



UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office

263 13th Avenue South

St. Petersburg, Florida 33701-5505

<http://sero.nmfs.noaa.gov>

JUN 15 2018

F/SER31:SF

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

Dear Sir or Madam:


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

Permit Number	Applicant	SER Number	Project Types
SAJ-2018-00108 (LP-PMG)	Alex Kamyshnikov	SER-2018-19076	Dock and seawall construction

This Opinion considers the effects of dock and seawall construction by Alex Kamyshnikov on the following listed species and/or critical habitat: sea turtles (loggerhead [Northwest Atlantic (NWA) distinct population segment (DPS)], Kemp’s ridley, hawksbill, green [North Atlantic (NA) and South Atlantic (SA) DPSs], and leatherback), smalltooth sawfish (United States [U.S.] DPS), and designated critical habitat for Johnson’s seagrass. This analysis is based on project-specific information provided by the U.S. Army Corps of Engineers (USACE), the consultant, and NMFS's review of published literature. We conclude that the proposed action may affect, but is not likely to adversely affect, loggerhead sea turtle (NWA DPS), Kemp's ridley sea turtle, green sea turtle (NA and SA DPSs), and smalltooth sawfish (U.S. DPS). We conclude that the project is likely to adversely affect, but is 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 Sarah Furtak, Consultation Biologist, at (954) 734-4713, or by email at sarah.furtak@noaa.gov.

Sincerely,


for Roy E. Crabtree, Ph.D.



Regional Administrator

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

JUN 15 2018

Biological Opinion

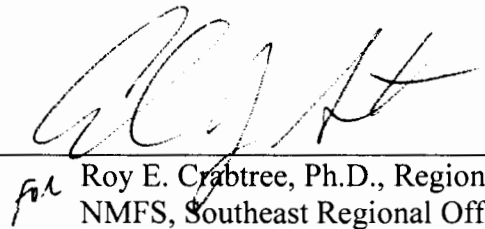
Agency: United States Army Corps of Engineers (USACE), Jacksonville District

Activity: Proposed USACE issuance of regulatory permit in Miami-Dade County, Florida (SAJ-2018-00108)

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

Consultation Number SER-2018-19076

Approved By:



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

Date Issued

6/15/18

Table of Contents

1	CONSULTATION HISTORY	5
2	DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA	5
3	STATUS OF LISTED SPECIES AND CRITICAL HABITAT	8
4	ENVIRONMENTAL BASELINE.....	15
5	EFFECTS OF THE ACTION.....	18
6	CUMULATIVE EFFECTS	19
7	DESTRUCTION/ADVERSE MODIFICATION ANALYSIS	20
8	CONCLUSION.....	21
9	INCIDENTAL TAKE STATEMENT.....	22
10	CONSERVATION RECOMMENDATIONS.....	22
11	REINITIATION OF CONSULTATION.....	23
12	LITERATURE CITED	24

List of Figures

Figure 1. Image showing project site (©2018 Google Earth).....	7
Figure 2. Image showing the action area defined by the extent of behavioral noise effects based on the proposed action's installation of 12-in by 12-in concrete piles and 12-in-diameter wood piles using an impact hammer (©2018 Google).	8
Figure 3. Johnson's seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)	14

List of Tables

Table 1. Pile Installation	6
Table 2. Effects Determinations for Species the Action Agency and/or NMFS Believe May Be Affected by the Proposed Action.....	9
Table 3. Effects Determinations for Designated Critical Habitat the Action Agency and/or NMFS Believe May Be Affected by the Proposed Action.....	9
Table 4. Designated Critical Habitat Units for Johnson's.....	13
Table 5. Impacts to Johnson's Seagrass Critical Habitat	19

Glossary of Acronyms

CFR	Code of Federal Regulations
cSEL	cumulative Sound Exposure Level
DPS	Distinct Population Segment
ESA	Endangered Species Act
MHW	Mean High Water
MLW	Mean Low Water
NMFS	National Marine Fisheries Service
NWA	Northwest Atlantic
NA	North Atlantic
PCTS	Public Consultation Tracking System
PRD	Protected Resources Division
SA	South Atlantic
U.S.	United States of America

USACE U.S. Army Corps of Engineers

Units of Measurement

Length and Area

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

Background

Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 et seq.), requires that each federal agency ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. Section 7(a)(2) requires federal agencies to consult with the appropriate Secretary to meet these responsibilities; the National Marine Fisheries Service (NMFS) and the United States (U.S.) Fish and Wildlife Service share responsibilities for administering the ESA.

Consultation is required when a federal action agency determines that a proposed action “may affect” listed species or designated critical habitat. Consultation concludes after NMFS determines that the action is not likely to adversely affect listed species or critical habitat or issues a Biological Opinion (“Opinion”) that identifies whether a proposed action is likely to jeopardize the continued existence of a listed species, or destroy or adversely modify critical habitat.

This document represents NMFS’s Opinion, based on our review of impacts associated with the proposed action to issue a permit within Miami-Dade County, Florida. This Opinion analyzes the project’s effects to listed species and critical habitat, in accordance with Section 7 of the ESA, and is based on project information provided by the Jacksonville District of the U.S. Army Corps of Engineers (USACE) and other sources of information, including the published literature cited herein.

1 CONSULTATION HISTORY

The following is the consultation history for the Public Consultation Tracking System (PCTS) identifier number SER-2018-19076, Kamyshnikov Seawall:

- On January 23, 2018, NMFS received a request for informal consultation under Section 7 of the ESA in a letter dated January 24, 2018, from the USACE for construction permit application SAJ-2018-00108 (LP-PMG).
- The USACE determined that the proposed action may affect, but is not likely to adversely affect, green sea turtles, hawksbill sea turtles, Kemp’s ridley sea turtles, leatherback sea turtles, loggerhead sea turtles, smalltooth sawfish, and Johnson’s seagrass critical habitat.
- NMFS requested additional information on February 9 and May 4, 2018, and received a final response on May 18, 2018. NMFS initiated formal consultation May 18, 2018, due to the proposed action’s effects to Johnson’s seagrass critical habitat.

2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

Proposed Action

The USACE proposes to permit the applicant to:

1. Remove 4 piles approximately 26 feet (ft) offshore and wood plank decking near the seawall.

2. Reinforce 100 linear ft (lf) seawall with 11 new 12-inch (in)-by-12-in square concrete batter piles installed via impact hammer, construct an aluminum pile footer (backfilled with poured concrete) that extends 1 ft beyond the existing seawall (using one hundred 12-in-long aluminum sheet piles installed by a person in the water using a sledge hammer), and install a concrete over pour cap 3 ft wide by 16 in high.
3. Construct a 252 square foot (ft²) “L”-shaped dock with a 6-ft-wide by 17-ft-long walkway and a 6-ft-wide by 25-ft-long terminal platform and accompanying eight 12-in-diameter wooden piles installed via impact hammer.

In-water work is expected to take about 3 weeks to complete during daylight hours only. The applicant will comply with NMFS’s *Sea Turtle and Smalltooth Sawfish Construction Conditions*, including the use of turbidity curtains.¹ Additionally, the applicant will require work to stop if sea turtles or smalltooth sawfish are observed within 50 ft of operating or moving construction equipment. One new vessel slip will result from the project.

Table 1. Pile Installation

File type(s)	Number of Piles	Installation Method	Confined Space or Open Water
12-in-by-12-in concrete	11	Impact hammer	Open
12-in-diameter wood	8	Impact hammer	Open
12-in long aluminum sheet	100	Sledge hammer driven by person in water	Open

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

Action Area

The Code of Federal Regulations (CFR) defines action area as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” 50 C.F.R. § 404.02. The project site is adjacent to a residential property located on Biscayne Bay at 824 88th Street, Surfside, Miami-Dade County, Florida, 33134, latitude 25.872645° N, longitude 80.127014 ° W (North American Datum 1983), and consists of an existing seawall, a concrete cap, and 4 remnant piles (Figure 1). The action area for this project includes the waters and submerged lands within, and in the immediate vicinity of, the project sites. For the purposes of this Opinion, the “immediate vicinity” includes the behavioral response zone in which animals may be affected by pile-driving activities. As further described in Section 3.1.4, the proposed method of installation results in a behavioral response zone of 705 ft from the pile-driving activities (also see Figure 2).

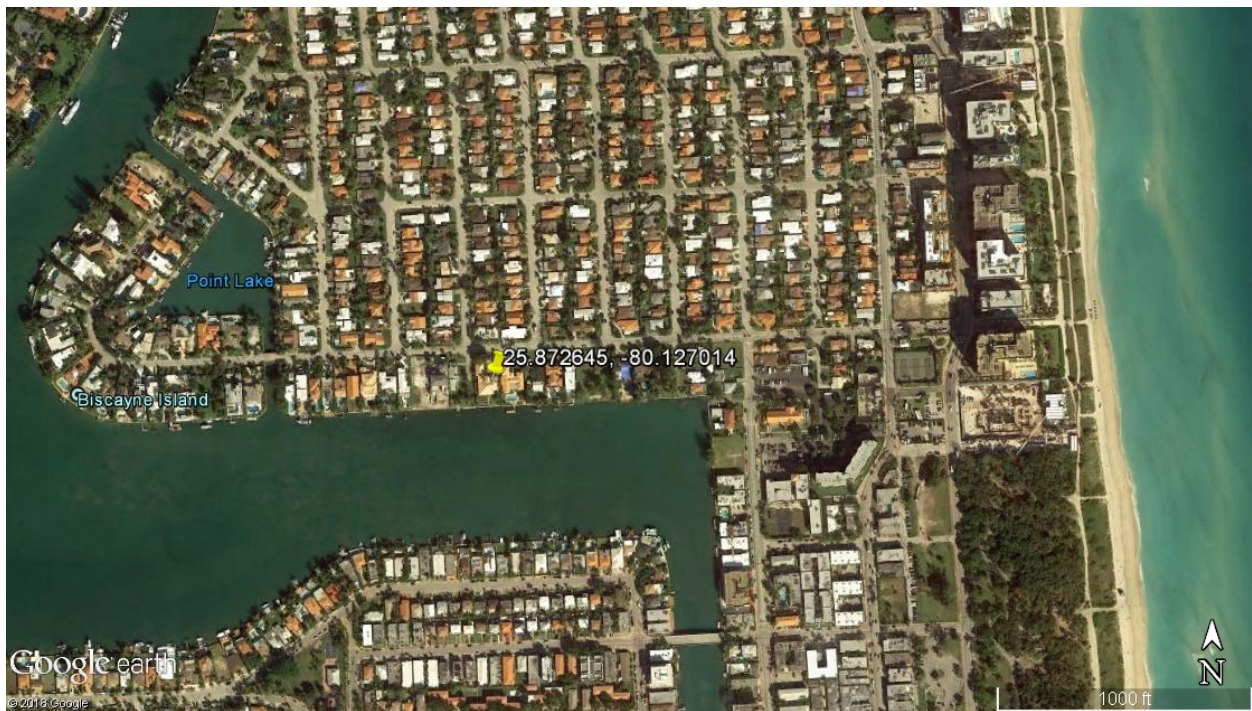


Figure 1. Image showing project site (©2018 Google Earth).

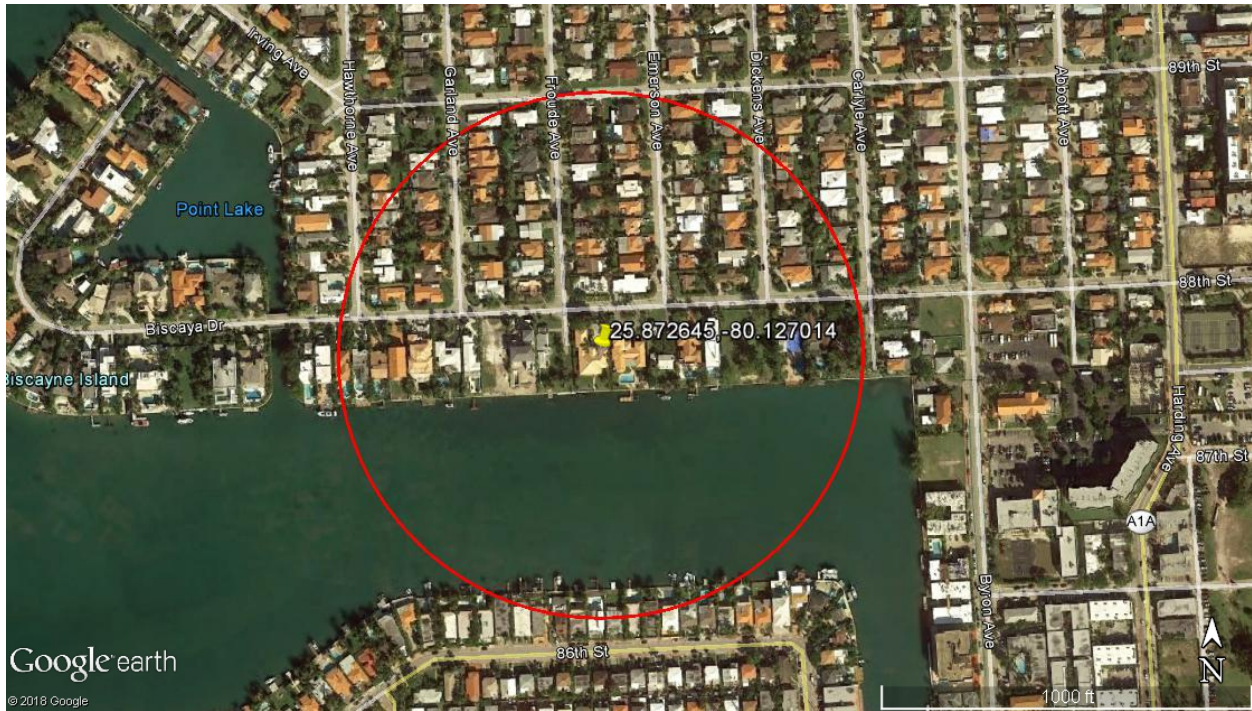


Figure 2. Image showing the action area defined by the extent of behavioral noise effects based on the proposed action’s installation of 12-in by 12-in concrete piles and 12-in-diameter wood piles using an impact hammer (©2018 Google).

A biological assessment was conducted on August 23, 2017. Water depth at the site, according to information provided by the USACE, is about 0.26 ft measured at Mean Low Water (MLW) and about 1.84 ft measured a Mean High Water (MHW). There were no ESA-listed corals, Johnson’s seagrass, or mangroves within the assessment area. Patchy, sparse (5-10% bottom density) shoal grass and manatee grass was observed along the majority of the seawall up to 12 ft waterward of the seawall. Along less than a quarter of the seawall and beyond 12 ft waterward of the seawall, green macroalgae was observed. Non-listed corals (*Siderastrea* spp.) were documented at the site. The project site is a residential property with an existing seawall, wooden plank decking near the seawall, seawall cap, and 4 mooring piles adjacent to other residential properties with existing seawalls, docks, and boat slips.

3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

Table 2 provides the effect determinations for ESA-listed species the USACE and/or NMFS believe may be affected by the proposed action. We believe the project will have no effect on leatherback sea turtle. 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]), hawksbill sea turtle, Kemp’s ridley sea turtle, loggerhead sea turtle (Northwest Atlantic [NWA] DPS), and smalltooth sawfish (U.S. DPS) may be affected, but are not likely to be adversely affected, by the proposed project.

Table 2. 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 (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 3 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 action.

Table 3. Effects Determinations for Designated Critical Habitat the Action Agency and/or NMFS Believe May Be Affected by the Proposed Action

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

3.1 Species and Critical Habitat Not Likely to be Adversely Affected

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.

Sea turtles and smalltooth sawfish may be affected if struck by mechanical equipment used for pile removal, pile installation, and dock construction. We believe that physical effects directly related to in-water construction equipment are extremely unlikely to occur and discountable. Sea turtles and smalltooth sawfish are mobile species and expected to avoid the project area during pile removal, pile installation, and dock construction, which will occur over a small area and short duration (3 weeks during daylight hours only). The applicant's implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce the risk by requiring all construction workers to watch for smalltooth sawfish and sea turtles. Operation of any mechanical construction equipment will cease immediately if a sea turtle or smalltooth

sawfish is observed 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.

Sea turtles and smalltooth sawfish may be affected by being temporarily unable to use the site for forage and shelter habitat due to avoidance of construction activities, related noise, and physical exclusion from the area blocked by turbidity curtains. These effects will be insignificant due to the small project footprint, the project's short duration (about 3 weeks during daylight hours only), and the availability of alternative sites near the project site that sea turtles and smalltooth sawfish can use for foraging and shelter.

The project will result in non-ESA listed seagrass losses. Seagrass serves as foraging and refuge habitat for sea turtles. The loss of seagrass lessens the overall available habitat for the sea turtles. The project proposes removal of seagrass habitat associated with pile installation and dock construction in a portion of the project's footprint. This permanent loss of seagrass could affect foraging and refuge habitat for sea turtles. We believe the permanent loss of seagrass habitat will have an insignificant effect on sea turtles given the proposed project's relatively small area of impact and the availability of similar seagrass habitat elsewhere in the project area and throughout Biscayne Bay.

An increase in vessel traffic in the area may result from the construction of 1 new vessel slip. Sea turtles could be adversely affected by increased vessel traffic in the area, as it may increase the risk of collisions with these species. The addition of 1 new slip to this area will not necessarily introduce new vessels or increase vessel traffic in the area, as it may relocate existing vessels or provide slips for vessels that were previously trailered or docked elsewhere in the region. We conclude, however, that even if 1 new vessel is introduced to the area in association with the proposed action, the potential effects to sea turtles resulting from increased vessel traffic are discountable, based on a recent NMFS analysis (Barnette 2013). Smalltooth sawfish is a demersal (i.e., bottom-dwelling) species; therefore, we do not expect there to be a risk of vessel strike for smalltooth sawfish.

Effects to listed species as a result of noise created by construction activities can physically injure animals in the affected areas or change animal behavior in the affected areas. Injurious effects can occur in 2 ways. First, immediate adverse effects can occur to listed species if a single noise event exceeds the threshold for direct physical injury. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals, and these can constitute adverse effects if animals are exposed to the noise levels for sufficient periods. Behavioral effects can be adverse if such effects interfere with animals migrating, feeding, resting, or reproducing, for example. Our evaluation of effects to listed species as a result of noise created by construction activities is based on the analysis prepared in support of the Opinion for SAJ-82 (NMFS 2014). The noise analysis in this consultation evaluates effects to ESA-listed fish and sea turtles identified by NMFS as potentially affected in Table 2 above.

Based on our noise calculations, the installation of eight 12-inch (in)-diameter wood piles by impact hammer will not cause single-strike or peak-pressure injury to sea turtles or ESA-listed fish. 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 meters [m]). Due to the mobility of sea turtles and ESA-listed fish species, 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. 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, installation of eleven 12-in by 12-in square concrete piles by impact hammer will not cause single-strike or peak-pressure injurious noise effects. However, the cumulative sound exposure level of multiple pile strikes over the course of a day may cause injury to ESA-listed fishes and sea turtles up to 72 ft (22 m) away from the pile. Due to the mobility of sea turtles and ESA-listed fish 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 wood and concrete piles using an impact hammer could also result in behavioral effects at radii 705 ft (215 m) for ESA-listed fishes and 151 ft (46 m) for sea turtles. Due to the mobility of sea turtles and ESA-listed fish species, we expect them to move away from noise disturbances in this open-water environment. Because there is similar habitat nearby, we believe behavioral effects will be insignificant. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise impacts during pile installation. Since installation will occur only during the day, these species will be able to resume normal activities during quiet periods between pile installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

Based on our noise calculations, a person in the water installing one hundred 12-in-long aluminum sheet piles with a sledge hammer will not result in injurious noise effects or behavioral noise effects.

3.2 Status of Critical Habitat Likely to be Adversely Affected

The proposed action area is within the boundary of Johnson's seagrass (Unit J). The physical and biological features essential to the conservation of Johnson seagrass are: (1) adequate water quality, defined as being free from nutrient over-enrichment by inorganic and organic nitrogen and phosphorous or other inputs that create low oxygen conditions; (2) adequate salinity levels, indicating a lack of very frequent or constant discharges of fresh or low-salinity waters; (3) adequate water transparency, which would allow sunlight necessary for photosynthesis; and (4) stable, unconsolidated sediments that are free from physical disturbance. All 4 essential features must be present in an area for it to function as critical habitat for Johnson's seagrass. We believe the proposed action will have no effect on the water quality and salinity levels essential features.

We believe the proposed action is likely to adversely affect Johnson's seagrass critical habitat due to the permanent loss of 2 of the 4 essential features. The adequate water transparency essential feature is likely to be adversely affected by shading from the new dock and associated vessels; shading reducing light penetration into the water column thereby resulting in the loss of the water transparency essential feature. The stable, unconsolidated sediments essential feature is likely to be adversely affected by the installation of the new permanent piles for the dock and seawall, as well as the new footer for the seawall. These effects will be discussed further in the Effects of the Action Section.

3.3 Johnson's Seagrass Critical Habitat

Description

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

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

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

Table 4. Designated Critical Habitat Units for Johnson's

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

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

Essential Features of Critical Habitat

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

Critical Habitat Unit Impacted by this Action

This consultation focuses on an activity that occurs in Unit J, which encompasses the northern portion of Biscayne Bay from Northeast 163rd Street south to Central Key Biscayne at 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.

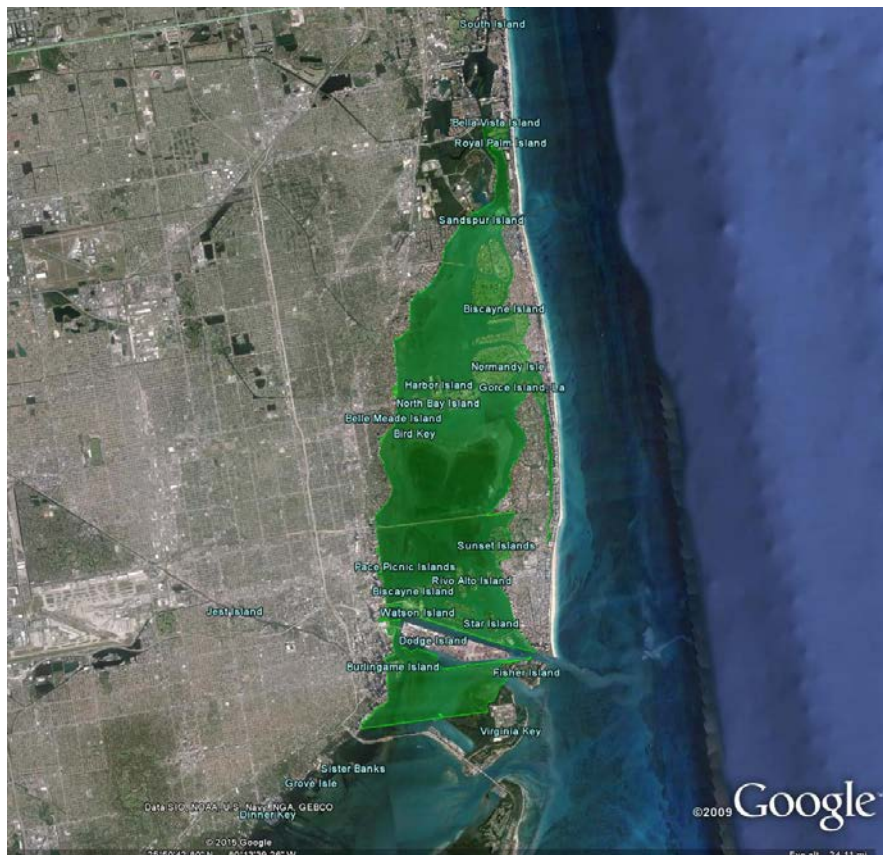


Figure 3. Johnson's seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)

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 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 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 impacts of the activities in the action area specifically allows us to assess the prior experience and state (or condition) of the endangered and threatened individuals, and areas of designated critical habitat that occur in an action area, and that will be exposed to effects from the actions under consultation. This is important because, in some phenotypic states or life history stages, listed individuals will commonly exhibit, or be more susceptible to, adverse responses to stressors than they would be in other states, stages, or areas within their distributions. The same is true for localized populations of endangered and threatened species; the consequences of changes in the fitness or performance of individuals on a population's status depends on the prior state of the population. Designated critical habitat is not different: under some ecological conditions, the physical and biotic features of critical habitat will exhibit responses that they would not exhibit in other conditions.

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

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

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

Federal Actions

A wide range of activities funded, authorized, or carried out by federal agencies may affect the essential features of critical habitat for Johnson's seagrass. These include actions permitted or implemented by the USACE such as dredging; dock/marina construction; bridge/highway construction; residential construction; shoreline stabilization; breakwaters; and the installation of subaqueous lines or pipelines. Other federal activities that may affect Johnson's seagrass critical habitat include actions by the Environmental Protection Agency and the USACE to manage freshwater discharges into waterways; management of National Parks; regulation of vessel traffic to minimize propeller dredging and turbidity; and other activities by the U.S. Coast Guard and U.S. Navy. Although these actions have probably affected Johnson's seagrass critical habitat,

none of these past actions have destroyed or adversely modified Johnson's seagrass critical habitat.

According to our search of the Consultation History in Google Earth and NMFS's PCTS database, we identified 2 nearby projects (i.e., within 750 ft of the proposed Kamyshnikov project) for which ESA Section 7 consultations have been completed on activities with the potential to affect Johnson's seagrass designated critical habitat within the action area. The projects are as follows:

- Michael Thaysen (NMFS tracking # SER-2016-18314) – NMFS issued a Biological Opinion on November 13, 2017. In the Opinion, NMFS estimated 497 ft² of impacts to Johnson's seagrass designated critical habitat (including the adequate water transparency and stable, unconsolidated sediments essential features) from construction of a seawall cap and dock.
- Mount Sinai Medical Center (NMFS tracking # SER-2016-18319) – NMFS issued a Biological Opinion on June 13, 2017. In the Opinion, NMFS estimated 14,010 ft² of impacts to Johnson's seagrass designated critical habitat (including the adequate water transparency and stable, unconsolidated sediments essential features) from installation of a seawall.

Private Recreational Vessel Traffic

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

Marine Pollution and Environmental Contamination

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

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

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

5 EFFECTS OF THE ACTION

The project is located within Johnson's seagrass critical habitat, and all 4 essential features are present at the site. We believe the proposed activity will adversely affect the adequate water transparency essential feature and the stable, unconsolidated sediments essential feature.

The adequate water transparency essential feature will be adversely affected by shading from the new dock and associated vessel. 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 total area of the new dock is 252 ft² and the estimated area of the new vessel² is 176 ft². We believe the project will adversely affect a total of 428 ft² (252 ft² + 176 ft²) of the adequate water transparency essential feature due to the dock installation and presence of the new vessel (see Table 5, below).

Removal of the four existing mooring piles could restore functionality to the stable, unconsolidated sediments essential feature. However, the removal of the mooring piles may result in voids of unpredictable widths and depths. It is not clear how long it will take for sediment to naturally fill the void from each pile being removed. In addition, holes may be kept open by organisms that use them for shelter, or holes might be overgrown by sessile organisms, either of which would prevent natural in-filling. Therefore, NMFS believes that removing the existing piles may restore the stable, unconsolidated sediments that are free from disturbance, but the extent to which this restoration will occur cannot be determined.

The stable, unconsolidated sediments essential feature will be adversely affected by the installation of concrete batter piles and dock piles that fall partially outside of the dock footprint. The removal of any one of the essential features renders the area incapable of functioning as critical habitat, despite the persistence of other essential features, so effects to multiple essential features in the same area are not additive. Thus, the area under the piles that supports the dock structures, which would remove the stable, unconsolidated sediment essential feature, is not separately counted toward the total area of affected critical habitat, if the piles are located wholly underneath the dock within the area that has been lost due to the shading. The project evaluated in this Opinion has some portion of the piles located in areas that will be unaffected by shading. The plans show the dock structure is framed partly on the inside of the piles and partly on the outside of the piles. It appears that all 8 of the 12-in-diameter wooden piles are partially subsumed by the dock structure (i.e., approximately 50% of each pile falls outside of the framing for the dock) and 10 of the eleven 12-in by 12-in concrete batter piles will impact the stable, unconsolidated sediments essential feature (plans show 1 concrete batter pile is underneath the dock). Therefore, the new piles will impact an additional 13.16 ft² of the sediment essential feature (see Table 5).³

² Since the USACE did not provide the size of the vessel that will be stored at this site, we estimate the average vessel will be 176 ft² (based on the average vessel size in Florida used in the Florida Statewide Programmatic, SER-2013-12540).

³ The area of each wood pile is approximately 0.79 ft², Area = πr^2 where $\pi = 3.1412$ and $r = 0.5$ ft. The area of half of 8 round piles = (0.79 ft²)(0.5)(8 piles) = 3.16 ft². The area of each cement pile is approximately (1 ft)(1 ft) = 1 ft².

We believe the project will remove 100 ft² of the stable, unconsolidated sediments essential feature due to the installation of an aluminum pile footer backfilled with concrete (see Table 5).⁴

Table 5. Impacts to Johnson's Seagrass Critical Habitat

From new docks and vessels (ft²)	From aluminum pile footer and concrete backfill (ft²)	From new piles that wholly or partially fall outside of the dock footprint (ft²)	Total critical habitat impacted (ft²)
428	100	13.16	541.16

Combined, we believe the project will adversely affect 541.16 ft² of Johnson's seagrass critical habitat.

6 CUMULATIVE EFFECTS

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

No categories of effects beyond those already described are expected in the action 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 or marsh or mangrove habitat, namely the *Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat*, and for docks within the range of Johnson's seagrass, namely NMFS and USACE's *Key for Construction Conditions for Docks or Other Minor Structures Constructed in or over Johnson's Seagrass (Halophila johnsonii)*. Even if all new docks are constructed in full compliance with the NMFS and USACE's guidance, NMFS acknowledges that shading impacts (and thus, impacts to the water transparency essential feature) to Johnson's seagrass will continue via dock construction. As NMFS and the USACE continue to encourage permit applicants to design and construct new docks in full compliance with the construction guidelines discussed above, and the recommendations in 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

(1 ft²)(10 piles) = 10 ft². The total additional area impacted of stable, unconsolidated sediments essential feature impacted by wooden and cement piles is about (3.16 ft² + 10 ft²) = 13.16 ft².

⁴ The length of the seawall is 100 ft multiplied by the width of the aluminum pile footer and concrete backfill (1ft) = 100 ft².

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.

7 DESTRUCTION/ADVERSE MODIFICATION ANALYSIS

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

Recovery for Johnson's seagrass as set forth in the final recovery plan (NMFS 2002), will be achieved when the following recovery objectives are met: (1) the species' present geographic range remains stable for at least 10 years, or increases; (2) self-sustaining populations are present throughout the range at distances less than or equal to the maximum dispersal distance to allow for stable vegetative recruitment and genetic diversity; and (3) populations and supporting habitat in its geographic range have long-term protection (through regulatory action or purchase

acquisition). We evaluated the project's expected impacts on critical habitat to determine whether it will be able to continue to provide its intended functions in achieving these recovery objectives and supporting the conservation of the species.

The first recovery criterion for Johnson's seagrass is for its present range to remain stable for 10 years or to increase during that time. NMFS's 5-year review (2007) of the status of the species concluded that the first recovery objective had been achieved as of 2007. In fact, the range had increased slightly northward at that time and we have no information indicating range stability has decreased since then. We determined that the proposed action will adversely affect a total of 541.16 ft² of Johnson's seagrass critical habitat. But the action area is not at a boundary of the species' range, the area that will be impacted is very small, and the loss of this potential area for colonization will not affect the stability of the species' range now or in the future. Thus, we believe the proposed action's effects will not impact the critical habitat's ability to contribute to range stability for Johnson's seagrass.

The second recovery criterion for Johnson's seagrass requires that self-sustaining populations be present throughout the range at distances less than or equal to the maximum dispersal distance for the species. Due to its asexual reproduction, self-sustaining populations are present throughout the species' range. As discussed in Section 3.2, there are approximately 22,574 ac of Johnson's seagrass critical habitat. The loss of 541.16 ft² (0.01 ac)⁵ of designated critical habitat for Johnson's seagrass would equate to a loss of 0.00004% of Johnson's seagrass critical habitat [(0.01 ac x 100) / 22,574 ac]. This loss of Johnson's seagrass critical habitat will not significantly impact Johnson's seagrass self-sustaining populations by adversely affecting the availability of suitable habitat in which the species can spread/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 removal of 541.16 ft² (0.01 ac) of critical habitat for this project will not appreciably diminish the conservation value of critical habitat in supporting self-sustaining populations.

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

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

8 CONCLUSION

We have analyzed the best available data, the current status of Johnson's seagrass critical habitat, the environmental baseline, effects of the proposed action, and cumulative effects to determine

⁵ 1 square foot = 0.0000229568 acre

whether the proposed action is likely to destroy or adversely modify Johnson's seagrass critical habitat. It is our Opinion that the proposed action is likely to adversely affect, but is not likely to destroy or adversely modify, Johnson's seagrass critical habitat.

9 INCIDENTAL TAKE STATEMENT

NMFS does not anticipate that the proposed action will incidentally take any species and no take is authorized. Nonetheless, any take of sea turtles or smalltooth sawfish shall be immediately reported to takereport.nmfs@noaa.gov. Refer to the present Biological Opinion by title, Kamyshnikov Seawall, issuance date, NMFS PCTS identifier number, SER-2018-19076, and USACE permit number, SAJ-2018-00108 (LP-PMG). At that time, consultation must be reinitiated.

10 CONSERVATION RECOMMENDATIONS

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

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.

11 REINITIATION OF CONSULTATION

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

12 LITERATURE CITED

- Adam, T. 2012. Mutualistic cleaner fish initiate trait-mediated indirect interactions by influencing the behaviour of coral predators. *Journal of Animal Ecology* 81(3):692-700.
- Barnette, M. C. 2013. Threats and Effects Analysis for Protected Resources on Vessel Traffic Associated with Dock and Marina Construction. National Marine Fisheries Service, St. Petersburg, Florida.
- Hall, L. M., M. D. Hanisak, and R. W. Virnstein. 2006. Fragments of the seagrasses *Halodule wrightii* and *Halophila johnsonii* as potential recruits in Indian River Lagoon, Florida. *Marine Ecology Progress Series* 310:109-117.
- Kenworthy, W. J., S. Wyllie-Echeverria, R. Coles, G. Pergent, and C. Pergent-Martini. 2006. Seagrass Conservation Biology: An Interdisciplinary Science for Protection of the Seagrass Biome. Pages 595-623 in A. W. D. Larkum, R. J. Orth, and C. M. Duarte, editors. *Seagrasses: Biology, Ecology and Conservation*. Springer Netherlands.
- Landry, J. B., W. J. Kenworthy, and G. D. Carlo. 2008a. The effects of docks on seagrasses, with particular emphasis on the threatened seagrass, *Halophila johnsonii*. Report submitted to NMFS Office of Protected Resources.
- Landry, J. B., W. J. Kenworthy, and G. Di Carlo. 2008b. The effects of docks on seagrasses, with particular emphasis on the threatened seagrass, *Halophila johnsonii*. Report submitted to NMFS Office of Protected Resources.
- NMFS. 2002. Recovery plan for Johnson's seagrass (*Halophila johnsonii*). National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, Maryland.
- NMFS. 2014. Biological Opinion on Regional General Permit SAJ-82 (SAJ-2007-1590), Florida Keys, Monroe County, Florida. National Marine Fisheries Service, St Petersburg, Florida.
- Shafer, D. J., J. Karazsia, L. Carrubba, and C. Martin. 2008. Evaluation of regulatory guidelines to minimize impacts to seagrasses from single-family residential dock structures in Florida and Puerto Rico. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi.