical Habitat

The proposed action is located within the boundary of Unit J of Johnson's seagrass designated critical habitat. As discussed above, we believe the proposed action is likely to adversely affect the stable, unconsolidated essential feature of Johnson's seagrass critical habitat. We believe the proposed actions will adversely affect a total of 2,324.75 ft² of Johnson's seagrass designated critical habitat as discussed below.

6.1.1 Effects to Stable, Unconsolidated Sediments

The stable and unconsolidated sediments essential feature is likely to be adversely affected by the installation of the new seawall in front of the existing seawall, associated piles, and riprap toe. This will result in the complete loss of the stable, unconsolidated sediments essential feature of Johnson's seagrass critical habitat within project footprint, and the loss of one of the essential features results in a total loss in the conservation function of the critical habitat.

The following permanent effect to the unconsolidated sediments effects is due to the proposed action:

- 246.75 ft² from the placement of a 246.75-lin ft seawall approximately 1 ft in front of the existing seawall
- 104 ft² from 104 new 12-in concrete batter and king piles
- 1,974 ft² from the installation of 246.75-lin ft of riprap extending 8 ft waterward of the toe of the new seawall

7 CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, or local private actions that are reasonably certain to occur in the action areas 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, and we did not identify any new future state, tribal or private actions reasonably certain to occur in the action area of the proposed action. 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. As discussed above, 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, marsh or mangrove habitat. 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 (Adam 2012), Landry et al. (2008b), 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. 2008b).

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.

8 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.
- (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 objective for Johnson's seagrass is for the present range of the species to remain stable for 10 years or to increase during that time. In the 5-year review (2007) of the status of the species, NMFS concluded that the first recovery objective had been achieved as of 2007. In fact, the species range had increased slightly northward at that time. We have no information indicating range stability has decreased since then. We determined that the proposed action will adversely affect a total of 2,324.75 ft² of Johnson's seagrass designated critical habitat due to shading and pile installation. However, the project sites are not at a boundary of the species' range, affected areas are very small, and the loss of these areas for potential

colonization will not affect the stability of the species' range now or in the future. Thus, we believe the proposed actions' effects will not affect the critical habitat's ability to contribute to range stability for Johnson's seagrass.

The second recovery objective 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 above in the Status of the Critical Habitat Likely to be Adversely Affected section, there are approximately 22,574 ac of Johnson's seagrass critical habitat in Unit J. The loss of 2,324.75 ft² (0.053369 ac)³ of designated critical habitat for Johnson's seagrass in Unit J would equate to a loss of 0.000236% of Johnson's seagrass critical habitat ($[0.053369 \text{ ac} \times 100] \div 22,574 \text{ ac}$). This loss will not affect the conservation value of available critical habitat to an extent that it would affect Johnson's seagrass self-sustaining populations by adversely affecting the availability of suitable habitat in which the species can disperse 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 permanent removal of 2,324.75 ft² of critical habitat due to the proposed actions will not appreciably diminish the conservation value of critical habitat in supporting self-sustaining populations.

The third, and final, recovery objective is for populations of Johnson's seagrass 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 site 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.

Based on the above analysis, we conclude that the adverse effects on Johnson's seagrass critical habitat due to the proposed actions will not impede achieving the 3 recovery objectives listed above and, therefore will not appreciably diminish the value of critical habitat for the conservation of the species.

9 CONCLUSION

We have analyzed the best available data, the status of Johnson's seagrass critical habitat, the 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. It is our Opinion that the proposed actions are likely to adversely affect, but are not likely to destroy or adversely modify, Johnson's seagrass critical habitat.

10 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 sea turtles or smalltooth sawfish shall be immediately reported to takereport.nmfs@noaa.gov. Refer to the present Biological Opinion by title,

³ 1 square foot = 0.0000229568 acres

Diane Walder Seawall, issuance date, NMFS PCTS identifier number, SER-2018-19168, and USACE permit number, SAJ-2018-00617 (NW-NML). At that time, consultation must be reinitiated.

11 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. 2008a).
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 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.
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.

12 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 actions is exceeded; (2) new information reveals effects of the actions that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified actions are 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 actions.

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