UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
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St. Petersburg, Florida 33701-5505
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F/SER31: DMB

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

JAN 25 2018

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:

Applicant	**Project Address**	**Activity Type**	**NMFS Consultation Number**	**USACE Permit Number**
Rachael Baum	924 88th Street Surfside, Miami-Dade County, Florida	New dock	SER-2017-18844	SAJ-2017-01818 (LP-PMG)
Denise Vohra	1460 West 28th Street Miami Beach, Miami-Dade County, Florida	New dock	SER-2017-18860	SAJ-2017-01515 (LP-PMG)

To expedite review of these projects, we are responding to your consultation request in a batched format. We have batched these projects based on similarities in the location, type of project, construction methods, and species and critical habitat involved. This Opinion analyzes the potential for the projects to affect loggerhead sea turtle (Northwest Atlantic [NWA] distinct population segment [DPS]), Kemp's ridley sea turtle, hawksbill sea turtle, and green sea turtle (North Atlantic [NA] and South Atlantic [SA] DPSs), smalltooth sawfish (U.S. DPS), and designated critical habitat for Johnson's seagrass. This analysis is based on project-specific information provided by USACE, the consultant, and NMFS's review of published literature. We conclude that the projects are likely to adversely affect, but are 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 Dana M. Bethea, Consultation Biologist, 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

Activities:

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

Approved by:

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

Date Issued: Jan 25, 2018

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Acronyms and Abbreviations

CFR	Code of Federal Regulations
CHEU	Charlotte Harbor Estuary Unit
CHPSP	Charlotte Harbor Preserve State Park
CO_2	Carbon Dioxide
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FDEP	Florida Department of Environmental Protection

FEMA	Federal Emergency Management Agency
FR	Federal Register
FWRI	Fish and Wildlife Research Institute
GMFMC	Gulf of Mexico Fishery Management Council
IPCC	Intergovernmental Panel on Climate Change
LAA	Likely to Adversely Affect
MHWL	Mean High Water Line
MIT	Massachusetts Institute of Technology
MLLW	Mean Lower Low Water
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
NOAA	National Ocean and Atmospheric Association
Opinion	Biological Opinion
PCTS	Public Consultation Tracking System
RPMs	Reasonable and Prudent Measures
RMS	Red mangrove shoreline
SAFMC	South Atlantic Fishery Management Council
SEFSC	Southeast Fisheries Science Center
SEH	Shallow, euryhaline habitat
TTIU	Ten Thousand Islands/Everglades Unit
U.S.	United States of America
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
YOY	Young-of-the-year

Units of Measurement

ac	acre(s)
°C	degrees Celsius
cm	centimeter(s)
°F	degrees Fahrenheit
ft	foot/feet
ft^2	square feet
in	inches
km	kilometer(s)
lin ft	linear feet
m	meter(s)
mi	miles
mi^2	square miles

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 Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) share responsibilities for administering the ESA.

Consultation is required when a federal action agency determines that a proposed action "may affect" listed species or designated critical habitat. 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 - RPMs) 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 actions 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 USACE and other sources of information, including the published literature cited herein.

2 CONSULTATION HISTORY

NMFS received requests for formal consultation under Section 7 of the ESA from the USACE for construction permit applications listed in Table 1.

Table 1. Consultation History for the Projects

Project Name	NMFS Consultation Number	USACE Permit Number	Consultation Requested (USACE)	Initiated (NMFS)
Baum Dock Project	SER-2017-18844	SAJ-2017-01818 (LP-PMG)	8/18/2017	8/18/2017
Vohra Dock Project	SER-2017-18860	SAJ-2017-01515 (LP-PMG)	8/23/2017	8/23/2017

The USACE determined that the projects may affect, but are not likely to adversely affect, loggerhead sea turtle, Kemp's ridley sea turtle, green sea turtle, hawksbill sea turtle, leatherback sea turtle, and smalltooth sawfish. The USACE determined the projects may affect designated critical habitat for Johnson's seagrass.

3 DESCRIPTION OF THE PROPOSED ACTIONS AND ACTION AREAS

3.1 Proposed Action

For both projects, the proposed action is to remove an existing dock and construct a new dock alongside a residential waterfront property in Miami-Dade County, Florida. Both applicants will comply with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, including the use of turbidity curtains.[1] At both project sites, the one existing, but derelict, boat slip will be replaced by one new, functioning boat slip.

3.1.1 Baum Dock Project

The applicant proposes to remove the existing 15-foot (ft) by 19-ft (285-square foot [ft^2]) wooden dock and associated piles, install a new concrete cap on the existing 75-linear foot (lin ft) seawall, and construct a new 260 ft^2 dock with a 5-foot (ft) by 16-ft walkway and a 6-ft by 30-ft terminal platform. The new dock will not have grated decking; spacing between boards will be 0.25 inches (in) and decking will be 3.2 ft above the mean high water (MHW) line. The new dock will be supported by 8 new 12-in wood piles. Piles will be installed via impact hammer. Removal and installation will be completed using a crane from a barge. In-water work is expected to take 3 days to complete during daylight hours only.

3.1.2 Vohra Dock Project

The applicant proposes to remove the existing 8-ft by 24-ft (192 ft^2) wooden dock and associated piles, reinforce the existing 100-ft seawall with 11 new 12-in concrete batter piles and a new concrete cap, and construct a new 15-ft by 30-ft (450 ft^2) concrete slab dock 4.5 ft above the MHW line. The seawall reinforcement portion of the project will be approved under USACE's programmatic general permit SAJ-42. Removal and installation will be completed using a crane from a barge. The new concrete dock will be supported by 12 new 12-in concrete piles and have 4 new 12-in wood fender piles. Piles will be installed via impact hammer. Up to 5 piles will be installed per day. In-water work is expected to take 5 days to complete during daylight hours only.

3.2 Action Area

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.

3.2.1 Baum Dock Project

The Baum Dock Project site is a vacant, single-family lot located at 924 88th Street in Surfside, Miami-Dade County, Florida (25.872601°N, 80.127858°W [North American Datum 1983 (NAD83)]) in Biscayne Bay approximately 2.9 miles (mi) from the nearest opening to the Atlantic Ocean (Figure 1). The project site has an existing 75-lin ft

[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.

concrete seawall and a 285-ft^2 wooden dock. Depths within the project site range from 0.7 ft to 4.3 ft mean low water (MLW). The substrate is described as sand and silt. The project site is void of corals, mangroves, and Johnson's seagrass. There are varying densities of other species of seagrasses located within 29.5 ft waterward of the existing seawall. The coverage of seagrass within the new dock footprint is 0-40%.

The Baum Dock Project action area includes the waters and submerged lands within a 705-ft (215-meter [m]) radius of the project site. This radius is the extent of behavioral noise effects based on the proposed action's installation of 12-in wood piles using impact hammer and the analysis prepared in support of the Opinion for SAJ-82 (Figure 2).[2]

Figure 1. Image showing the Baum Dock Project site at 924 88th Street Surfside, Miami-Dade County, Florida, approximately 2.9 miles from the nearest opening to the Atlantic Ocean (©2017 Google).

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

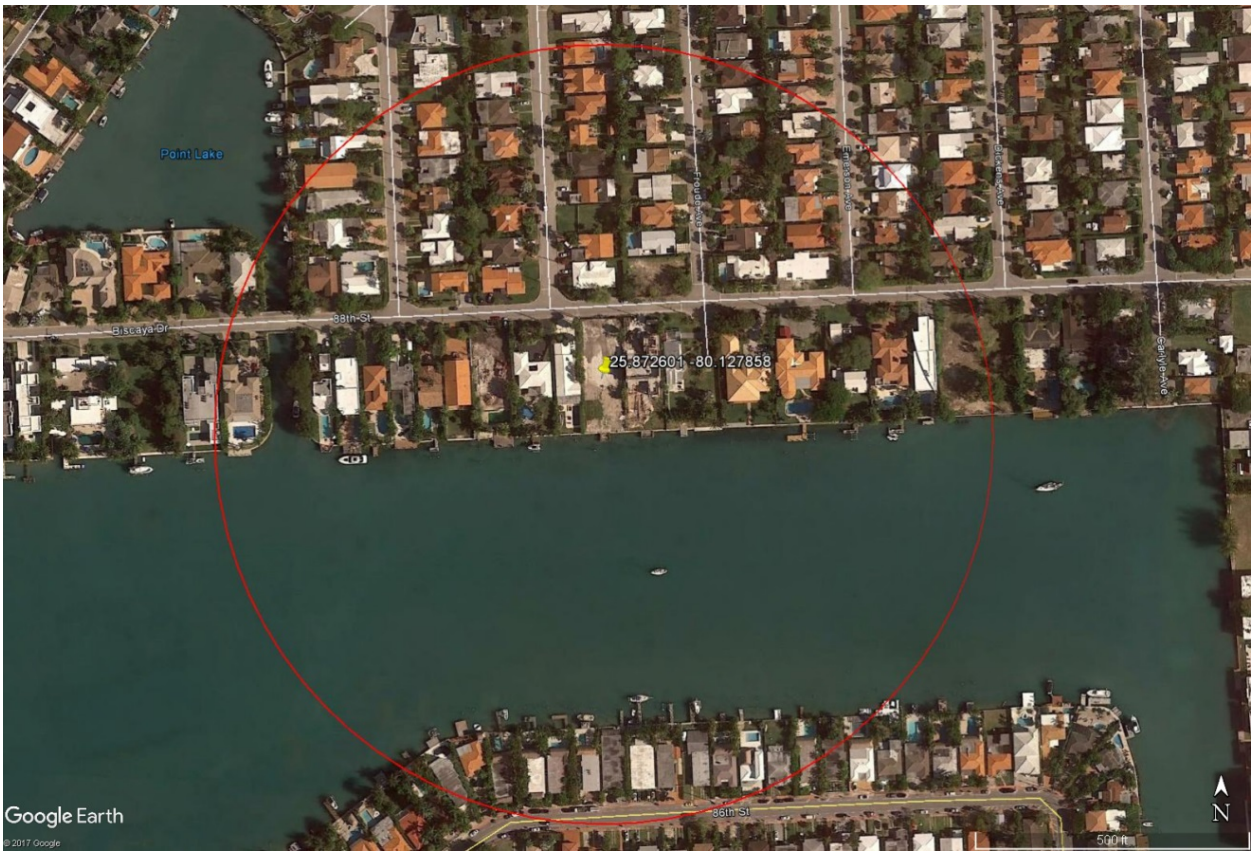

Figure 2. Image showing the Baum Dock Project action area defined by a 705-ft (215-m) behavioral noise effects radius (©2017 Google).

3.2.2 Vohra Dock Project

The Vohra Dock Project site is a vacant, single-family lot located at 1460 West 28th Street, Miami Beach, Miami-Dade County, Florida (25.804172°N, 80.143398°W [NAD83]) in Biscayne Bay approximately 3.7 miles (mi) from the nearest opening to the Atlantic Ocean (Figure 1). The project site has an existing 100-lin ft concrete seawall and a 192-ft^2 wooden dock. Depths within the project site range from 1.3 ft to 6.1 ft MLW. The substrate is described as sand and silt. The project site is void of corals, mangroves, and Johnson's seagrass. There are varying densities of other species of seagrasses located within 29.5 ft waterward of the existing seawall. The coverage of seagrass within the new dock footprint is less than 5%.

The Vohra Dock Project action area includes the waters and submerged lands within a 705-ft (215-m) radius of the project site. This radius is the extent of behavioral noise effects based on the proposed action's installation of 12-in wood and 12-in concrete piles using impact hammer and the analysis prepared in support of the Opinion for SAJ-82 (Figure 4).

Figure 3. Image showing the Vohra Dock Project site at 1460 West 28th Street, Miami beach, Miami-Dade County, Florida, approximately 3.7 miles from the nearest opening to the Atlantic Ocean (©2017 Google).

Figure 4. Image showing the Vohra Dock Project action area defined by a 705-ft (215-m) behavioral noise effects radius (©2017 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 turtles, 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. In Section 4.1, we describe why we believe green sea turtle (North Atlantic [NA] and South Atlantic [SA] distinct population segments [DPSs]), Kemp's ridley sea turtle, loggerhead sea turtle (Northwest Atlantic [NWA] DPS), hawksbill sea turtle, and smalltooth sawfish (U.S. DPS) may be affected, but are not likely to be adversely affected, by the proposed project.

Table 2. 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
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. In Section 4.2, we assess the status of Johnson's seagrass critical habitat within the action area and discuss why we believe is likely to be adversely affected by the proposed actions.

Table 3. 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	LAA	LAA, no DAM
LAA = likely to adversely affect; DAM = destruction or adverse modification			

4.1 Analysis of Potential Routes of Effects Not Likely to Adversely Affect Listed Species
We have identified the following potential effects to sea turtles and smalltooth sawfish. We believe that these species are not likely to be adversely affected by the proposed in-water construction activities, as described below.

Physical Injury Effects
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.

Habitat Effects
The action areas contain seagrass and shallow water habitat along the shorefront that may be used by sea turtles and smalltooth sawfish for forage and refuge habitat. These species may be temporarily unable to use the project sites due to the avoidance of construction activities. These effects will be temporary and intermittent (3 days for the Baum Dock Project and 5 days for the Vohra Dock Project), limited to daylight hours only, and will only occur within a small area adjacent to open water. In addition, because these species are mobile, we expect that they will move away from construction activities and forage in adjacent areas with similar habitat. Therefore, the effects to sea turtles and smalltooth sawfish from the temporary loss of foraging and refuge habitat will be insignificant.

Green sea turtles may be affected by the potential permanent loss of foraging habitat caused by shading from the new docks and associated vessels. Seagrass habitat provides foraging opportunities for adult green sea turtles. The Baum Dock Project would shade approximately 436 ft^2 (260 ft^2 due to the new dock + 176 ft^2 for the vessel[3]) and the Vohra Dock Project would shade approximately 626 ft^2 (450 ft^2 due to the new dock + 176 ft^2 for the vessel) of potential seagrass foraging habitat for green sea turtles. NMFS notes that the seagrass densities within the new dock footprints are generally low (0-40% for the Baum Dock Project and less than 5% for the Vohra Dock Project). Based on these project conditions, and that there are undisturbed areas of similar foraging habitat available nearby for green sea turtle, we believe the effect of potential permanent loss of habitat to green sea turtle will be insignificant.

Noise Effects from Pile Driving
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

[3] Since the USACE does not know the size of the vessel that will be stored at either site, we estimate the average vessel will be 176 ft^2 based on the average vessel size in Florida used in the Florida Statewide Programmatic, SER-2013-12540.

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.

Baum Dock Project

Based on our noise calculations, the installation of 12-in 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 ESA-listed fishes and sea turtles at a radius of up to 30 ft (9 m). Due to the mobility of sea turtles and smalltooth sawfish, and because the project occurs in open water, we expect these species 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. Even in the unlikely event an animal does not vacate the daily cumulative injurious impact zone, the radius of that area is smaller than the 50-ft radius that will be visually monitored for listed species. Construction personnel will cease construction activities if an animal is sighted per NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions.* Thus, we believe the likelihood of any injurious cSEL effects is discountable. An animal's movement away from the injurious impact zone is a behavioral response, with the same effects discussed below.

Based on our noise calculations, impact hammer pile installation of 12-in wood piles could also cause behavioral effects at radii of 151 ft (46 m) for sea turtles and 705 ft (215 m) for smalltooth sawfish. Due to the mobility of these species, and because the project occurs in open water, we expect them to move away from noise disturbances. Because there are undisturbed areas of similar foraging habitat available 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.

Vohra Dock Project

The installation of the 12-in wood fender piles required for the Vohra Dock Project has the same injurious and behavioral noise effects determinations as discussed above for the Baum Dock Project.

Based on our noise calculations, installation of 12-in 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 smalltooth sawfish and sea turtles up to 72 ft (22 m) away from the pile. Due to the mobility of these species, and because the project occurs in open water, 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 12-in concrete piles using an impact hammer could also result in behavioral effects at radii of 151 ft (46 m) for sea turtles and 705 ft (215 m) for smalltooth sawfish. Due to the mobility of sea turtles and smalltooth sawfish, and because the project occurs in open water, we expect them to move away from noise disturbances in this open-water environment. Because there are undisturbed areas of similar foraging habitat available 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 only 5 piles will be installed per day and installation will occur during daylight hours only, 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 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, (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."

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

Table 4. 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 Affected 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 5). 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.

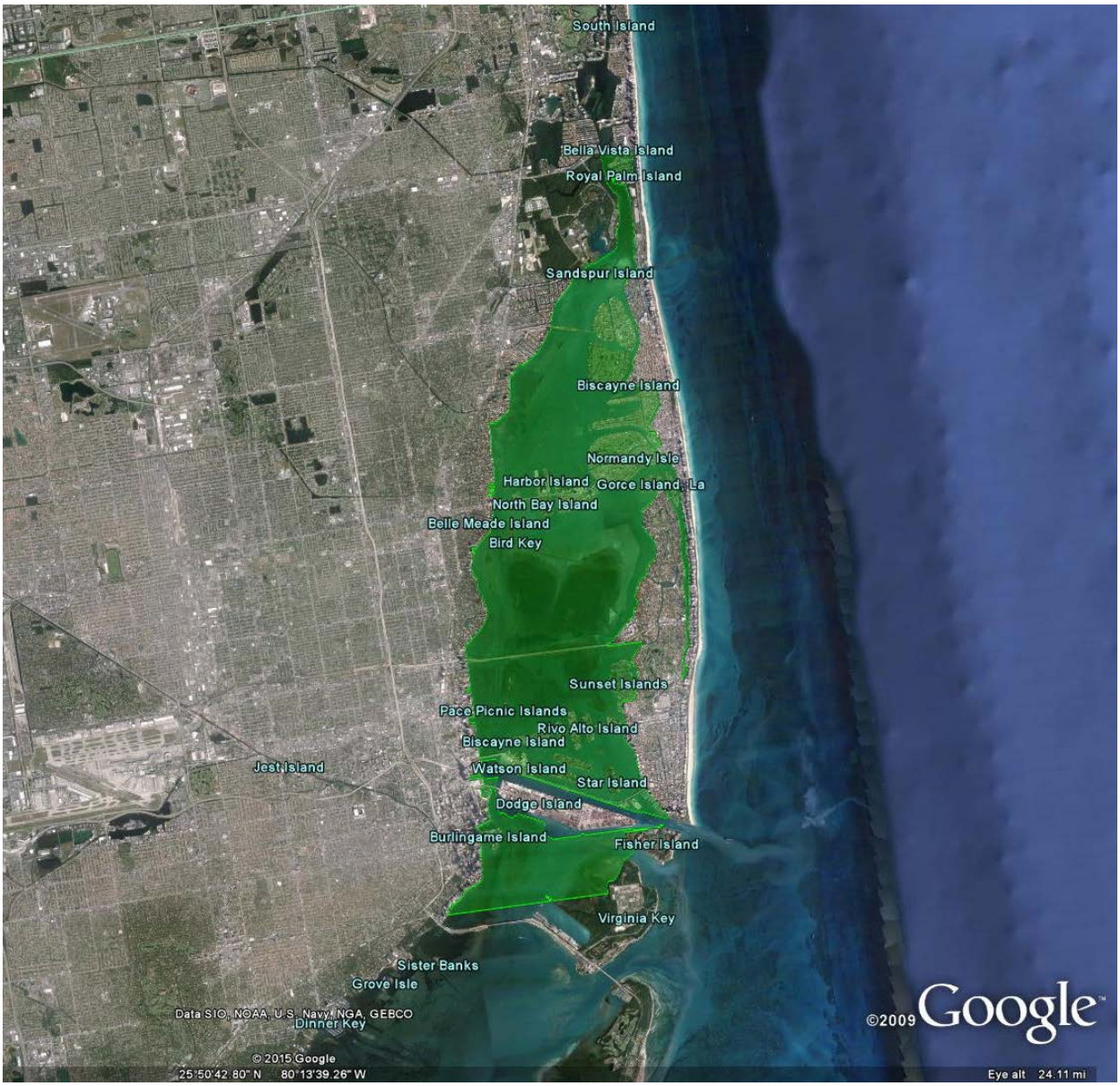

Figure 5. Johnson's seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)

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 Johnson's Seagrass Designated Critical Habitat within the Action Areas

As discussed above, this Opinion focuses on 2 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 5). 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, and open water. Unit J is wholly within the Biscayne Bay Aquatic Preserve.

5.2 Factors Affecting Johnson's Seagrass Designated Critical Habitat within the Action Areas

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 are known to have occurred or have had effects within either action area, as per a review of the NMFS PRD's completed consultation database by the consulting biologist on December 5, 2017.

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 projects are 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 ACTIONS ON CRITICAL HABITAT

We believe that 2 of the 4 essential features required for functional Johnson's seagrass designated critical habitat will not be affected by the proposed actions: 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; and adequate salinity levels, indicating a lack of very frequent or constant discharges of fresh or low-salinity waters. The proposed actions will not affect water quality by increasing nutrient enrichment, nor will they affect salinity levels in the project areas.

We believe that 2 of the 4 essential features required for functional Johnson's seagrass designated critical habitat are likely to be adversely affected by the proposed actions: adequate water transparency, which would allow sunlight necessary for photosynthesis; and stable, unconsolidated sediments that are free from physical disturbance. The adequate water

transparency essential feature will be affected by shading due to the construction of new docks and the associated vessels. The unconsolidated sediments free from physical disturbance will be affected by the permanent placement of new piles.

Combined, we believe the proposed actions will adversely affect a tota1 of 1,097 ft^2 of Johnson's seagrass critical habitat (444 ft^2 due to the Baum Dock Project and 635 ft^2 due to the Vohra Dock Project), discussed below.

6.1 Effects to Adequate Water Transparency

The adequate water transparency essential feature is likely to be adversely affected by shading from the new docks and associated vessels. Shading results in the complete loss of the water transparency essential feature of Johnson's seagrass critical habitat, 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 water transparency effects due to shading are expected from the proposed actions:

- Baum Dock Project: 436 ft^2 (260 ft^2 due to the new dock + 176 ft^2 for the vessel)
- Vohra Dock Project: 626 ft^2 (450 ft^2 due to the new dock + 176 ft^2 for the vessel)

Additionally, the adequate water transparency essential feature at the project sites will be affected by increased turbidity due to pile installation. This effect is expected to be temporary and contained to the immediate areas by the use of turbidity curtains that will remain in place until construction is complete and water transparency has returned to pre-construction conditions. Therefore, effects to water transparency due to the installation of piles will be insignificant.

6.2 Effects to Stable, Unconsolidated Sediments

The stable and unconsolidated sediments essential feature is like to be adversely affected by the installation of new, permanent piles. Pile installation results in the complete loss of the stable, unconsolidated sediments essential feature of Johnson's seagrass critical habitat, and the loss of one of the essential features results in a total loss in the conservation function of the critical habitat.

Round, wooden piles with a 12-in diameter are proposed for use as dock supporting piles and/or mooring piles at both project sites. Although 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 ($A = \pi r^2 = 3.14 \times 0.25\ ft\ = 0.79\ ft$). 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.

The following permanent unconsolidated sediment effects due to the installation of piles are expected from the proposed actions:

- Baum Dock Project: 8 ft^2 (8 new 12-in round piles)

- Vohra Dock Project: 27 ft^2 (12 new 12-in square concrete piles + 11 new 12-in concrete batter piles + 4 new 12-in round mooring piles)

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 areas, and we did not identify any new future state, tribal or private actions reasonably certain to occur in the action areas 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. 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.[4] 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.

[4] Dock 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, Key for Construction Conditions for Docks or Other Minor Structures Constructed in or over Johnson's Seagrass (Halophila johnsonii).

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 1,097 ft^2 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 1,097 ft^2 (0.0252 ac) of designated critical habitat for Johnson's seagrass in Unit J would equate to a loss of 0.0001% of Johnson's seagrass critical habitat ([0.025 ac × 100] ÷ 22,574 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 1,097 ft^2 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 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 areas.

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 actions are 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.nmfsser@noaa.gov. Refer to the present Biological Opinion by title, issuance date, NMFS PCTS identifier number SER-2017-18844 for the Baum Dock Project and SER-2017-18860 for the Vohra Dock Project, and USACE permit number SAJ-2017-01818 (LP-

PMG) for the Baum Dock Project and SAJ-2017-01515 (LP-PMG) for the Vohra Dock Project. 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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