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Ref.: SAJ-2020-03580 (LP-AG), Brett Rosen, Shoreline Stabilization and Dock Construction with New Boatlift, Miami, Miami-Dade County, Florida

Dear Ingrid Gilbert,

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 United States Army Corps of Engineers (USACE) to authorize the repair of an existing seawall and construction of a new dock and boatlift at a residential property. We base this Opinion on project-specific information provided in the consultation package, NMFS's review of published literature, and the best available data. This Opinion analyzes the potential for the project to affect the following ESA-listed species and critical habitat: green sea turtle (North Atlantic and South Atlantic Distinct Population Segments [DPSs]), Kemp's ridley sea turtle, leatherback sea turtle, loggerhead sea turtle (Northwest Atlantic DPS), hawksbill sea turtle, smalltooth sawfish (United States DPS), giant manta ray and Johnson's seagrass critical habitat.

We look forward to further cooperation with the USACE on other projects to ensure the conservation and recovery of our threatened and endangered marine species. This project has been assigned the tracking number SERO-2021-00197 in our NMFS Environmental Consultation Organizer (ECO). Please refer to the ECO number in all future inquiries regarding this consultation. 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,

Andrew J. Strelcheck
Regional Administrator



Enclosures: Biological Opinion
File: 1514-22.f.4

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

Action Agency: United States Army Corps of Engineers, Jacksonville District

Applicant: Brett Rosen

Permit Number SAJ-2020-03580 (LP-AG)

Activity: Residential Shoreline Stabilization and Dock Construction with
New Boatlift, Miami, Miami-Dade County, Florida

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

Tracking Number SERO-2021-00197

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Approved by:

Andrew J. Strelcheck, Regional Administrator
NMFS, Southeast Regional Office
St. Petersburg, Florida

Date Issued:

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ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
cSEL	Cumulative Sound Exposure Level
DPS	Distinct Population Segment
ECO	NMFS Environmental Consultation Organizer
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FR	Federal Register
JAXBO	USACE Jacksonville District’s Programmatic Biological Opinion issued by NMFS on November 20, 2017 (SER-2015-17616)
MHW	Mean High Water
MLW	Mean Low Water
NAD83	North American Datum 1983
NMFS	National Marine Fisheries Service
NOAA	National Ocean and Atmospheric Administration

Opinion	Biological Opinion
PRD	NMFS Southeast Regional Office Protected Resources Division
SAV	Submerged Aquatic Vegetation
SERO	NMFS Southeast Regional Office
SWPBO	USACE's Florida Statewide Programmatic Biological Opinion issued by NMFS on December 4, 2015 (SER-2013-12540)
U.S.	The United States of America
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service

UNITS OF MEASUREMENT

ac	Acre(s)
ft	Foot/Feet
ft ²	Square foot/feet
in	Inch(es)
km	Kilometer(s)
lb	Pound(s)
m	Meter(s)
mi	Mile(s)

INTRODUCTION

Section 7(a)(2) of the 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 those species. Section 7(a)(2) requires federal agencies to consult with the appropriate Secretary in carrying out these responsibilities. NOAA NMFS and 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) 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 USACE’s proposed action to issue a permit within Miami-Dade County, Florida. We based our Opinion on project information provided by USACE and other sources of information, including the published literature cited herein.

1 CONSULTATION HISTORY

The following is the consultation history for ECO tracking number SERO-2021-01197, Rosen Seawall and Dock Project.

On February 2, 2021, we received a request for formal consultation under Section 7 of the ESA from USACE for construction permit application SAJ-2020-03580 (LP-AG) in a letter dated February 2, 2021.

On February 16, 2021, we requested additional information. We received final response on February 19, 2021, and initiated formal consultation that day.

2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

2.1 Proposed Action

The USACE proposes to permit the applicant to:

1. Remove the existing approximately 120 ft² L-shaped wooden dock and 2 mooring piles,
2. Repair the existing concrete seawall cap with a new cap over-pour,
3. Install 10 new 12-in concrete batter piles,
4. Install a new 440 ft² dock supported by 11 new 12-in wood piles with 1 additional 12-in mooring pile, and
5. Install a new 20,000-lb-capacity boatlift supported by two additional new 12-in wood piles.

Removal of the existing dock and piles will be done via a crane on a barge and disposal of all the existing structures will be at an approved Miami-Dade Facility in the uplands. All piles will be installed via impact hammer from a barge. No more than 4 piles will be driven per day. A cushion block will be used for noise abatement. The existing riprap toe will remain.

The proposed overwater structure will not be built to the revised *Construction Guidelines for Docks or Other Minor Structures in Florida* outlined in the JAXBO (Project Design Criteria A2.17 in SER-2015-17616) or the two sets of dock design criteria developed by us and the USACE Jacksonville District (*Dock Construction Guidelines in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat*, dated August 2001, and the *Key for Construction Conditions for Docks or Other Minor Structures Constructed in or Over Johnson's Seagrass (Halophila johnsonii)*, dated October 2002); it will have wood decking with no spacing between boards at a height of 3.5 ft above MHW.

The proposed action will result the addition of one boat slip for motorized vessel storage.

In-water work is expected to take 26 days to complete during daylight hours only. The applicant will comply with NMFS Southeast Region [*Protected Species Construction Conditions*](#) (dated

May 2021). Additionally, a diver will be present during all construction to watch for ESA-listed species.

2.2 Action Area

The proposed project site is located at a residential property at 8501 Northeast Bayshore Drive, Miami, Miami-Dade County, Florida (25.853980°N, 80.171760°W NAD83) in Biscayne Bay. By boat, the proposed project site is approximately 4.8-mi-south of Haulover Inlet and 8.7-mi-north of Government Cut at Fisher Island, the nearest openings to the Atlantic Ocean (Figure 1).

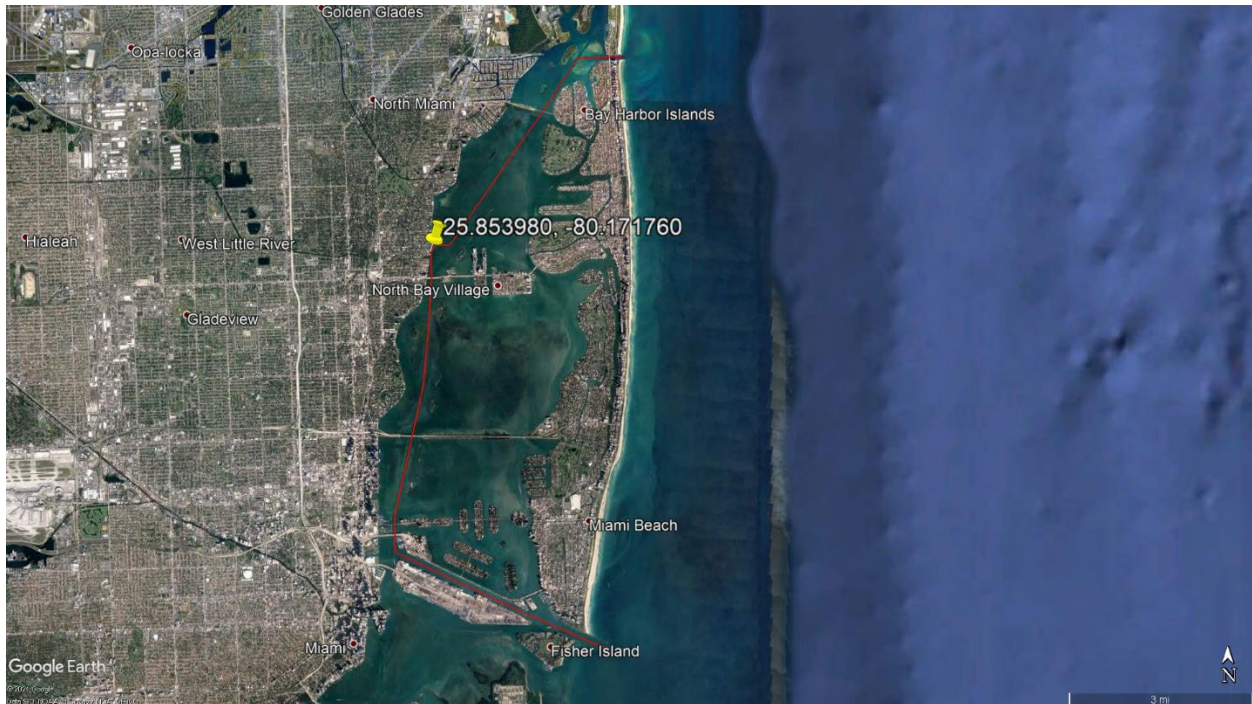


Figure 1. The Project Site (Yellow Pin) in Biscayne Bay and the Paths by Vessel (Red Lines) to Haulover Inlet (North) and Government Cut (South) (©2021 Google)

The project site has an existing seawall and an approximately 120-ft²-dock with one boat slip and is adjacent to other residential properties with existing seawalls, docks, and boat slips (Figure 2).

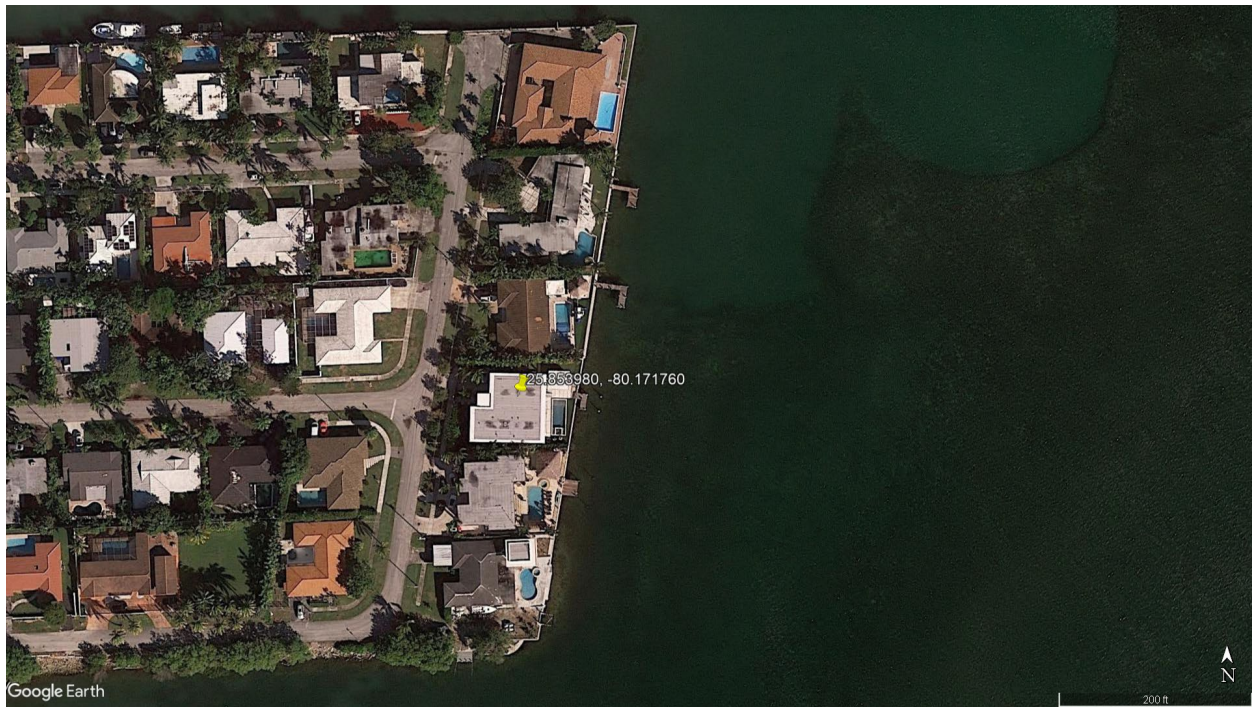


Figure 2. The Project Location in Relation to Neighboring Properties (©2021 Google)

An in-water benthic survey was performed on October 1, 2019, and included submerged waters from the seawall to 41-ft-waterward of the seawall. There were no mangroves, corals (ESA-listed or otherwise), or Johnson’s seagrass observed within the survey area. The bottom was described as sandy. Sponges, manatee grass, and two species of seaweed, *Halimeda tuna* and *Caulerpa verticillata*, were observed. The majority of the SAV encountered was 25 to 41-ft-waterward of the seawall and occurred at a maximum density of 30-40% cover. SAV did not occur within the footprint of the existing dock. Water depths were 1.2 to 3.2 ft at MLW adjacent to the seawall, 2.1 to 3.8 ft at MLW at a distance of 5 ft from the seawall, and continually 10.9 ft beyond that.

The action area is defined by regulation as all areas to be affected by the Federal action and not merely the immediate area involved in the action (50 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 the proposed action. Based on our noise analysis, the action area is equivalent to the largest radius of noise effects to ESA-listed species. In this case, the action area is based on the proposed action’s installation of 12-in wood piles using an impact hammer with a cushion block (i.e., 63.1-m [207-ft] behavioral noise radius; Figure 3).

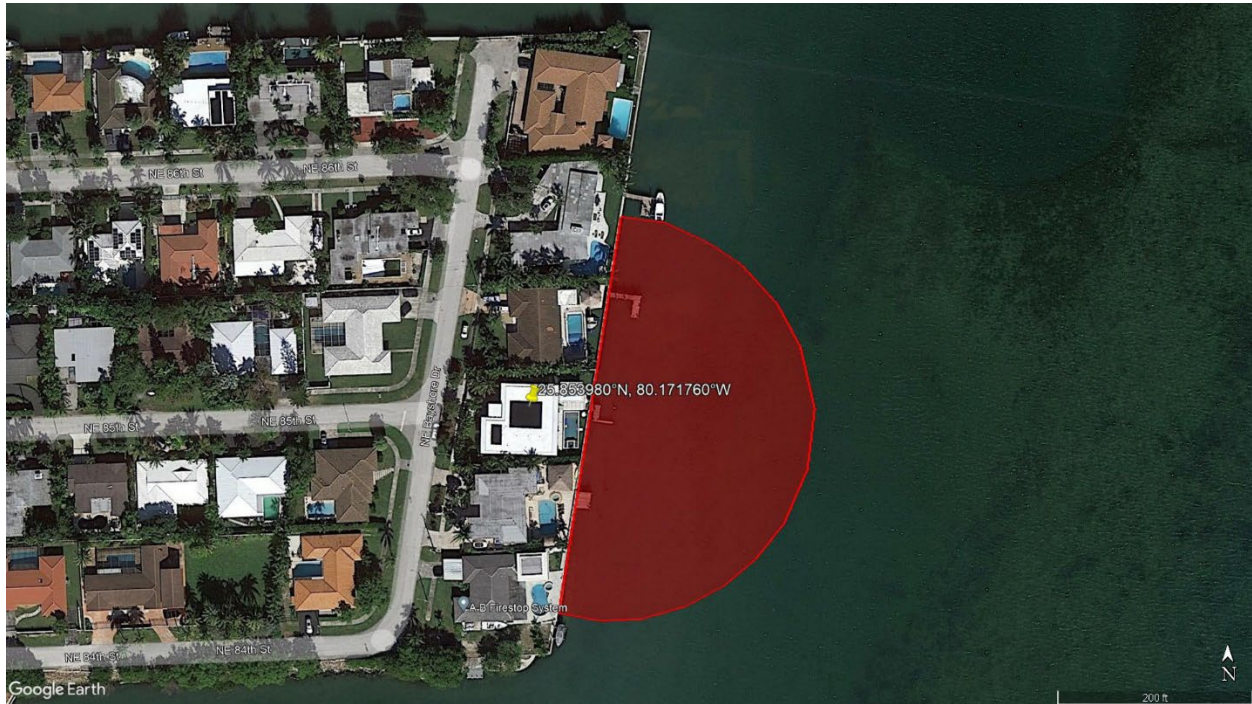


Figure 3. The Project Site (Yellow Pin) and the Extent of the Action Area (Shaded in Red) (©2021 Google)

3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

Table 1 provides the effect determinations for species the USACE and/or NMFS believe may be affected by the proposed action. Please note the following abbreviations are used only in the table below: E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect; NE = no effect.

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

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (North Atlantic DPS)	T	NLAA	NLAA
Green (South Atlantic DPS)	T	NLAA	NLAA
Kemp’s ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NE
Loggerhead (Northwest Atlantic DPS)	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
Giant manta ray	T	NE	NLAA

We believe the proposed action 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 turtle has a pelagic, deepwater life history, where they forage primarily on jellyfish.

Table 2 provides the effects determinations for designated critical habitat occurring within the action area that the USACE and/or NMFS believe may be affected by the proposed action. Please note the following abbreviations are used only in the table below: LAA = likely to adversely affect, DAM = destroy or adversely modify.

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

Species	Critical Habitat Unit	Action Agency Effect Determination	NMFS Effect Determination
Johnson's seagrass	Unit J	LAA	LAA, will not DAM

3.1 Potential Routes of Effect Not Likely to Adversely Affect Listed Species

Effects to sea turtles and ESA-listed fish species include the potential for injury from construction equipment or materials. We believe this effect is extremely unlikely to occur. Because these species are highly mobile, we expect them to move away from the project sites and into nearby suitable habitat, if disturbed. The applicants have also agreed to adhere to the NMFS *Protected Species Construction Conditions*, which will further reduce the risk by requiring all construction personnel to watch for ESA-listed species. Operation of any mechanical construction equipment shall cease immediately if a turtle protected species is seen within a 150-ft radius of the equipment or 20 minutes have passed since the animal was last seen in the area. Activities may not resume until the protected species has departed the project area of its own volition. Further, construction would be limited to daylight hours so construction workers are able to see protected species, if present, and avoid interactions with them.

The action areas contain shallow water habitat that may be used by sea turtle species and ESA-listed fish species for foraging and refuge. These species may be affected by their inability to access the action areas due to their avoidance of construction activities and due to their physical exclusion from the project area by the use of turbidity curtains. We believe temporary loss of habitat access for these species will be insignificant given the proposed construction activities will be temporary and intermittent (i.e., the project will take 26 days, and construction will occur during daylight hours only). In addition, because these species are mobile, we expect that they will move away from construction activities and to adjacent areas in Biscayne Bay with similar habitat.

High-speed vessels can strike sea turtles, leading to injury or death. The proposed action will result in the addition of one new boat slip. We believe vessel strike injury on sea turtles resulting from increased vessel traffic associated with the proposed action is extremely unlikely to occur.

Based on our recent analysis,¹ it would take an introduction of at least 200 new vessels to an area to result in a take of one sea turtle in any single year.

High-speed vessels can strike giant manta ray, leading to injury or death. While there is limited available information on the giant manta ray, we expect the circumstances and factors resulting in vessel strike injury are similar between sea turtles and giant manta ray because both are found in nearshore waters, including in the vicinity of inlets where vessel traffic may be concentrated, and spend significant time at or near the surface, making them particularly vulnerable to vessel strikes. Numerous observations of giant manta ray with scarring on their dorsal surface that is likely a result of previous boat propeller injury support this conclusion. Therefore, we will rely on the more robust available data on sea turtle vessel strike injury to serve as a proxy for the giant manta ray. Because the proposed action will result in the introduction of only one new vessel, we determine this route of effect is extremely unlikely to occur.

We believe it is extremely unlikely that smalltooth sawfish will be killed or injured by high-speed vessel traffic resulting from the proposed action. Few records exist of smalltooth sawfish being struck by either recreational or commercial vessels, likely because this species is primarily demersal (i.e., lives and feeds on or near the bottom) and would rarely be at risk from collisions with vessels at the surface. In addition, navigational markers alert both recreational and commercial boaters to shallow areas to prevent groundings and vessels are likely to rely on these markers to avoid shallow areas.

Noise created by pile driving activities can physically injure animals or change animal behavior in the affected areas. Injurious effects can occur in two 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.

The noise analysis in this consultation evaluates physical injury and behavioral effects to ESA-listed fish and sea turtles identified by NMFS that may be affected by the proposed action. The proposed action occurs in an open-water environment. We define an open-water environment as any area where an animal would be able to move away from the noise source without being forced to pass through the radius of noise effects. Because multiple pile-types are proposed, the noise analysis in this consultation evaluates the pile-type and installation method with the greatest potential effects and largest potential effect radius (i.e., 12-in wood piles installed via impact hammer with a cushion block). Any other potential effects of pile driving noise would occur within a radius of that size or smaller and would result in, at most, the potential effects described below. NMFS uses the U.S. Navy Phase III criteria (U.S. Department of the Navy, 2017) for noise thresholds. The following noise analysis was created using the NMFS Multi-species Pile Driving Tool (dated December 2021)

¹ Barnette, M. 2018. Threats and Effects Analysis for Protected Resources on Vessel Traffic Associated with Dock and Marina Construction. NMFS Southeast Regional Office Protected Resources Division Memorandum. October 31, 2018.

The installation of 12-in wood piles by impact hammer using noise abatement measures will not cause injurious noise effects to sea turtles from peak sound pressure levels, referred to as PK in the noise thresholds PK is the greatest value of the sound signal. Installation of 12-in wood piles by impact hammer using noise abatement measures may cause PK injurious noise effects to ESA-listed fishes at a radius of up to 0.3-ft (0.1-m) away from the pile-driving operations. However, we believe PK injurious noise effects are extremely unlikely to occur to ESA-listed fishes due to the mobility of these species. That is, we expect the species to move away from the noise disturbances before the exposure to the noise causes physical injury. Even in the unlikely event an animal does not vacate the cumulative sound pressure injurious impact zone, the radius of that area is well within the 150 ft (46 m) “stop-work” radius defined in SERO’s Protected Species Construction Conditions (2021), which further limits the potential for noise effects. Movement away from the injurious sound radius is a behavioral response, which is discussed below.

The SELcum or cumulative sound exposure level from the installation of up to four 12-in wood piles per day using noise abatement measures may cause injury to ESA-listed fishes at a radius of up to 12.5-ft (3.8-m) away and sea turtles at a radius of up to 0.9-ft (0.3-m) away from the pile-driving operations. SELcum is a measure of the sound energy that takes into account the received sound pressure level over time, in this case 24 hours. We believe SELcum injurious noise effects are extremely unlikely to occur due to the mobility of these species. That is, we expect the species to move away from the noise disturbances before the exposure to the noise causes physical injury. Even in the unlikely event an animal does not vacate the cumulative sound pressure injurious impact zone, the radius of that area is well within the 150 ft (46 m) “stop-work” radius defined in SERO’s Protected Species Construction Conditions (2021), which further limits the potential for noise effects. Movement away from the injurious sound radius is a behavioral response, which is discussed below.

The installation of 12-in wood piles by impact hammer using noise abatement measures could result in behavioral noise effects to ESA-listed fishes at a radius of up to 207-ft (63.1-m) away and sea turtles at a radius of 4.6-ft (1.4-m) away from the pile driving operations. These radii are calculated with respect to the root-mean-square pressure level (referred to as RMS in the noise thresholds), which accounts for the intensity of the sound signal over a given time. We believe behavioral noise effects will be insignificant due to the mobility of these species, the project occurring in an open-water environment, and the similarity of nearby habitat. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise effects during pile installations. Since pile installations will occur intermittently during daylight hours only, these species will be able to resume normal activities during quiet periods between pile installations and at night.

3.2 Status of Critical Habitat Likely to be Adversely Affected

The term “critical habitat” is defined in Section 3(5)(A) of the ESA as (i) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (1) essential to the conservation of the species and (2) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. “Conservation” is

defined in Section 3(3) of the ESA as “...the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which listing under the ESA is no longer necessary.”

Johnson’s Seagrass Critical Habitat

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

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

	Location/Area
A	A portion of the Indian River, Florida, north of the Sebastian Inlet Channel
B	A portion of the Indian River, Florida, south of the Sebastian Inlet Channel
C	A portion of the Indian River Lagoon, Florida, in the vicinity of the Fort Pierce Inlet
D	A portion of the Indian River Lagoon, Florida, north of the St. Lucie Inlet
E	A portion of Hobe Sound, Florida, excluding the federally marked navigation channel of the Intracoastal Waterway
F	A portion of the south side of Jupiter Inlet, Florida
G	A portion of Lake Worth, Florida, north of Bingham Island
H	A portion of Lake Worth Lagoon, Florida, located just north of the Boynton Inlet
I	A portion of northeast Lake Wyman, Boca Raton, Florida, excluding the federally marked navigation channel of the Intracoastal Waterway
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

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 3). 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.

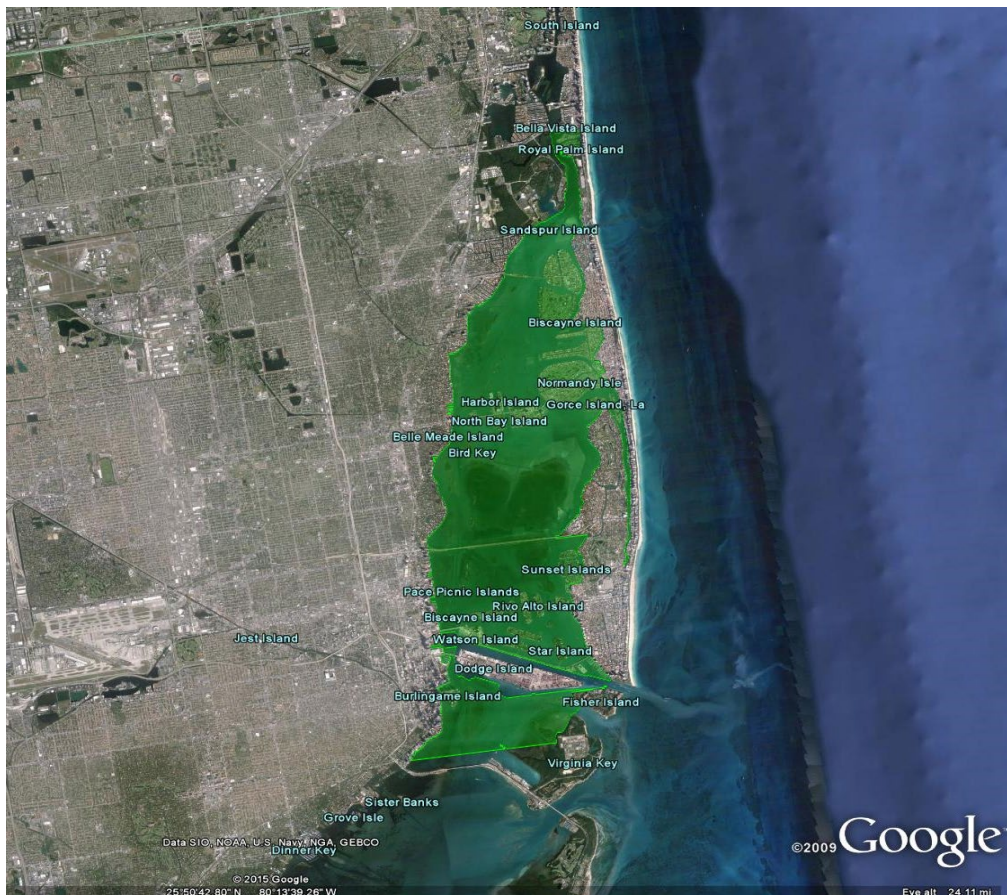


Figure 4. Johnson's Seagrass Critical Habitat Unit J (©2015 Google, Data SIO, NOAA, USN, NGA, GEBCO)

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) adequate stable, unconsolidated sediments that are free from physical disturbance. All four essential features must be present in an area for it to function as critical habitat for Johnson's seagrass.

Status and Threats

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

Vessel traffic has the potential to affect Johnson's seagrass critical habitat by reducing water transparency. Operation of vessels in shallow water environments often leads to the suspension of sediments due to the spinning of propellers on or close to the bottom. Suspended sediments reduce water transparency and the depth to which sunlight penetrates the water column. Populations of Johnson's seagrass that inhabit shallow water and water close to inlets where vessel traffic is concentrated are likely to be most affected. This effect is expected to worsen with increases in boating activity.

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

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

Other threats include inputs from adjacent land use. Johnson's seagrass critical habitat located in proximity to rivers, canal mouths, or other discharge structures is affected by land use within the watershed. Waters with low salinity that are highly colored and often polluted are discharged to the estuarine environment. This can impact salinity, water quality, and water transparency, all essential features of Johnson's seagrass critical habitat. Frequent pulses of freshwater discharge

to an estuarine area may decrease salinity of the habitat and provoke physiological stress to the species. Nutrient over-enrichment, caused by inorganic and organic nitrogen and phosphorous loading via urban and agricultural land run-off, stimulates increased algal growth, decreased water transparency, and diminished oxygen content within the water. Low oxygen conditions have a demonstrated negative impact on seagrasses and associated communities. Discharges can also contain colored waters stained by upland vegetation or pollutants. Colored waters released into these areas reduce the amount of sunlight available for photosynthesis by rapidly reducing the amount of shorter wavelength light that reaches the bottom. In general, threats from adjacent land use will be ongoing, randomly occurring events that follow storm events.

4 ENVIRONMENTAL BASELINE

This section describes the effects of past and ongoing human and natural factors contributing to the current status of the affected 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), the environmental baseline for an Opinion refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to the listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

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.

4.1 Status of Designated Critical Habitat within the Action Area

Johnson's Seagrass Critical Habitat

As discussed above, this Opinion focuses on an activity occurring in Unit J of Johnson's seagrass designated critical habitat, which encompasses the northern portion of Biscayne Bay from North East 163rd Street south to Central Key Biscayne at 25°45'N. The proposed action will occur at a residential property with an existing seawall and an approximately 120 ft² dock. Depths are 1.2 to 3.2 ft at MLW adjacent to the seawall and 2.1 to 3.8 ft at MLW at a distance of 5 ft from the seawall. The bottom is described as sandy. SAV is located within the action area; however, Johnson's seagrass is not present.

4.2 Factors Affecting Designated Critical Habitat within the Action Area

4.2.1 Federal Actions

A wide range of activities funded, authorized, or carried out by federal agencies may affect the essential features of designated 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 EPA and the USACE to manage freshwater discharges into waterways, management of Biscayne Bay Aquatic Preserve, regulation of vessel traffic to minimize propeller dredging and turbidity, and/or other activities by the USCG and US 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 to Johnson's seagrass designated critical habitat within the action area, as per a review of the NMFS SERO PRD's completed consultation database by the consulting biologist on March 24, 2022.

4.2.2 Private Recreational Boat 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.

4.2.3 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.

4.2.4 Conservation and Recovery Actions Shaping the Environmental Baseline

State and federal conservation measures exist to protect Johnson's seagrass and its habitat under an umbrella of management and conservation programs that address seagrasses in general (Kenworthy et al. 2006). These conservation measures must be continually monitored and assessed to determine if they will ensure the long-term protection of the species and the maintenance of environmental conditions suitable for its continued existence throughout its geographic distribution.

5 EFFECTS OF THE ACTION ON CRITICAL HABITAT

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02).

The proposed action is within the boundary of Johnson's seagrass critical habitat (Unit J), and all four essential features are present at the site. The four habitat features essential to the conservation of Johnson's 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 four essential features must be present in an area for it to function as critical habitat for Johnson's seagrass and the loss of 1 essential feature of Johnson's seagrass critical habitat will result in a total loss in the conservation function of the critical habitat in that area.

To calculate impacts of the proposed project on each of the four essential features for Johnson's seagrass critical habitat present in the action area, we first look at the location and orientation of the existing structures and of the proposed new or replacement structures within the project area. In many instances, the footprints of the existing and the proposed structures overlap to some extent, and in some instances, the footprints overlap each other entirely. When there is no overlap or partial overlap between the footprints of the existing and proposed structures, there is the potential for an essential feature to be restored once an existing structure is removed. This is because the footprint (or, in the case of partial overlap, a portion of the footprint) of the removed structure will not be covered by the footprint of the proposed new structure. In this instance, once completed, a proposed project may benefit the designated critical habitat for a species by restoring the essential features within that portion of the action area. Adverse effects to essential features and critical habitat can occur in the non-overlapping footprint of the proposed new structures. Where the footprint of the existing and proposed structures overlap, the area affected by the existing structure does not have a particular essential feature or features and is not functioning critical habitat, and therefore the proposed structure will not affect the features or critical habitat.

Looking at the project design plans provided by the USACE for the proposed project, it is difficult to discern the exact overlap between the existing and the proposed project elements. The plans for all elements of the proposed project are not drawn to scale, making a direct comparison or overlay of the existing conditions diagram and the proposed design plans inexact. Further, as these are project design plans and not documentation of the final construction, there likely will be some small discrepancies between the location of project elements in the plans provided and their actual construction. Therefore, the exact overlap of existing and new structures can only be

estimated. There will be some inherent and incalculable variability in actual dimensions and placement of structures within the project site such that the precise impacts of the proposed project on the essential features will be difficult to quantify. Thus, calculating the general estimated difference in overlap between the overwater area and support piles for the existing and proposed in-water structures allows us to determine the overall effects to the essential features and functioning critical habitat within the action area once the proposed project is completed. In this instance, we assume complete overlap of the existing and proposed overwater portion of the dock structures. The overwater area of the proposed structure is larger than and subsumes the overwater area of the existing structure. While this assumption may result in underestimating both the beneficial and adverse impacts to critical habitat, we believe this does not affect the resulting determination concerning the total amount of functioning critical habitat available following the completion of the project. This approach uses the best information available.

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

The adequate water quality and adequate water transparency essential features of Johnson's seagrass critical habitat may be affected by increased turbidity due to pile installation; however, we believe this effect will be insignificant because turbidity is expected to be temporary.

The proposed work is likely to adversely affect the stable, unconsolidated sediments essential feature due to the installation of 10 new 12-in batter piles, 11 new 12-in dock piles, 1 new 12-in pile for mooring, and 2 new 12-in piles for the boatlift. These piles will cover or displace the essential feature, and adversely affect the essential feature. Though we assume complete overlap between the overwater portion of the dock (the decking), we assume the proposed batter piles, dock support piles, mooring piles, and boatlift piles will be placed in areas that are undisturbed and are functioning as critical habitat. Some of these piles would be 100% subsumed under the new dock, and we do not consider effects to the stable, unconsolidated sediments essential feature from piles that are completely underneath a new structure when estimating the amount of critical habitat affected, to avoid double counting impacts to critical habitat. This is because, as discussed below, the adequate water transparency essential feature of Johnson's seagrass critical habitat also is affected in this same area, and all four essential features must be present for the critical habitat to be functional. Once a single feature is removed, the habitat is no longer functional and adverse effects to a different essential feature do not constitute additional adverse effects to the critical habitat. Per the proposed project drawings supplied by the USACE, it appears that only 3 of new batter piles would be 100% subsumed under the new structure; all other piles would not be 100% subsumed under the new structure. We believe the piles not completely subsumed by the proposed structure will adversely affect the stable, unconsolidated sediments essential feature and the same amount of critical habitat. Therefore, the installation of piles for the dock and boatlift will affect 17.99 ft² of the stable, unconsolidated sediments essential feature upon completion of the proposed action (7 ft² due to 7 new 12-in-square batter piles + 10.99 ft² due to 14 new 12-in-round wood piles [$A = \pi r^2 \times 14 = (3.14 \times (0.5)^2) \times 14 = 10.99$]).

Finally, we consider effects to Johnson's seagrass critical habitat from the loss of the adequate water transparency essential feature. The adequate water transparency essential feature of Johnson's seagrass critical habitat is likely to be adversely affected by shading from the new structure. We only expect adverse effects in the area immediately underneath this structure, as any other shading to nearby areas will be temporary in nature (i.e., shading and light transmission will change over the course of the day) and therefore insignificant.

In order to calculate adverse impacts to Johnson's seagrass critical habitat from effects to the adequate water transparency essential feature, first we consider the removal of the existing dock (120 ft²). Then, we consider shading from the proposed dock (440 ft²). Finally, we account for shading due to the vessel that will be housed in the new boat slip. Because we do not know the size of the new vessel, we estimate the shaded area be 176 ft² based on the average vessel size in Florida used in the analysis for SWPBO (SER-2013-12540). To determine the adverse effects to Johnson's seagrass critical habitat from the proposed action, we must subtract the area of the footprint of the existing dock (120 ft²) from the footprint of the proposed dock (440 ft²) and add the area of shading due to the new boat slip (176 ft²). We assume the structures completely overlap, and therefore that the 120 ft² area under the existing dock is shaded and will remain shaded following the proposed action. The existing structure is adversely affecting the water transparency essential feature and critical habitat in this area, and the proposed structure is not adversely affecting an area that has the essential feature and is functional critical habitat. Therefore, we believe the new dock extension at the project site will adversely affect 496 ft² of Johnson's seagrass critical habitat through permanent removal of the adequate water transparency essential feature upon completion of the proposed action (440 ft² - 120 ft² + 176 ft² = 496 ft²). This is the amount of critical habitat that will be impacted by the proposed action.

Combining the adverse effects to Johnson's seagrass critical habitat from the effects to the stable, unconsolidated sediments essential feature (17.99 ft²) and the adequate water transparency essential feature (496 ft²), we believe the project will adversely affect 513.99 ft² of Johnson's seagrass critical habitat.

6 CUMULATIVE EFFECTS

ESA Section 7 regulations require NMFS to consider cumulative effects in formulating its Opinions (50 CFR 402.14). Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this Opinion (50 CFR 402.02). 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 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. As previously referenced, 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 we 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. (2008), and Shafer et al. (2008), NMFS believes that shading impacts to Johnson's seagrass will be reduced in the short- and long-term. Moreover, even with some shading from grated construction materials, researchers have found all 4 essential features necessary for Johnson's seagrass to persist under docks constructed of grated decking (Landry et al. 2008).

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

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

7 DESTRUCTION AND 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 as a whole for the conservation of a listed species" (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. 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 and if the effect of the alteration is to appreciably diminish the value of critical habitat as a whole for the conservation of the species.

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).

Below, we evaluate the project's expected adverse effects on Johnson's seagrass designated 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. NMFS concluded that the first recovery objective had been achieved as of the 5-year review completed in 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 the proposed action will adversely affect a total of 513.99 ft² (0.011800 ac, where 1 ft² = 0.0000229568 ac) of Johnson's seagrass designated critical habitat. However, the project site is not at a boundary of the species' range, the affected area is very small, and the loss of this area for potential colonization will not affect the stability of the species' range now or in the future. Thus, we believe the proposed action's effects will not 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 the species. As discussed above in the Status of the Critical Habitat Likely to be Adversely Affected section (Section 3.2), there are approximately 22,574 ac of Johnson's seagrass designated critical habitat. The loss of 513.99 ft² (0.011800 ac) of designated critical habitat for Johnson's seagrass would equate to a loss of 0.000052% of Johnson's seagrass critical habitat $[(0.011800 \text{ ac} \times 100) \div 22,574 \text{ ac}]$. This minimal 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 critical habitat due to the proposed actions will not appreciably diminish the conservation value of critical habitat as a whole 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 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 action will not impede achieving the three recovery objectives listed above and, therefore will not appreciably diminish the value of critical habitat as a whole for the conservation of the species.

8 CONCLUSION

After reviewing the current status of Johnson's seagrass designated critical habitat, the environmental baseline, and the cumulative effects, it is our opinion that the loss of 513.99 ft² (0.011800 ac) from the proposed action will not interfere with achieving the relevant habitat-based recovery objectives for Johnson's seagrass, and therefore will not appreciably diminish the value of designated critical habitat as a whole for the conservation of Johnson's seagrass. It is our opinion that the proposed action will not impede the critical habitat's ability to support Johnson's seagrass conservation, despite permanent adverse effects. Therefore, we conclude that the action, as proposed, is likely to adversely affect, but is not likely to destroy or adversely modify, Johnson's seagrass designated critical habitat.

9 INCIDENTAL TAKE STATEMENT

NMFS does not anticipate that the proposed action will incidentally take any species and no take is authorized. Nonetheless, take of any ESA-listed species under NMFS purview during the proposed action shall be immediately reported via this online form:

<https://forms.gle/85fP2da4Ds9jEL829>. This form shall be completed for each individual known reported capture, entanglement, stranding, or other take incident. Information provided via this form shall include the: title, Rosen Seawall and Dock Project; issuance date; ECO tracking number, SERO-2021-00197; species name; date and time of the incident; general location and activity resulting in capture; condition of the species (i.e., alive, dead, sent to rehabilitation); size of the individual, behavior, identifying features (i.e., presence of tags, scars, or distinguishing marks), and any photos that may have been taken.

10 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to utilize their authority to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations identified in Biological Opinions can assist action agencies in implementing their responsibilities under Section 7(a)(1). Conservation recommendations are discretionary activities designed 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. The following conservation recommendations are discretionary measures that NMFS believes are consistent with this obligation and therefore should be carried out by the federal action agency:

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.

To stay abreast of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

11 REINITIATION OF CONSULTATION

This concludes NMFS's consultation on the proposed action. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal action agency involvement or control over the action has been retained, or is authorized by law, and if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action on listed species or designated critical habitat in a manner or to an extent not considered in this Opinion, (3) the agency action is subsequently modified in a manner that causes an effect on the listed species or critical habitat not considered in this Opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

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