



UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office

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St. Petersburg, Florida 33701-5505

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APR 04 2018

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

Dear Sir or Madam:

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

Permit Number	Applicant	PCTS Number	Project Types
SAJ-2017-01509 (LP-PMG)	Mr. Maurice Kruch of Carmen Fine Art, LLC	SER-2017-18735	Dock construction
SAJ-2017-02013 (LP-NDF)	Ms. Kimberly McKenney	SER-2017-18812	Seawall and riprap installation; dock construction

We are responding to your consultation request in a batched format. We have batched these projects based on the location, type of project, construction methods, and species and critical habitat that may be affected. This Opinion analyzes the potential for the projects to affect sea turtles (loggerhead, Kemp’s ridley, hawksbill, green, and leatherback), smalltooth sawfish, and designated critical habitat for Johnson’s seagrass. This analysis is based on project-specific information provided by the USACE, the consultant, and NMFS’s review of published literature. We conclude that the projects are likely to adversely affect, but are not likely to destroy or adversely modify Johnson’s seagrass critical habitat. The Opinion includes conservation recommendations for your consideration.

We look forward to further cooperation with you on other USACE projects to ensure the conservation and recovery of our threatened and endangered marine species. If you have any questions regarding this consultation, please contact Audra Livergood, Consultation Biologist, at (786) 351-2225, or by email at audra.livergood@noaa.gov.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

Enc.: Biological Opinion

File: 1514-22.F.4



Biological Opinion

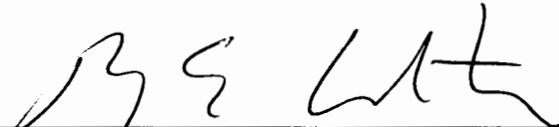
Agency: United States Army Corps of Engineers (USACE), Jacksonville District

Activity: Proposed USACE issuance of 2 regulatory permits in Miami-Dade County, Florida (SAJ-2017-01509 and SAJ-2017-02013)

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

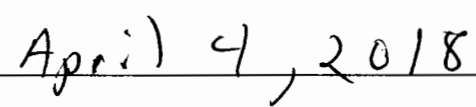
Consultation Numbers SER-2017-18735 and SER-2017-18812

Approved By:



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

Date Issued



April 4, 2018

Table of Contents

1	CONSULTATION HISTORY	4
2	DESCRIPTION OF THE PROPOSED ACTIONS AND ACTION AREAS	4
3	STATUS OF LISTED SPECIES AND CRITICAL HABITAT	7
4	ENVIRONMENTAL BASELINE.....	14
5	EFFECTS OF THE ACTIONS.....	16
6	CUMULATIVE EFFECTS	18
7	DESTRUCTION/ADVERSE MODIFICATION ANALYSIS	18
8	CONCLUSION.....	20
9	CONSERVATION RECOMMENDATIONS.....	20
10	REINITIATION OF CONSULTATION.....	21
11	LITERATURE CITED	22

List of Figures

Figure 1. Image of Carmen Fine Arts property (©2018 Google Earth).	5
Figure 2. Image of McKenney property (©2018 Google Earth).	6
Figure 3. Johnson’s seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)	Error! Bookmark not defined.

List of Tables

Table 1. Projects in this Batched Opinion	4
Table 2. Project Locations	7
Table 3. Effects Determinations and Status for Species and Critical Habitat in or Near the Action Areas that Either the Action Agency or NMFS Believes May Be Affected by the Proposed Actions	8
Table 4. Designated Critical Habitat Units for Johnson’s Seagrass	Error! Bookmark not defined.
Table 5. Impacts to Johnson's Seagrass Critical Habitat.....	17

Glossary of Acronyms

cSEL	cumulative Sound Exposure Level
DPS	Distinct Population Segment
ESA	Endangered Species Act
MLW	Mean Low Water
NMFS	National Marine Fisheries Service
USACE	U.S. Army Corps of Engineers

Units of Measurement

Length and Area

ac	acres
ft	foot/feet
ft ²	square feet
km	kilometers

Background

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

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

This document represents NMFS’s Opinion, based on our review of impacts associated with the proposed actions to issue a permit for in-water construction activities. This Opinion analyzes the projects’ effects to listed species and critical habitat, in accordance with Section 7 of the ESA, and is based on project information provided by the USACE and other sources of information, including the published literature cited herein.

1 CONSULTATION HISTORY

Table 1. Projects in this Batched Opinion

Project Name	NMFS Project Number	USACE Permit Number
Carmen Fine Art	SER-2017-18735	SAJ-2017-01509
Kimberly McKenney	SER-2017-18812	SAJ-2017-02013

Carmen Fine Art: NMFS received a request from the USACE on June 30, 2017. We requested additional information via email on August 9, 2017, and the USACE responded to our request the following day. We initiated formal consultation on August 10, 2017.

Ms. Kimberly McKenney: NMFS received a request from the USACE on August 1, 2017. We requested additional information via email on August 29, 2017. The USACE responded to our request on September 22, 2017, and we initiated formal consultation.

2 DESCRIPTION OF THE PROPOSED ACTIONS AND ACTION AREAS

2.1 Proposed Actions

Carmen Fine Art: The site is located on Indian Creek off of Biscayne Bay and consists of an existing seawall with a concrete cap (Figure 1). The applicant proposes to construct a new 450 square foot (ft²) wood marginal dock supported by 8, 12-inch (in) diameter wood piles. The proposed height of the decking is 3 ft 8 in above mean high water (MHW) with no open space between deckboards. One new vessel slip is proposed.



Figure 1. Image of Carmen Fine Art property (©2018 Google Earth).

All piles will be driven using a barge-mounted impact hammer. In-water work will take approximately 2 days to complete and will be conducted during daylight hours only. Turbidity curtains will be used during construction. Additionally, the applicant will comply with NMFS’s *Sea Turtle and Smalltooth Sawfish Construction Conditions*,¹ which requires work to stop if sea turtles or sawfish are observed within 50 ft of operating or moving construction equipment.

A benthic survey was conducted on April 27, 2017. Water depths at the site (at the time of the survey) range from 2.2 to 3.3 ft measured at Mean Low Water (MLW). The report states non-listed corals (*Siderastrea* spp.), sponges, and paddle grass were documented at the site. However, on the benthic survey report, it appears the paddle grass is waterward of the proposed marginal dock. No ESA-listed corals, Johnson’s seagrass, or mangroves were observed on-site.

Ms. Kimberly McKenney: The site is located on Biscayne Bay and consists of an existing seawall, a marginal dock, a boatlift, and riprap (Figure 2). The applicant proposes to:

- Remove the existing marginal dock (241 ft²), existing boatlift with access platform, and existing 15 lin ft of a riprap bag along the existing seawall.
- Replace it with a new wood dock that has 3 sections: a marginal section (241 ft²), a 160 ft² finger pier, and a 50 ft² finger pier (total of 451 ft²) supported by 16, 12-in diameter wood piles. The new dock would be elevated 3 ft 9 in above MHW with no open space between deckboards.

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

- Install 100 linear feet (lin ft) of concrete panel seawall and a seawall cap supported by 21 (12 in by 12 in) square concrete piles.
- Install 100 cubic yards of riprap boulders at the base of the new seawall, extending approximately 8 ft waterward from the wet face of the new seawall.
- Install 4, 12-in diameter wood piles to support 2 boatlifts and 2, 12-in diameter wood mooring piles.

One new vessel slip is proposed. Piles will be installed via a barge-mounted impact hammer. In-water work will take approximately 3 weeks and will be conducted during daylight hours only. Turbidity curtains will be required, and the applicant will comply with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*.

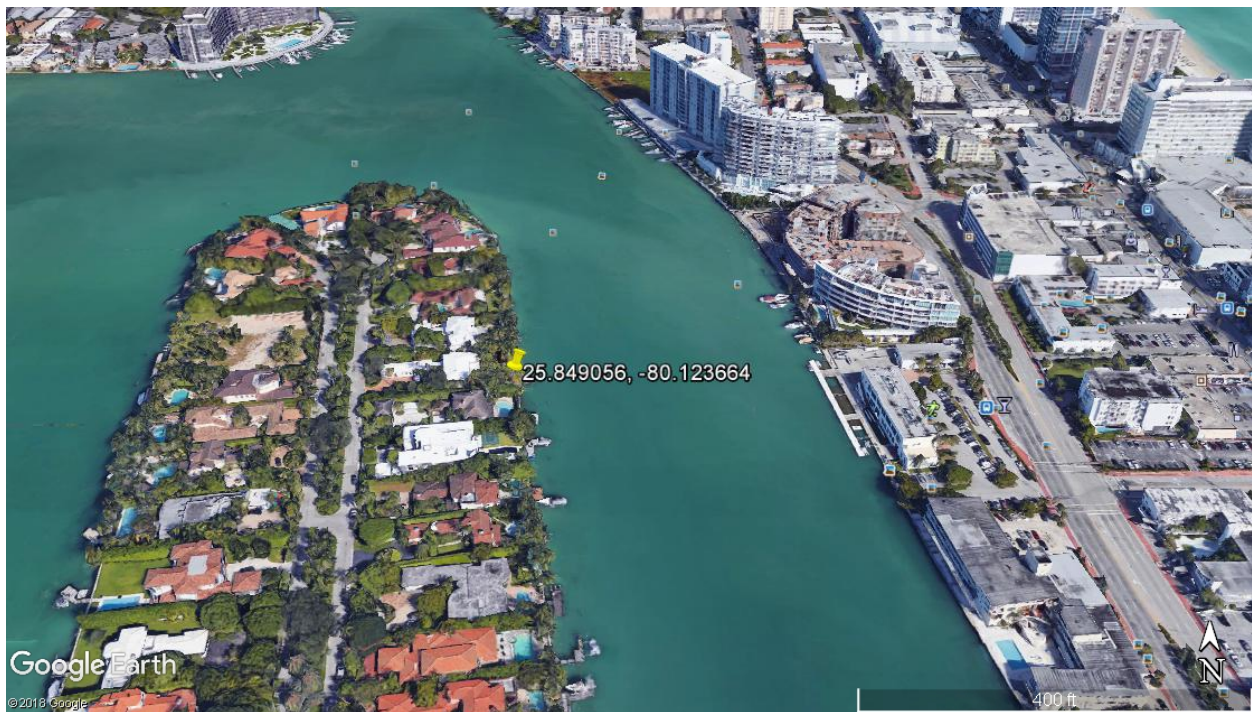


Figure 2. Image of McKenney property (©2018 Google Earth).

A benthic survey was conducted on February 23, 2016. Water depths (at the time of the survey) range from 2.7 to 3.5 ft, measured at MLW. The survey report notes the presence of non-listed corals (*Siderastrea* spp.). No seagrass, ESA-listed corals, or mangroves were observed.

2.2 Action Areas

50 CFR 404.02 defines action area as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” The action areas for these projects include 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, this method of installation has a behavioral response zone of 705 ft from the pile-driving activities.

The project locations are noted in Table 2.

Table 2. Project Locations

Project Name	Project Address in Miami-Dade County, Florida	North American Datum 1983 [NAD 83]
Carmen Fine Art	1440 Biscaya Drive, Surfside	25.874642° N, 80.131170° W
McKenney	6575 Allison Road, Miami Beach	25.849056° N, 80.123664° W

3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

We believe the species and critical habitat listed in Table 3 may be present within the action areas.

Table 3. Effects Determinations and Status for Species and Critical Habitat in or Near the Action Areas that Either the Action Agency or NMFS Believes May Be Affected by the Proposed Actions

Species	ESA Listing Status	Action Agency Effect Determinations	NMFS Effect Determinations
Sea Turtles			
Green (North and South Atlantic distinct population segments [DPSs])	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NE
Loggerhead (Northwest Atlantic Ocean DPS)	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
Critical Habitat			
Johnson's seagrass Unit J (both projects)		NLAA (Carmen); LAA (McKenney)	LAA; no DAM (both projects)
Loggerhead critical habitat		NLAA (Carmen only)	NE (both projects)
E = endangered; T = threatened; NE = no effect; NLAA = may affect, not likely to adversely affect; LAA = likely to adversely affect; DAM = destruction or adverse modification			

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

We believe the projects will have no effect on designated critical habitat for loggerhead sea turtles because neither project is located in or near critical habitat for loggerhead sea turtles.

3.1 Species and Critical Habitat Not Likely to be Adversely Affected

The installation of riprap will have a temporary effect on Johnson's seagrass critical habitat by increasing turbidity (i.e., it will affect water transparency), this effect is expected to be contained to the immediate areas by the placement of turbidity curtains that will remain in place until construction is complete and water transparency has returned to pre-construction conditions. Therefore, we believe that effects on Johnson's critical habitat from increased turbidity are insignificant. Please see Section 5 (Effects of the Action) for a discussion of effects that, we believe, may affect and are likely to adversely affect Johnson's Seagrass Critical Habitat.

We believe that sea turtles (green, loggerhead, hawksbill, and Kemp's ridley) and smalltooth sawfish may be found in or near the action areas and may be affected by the projects analyzed in this Opinion. We have identified the following potential effects to these species and concluded

that the species are not likely to be adversely affected by the proposed actions for the reasons described below.

Sea turtles and smalltooth sawfish

3.1.1 Direct Physical Effects

Direct physical injury to sea turtles and smalltooth sawfish is not expected from interactions with construction machinery or materials because these species have the ability to detect and move away from the types of construction activities that will be implemented for these projects. The projects will adhere to NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, which will provide additional protection by requiring construction equipment to stop if a listed species is observed within 50 ft of operating machinery. Thus, direct physical effects are extremely unlikely to occur and discountable.

3.1.2 Foraging and Refuge

Sea turtles and smalltooth sawfish may be temporarily unable to use portions of the action areas for forage and shelter habitat due to avoidance of construction activities, related noise, and physical exclusion from areas blocked by turbidity curtains. We expect these effects will be temporary and of short duration (only 2 days in the case of Carmen Fine Art and 3 weeks in the case of McKenney), intermittent (construction will occur only during daylight hours), and small in spatial scale (turbidity curtains will only be used in the immediate construction areas). Also, because these species are mobile, we expect that they will move away from the construction activities and forage and shelter in adjacent areas with similar available habitat. Therefore, the effects to sea turtles and smalltooth sawfish from the temporary loss of foraging and shelter habitat will be insignificant.

3.1.3 Risk of Vessel Strike

Combined, the projects propose the addition of 2 vessel slips. The addition of 2 new slips 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. Still, even if 2 new vessels are introduced to the area, we conclude, based on a recent NMFS analysis,² that potential effects to sea turtles resulting from increased vessel traffic associated with the proposed projects are discountable. 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.

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

3.1.4 Pile Driving and Noise Effects

Effects to listed species as a result of noise created by construction activities can be physically injurious to animals in the affected areas, or result in behavioral changes by animals in the affected areas. Physically injurious effects can occur in 2 ways. First, physical effects can result from a single noise event's exceeding the threshold for direct physical injury to animals, and these constitute an immediate adverse effect on affected animals. Second, physical effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals, and these can constitute adverse effects, if animals are exposed to the noise levels for sufficient periods. Behavioral effects can be adverse depending on the circumstances in which they occur (i.e., if such effects interfere with animals' feeding, resting, or reproducing). Our evaluation of effects to listed species as a result of noise created by construction activities is based on the analysis prepared in support of the Opinion for the USACE Jacksonville District's Program (JAXBO).³ The noise analysis in this consultation evaluates effects to smalltooth sawfish and sea turtles that may be in the project areas (see species listed in Table 3).

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

The installation of wood and concrete piles (up to 24-in diameter) using an impact hammer could also result in behavioral effects at radii of 705 ft (215 m) for smalltooth sawfish and 151 ft (46 m) for sea turtles. Due to the mobility of sea turtles and smalltooth sawfish, we expect them to move away from noise disturbances in this open-water environment. Because there is similar habitat nearby, we believe behavioral effects will be insignificant. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise impacts during pile installation. Since installation will occur only during the day, these species will be able to resume normal activities during quiet periods between pile installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

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

³ NMFS. USACE Jacksonville District's Programmatic Biological Opinion (JAXBO) (SAJ-2015-17616), November 20, 2017.

the species and (2) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. “Conservation” is defined in Section 3(3) of the ESA as “...the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which listing under the ESA is no longer necessary.”

3.2.1 Johnson’s Seagrass Critical Habitat

Description

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

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

Ten areas (Units) within the range of Johnson’s seagrass (approximately 200 km of coastline from Sebastian Inlet to northern Biscayne Bay, Florida) are designated as Johnson’s seagrass critical habitat (Table 2). The total range-wide acreage of critical habitat for Johnson’s seagrass is roughly 22,574 ac (NMFS 2002).

Table 4. Designated Critical Habitat Units for Johnson’s Seagrass

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

Unit J	A portion of northern Biscayne Bay, Florida, including all parts of the Biscayne Bay Aquatic Preserve excluding the Oleta River, Miami River, and Little River beyond their mouths, the federally marked navigation channel of the Intracoastal Waterway, and all existing federally authorized navigation channels, basins, and berths at the Port of Miami to the currently documented southernmost range of Johnson’s seagrass, Central Key Biscayne
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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.

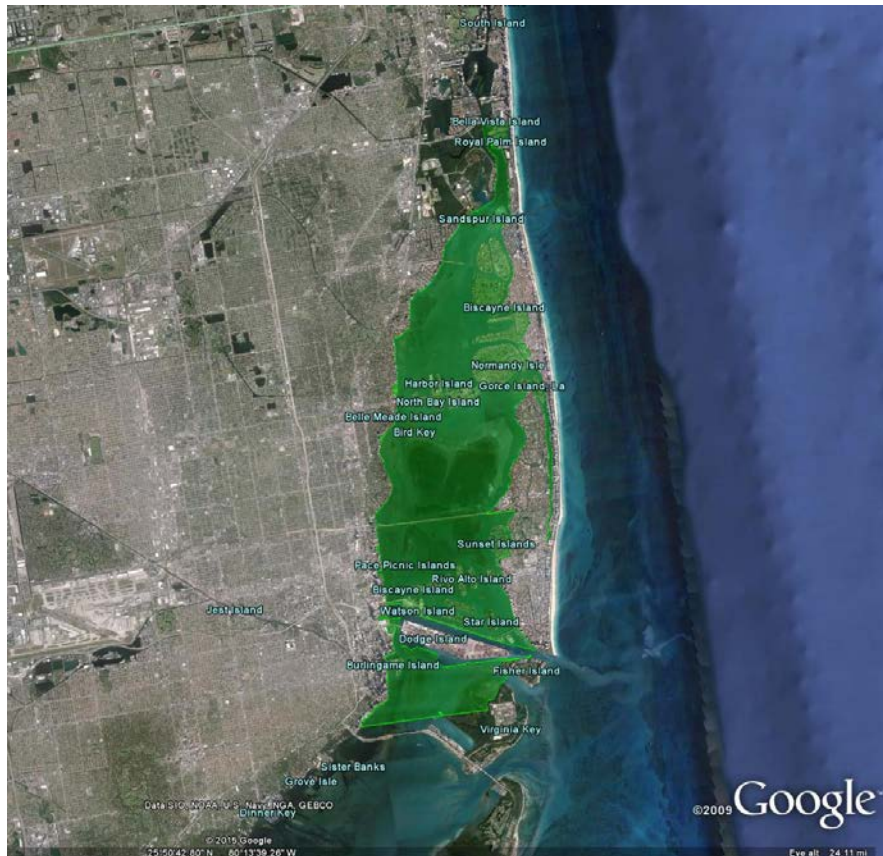


Figure 3. Johnson’s seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)

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 bottom sediments essential for the species. Completed structures can have long-term effects on critical habitat in the surrounding area because of the shade they produce. While shading does not affect water transparency directly, it does affect the amount and/or duration of sunlight that can reach the bottom. The threat posed by dock, marina, and bridge construction is especially apparent in coastal areas where Johnson's seagrass is found.

Other threats include inputs from adjacent land use. Johnson's seagrass critical habitat located in proximity to rivers, canal mouths, or other discharge structures is affected by land use within the watershed. Waters with low salinity that are highly colored and often polluted are discharged to the estuarine environment. This can impact salinity, water quality, and water transparency, all essential features of Johnson's seagrass critical habitat. Frequent pulses of freshwater discharge to an estuarine area may decrease salinity of the habitat and provoke physiological stress to the species. Nutrient over-enrichment, caused by inorganic and organic nitrogen and phosphorous loading via urban and agricultural land run-off, stimulates increased algal growth, decreased water transparency, and diminished oxygen content within the water. Low oxygen conditions have a demonstrated negative impact on seagrasses and associated communities. Discharges can also contain colored waters stained by upland vegetation or pollutants. Colored waters released into these areas reduce the amount of sunlight available for photosynthesis by rapidly reducing the amount of shorter wavelength light that reaches the bottom. In general, threats from adjacent land use will be ongoing, randomly occurring events that follow storm events.

4 ENVIRONMENTAL BASELINE

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

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

As discussed above, this consultation focuses on activities occurring in Unit J, which encompasses the northern portion of Biscayne Bay from North East 163rd Street south to Central Key Biscayne at 25°45'N (Figure 4). This portion of Biscayne Bay is bound by heavy residential

and commercial development, though a few areas of mangrove shoreline remain. Dredge-and-fill projects have resulted in a number of spoil islands and channels too deep for seagrass growth. Biscayne Bay supports a diversity of biological communities including intertidal wetlands, seagrasses, hard bottom, assemblages, and open water. Unit J is wholly within the Biscayne Bay Aquatic Preserve.

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, no ESA Section 7 consultations have occurred on activities with the potential to affect Johnson's seagrass designated critical habitat within the action areas.

Private Recreational Vessel Traffic

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

Marine Pollution and Environmental Contamination

The 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.

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 ACTIONS

Both projects are located within Johnson's seagrass critical habitat, and all 4 essential features are present at these sites. We believe that 2 of the 4 essential features required for functional Johnson's seagrass critical habitat will not be affected by the projects. The proposed activities will not affect water quality by increasing nutrient enrichment, nor will they affect salinity levels in the project areas, because the activities lack the capability to alter such features. We believe the proposed activities 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 docks and vessels (both projects). For the McKenney project, there is an area of overlap (approximately 241ft²) between the existing dock and the new dock. We do not believe this area is functioning as critical habitat due to the shading caused by the existing dock. The total area of the new dock is 451ft². In order to calculate effects on the adequate water transparency essential feature, we start with the area of the new dock (451 ft²) and subtract the area of overlap that is already shaded by the existing dock (241 ft²); thus, we believe the McKenney project will adversely affect 210 ft² of the adequate water transparency essential feature due to the dock installation and 176 ft² of the adequate water transparency essential feature due to the associated vessel.⁴ Together, we believe the McKenney project will shade 386 ft² of the adequate water transparency essential feature due to the installation of the dock (210 ft²) and one associated vessel (176 ft²). We believe the Carmen Fine Art project will shade 626 ft² of the adequate water transparency essential feature due to the installation of the dock and one associated vessel.⁵ Combined, we believe both projects will shade 1,012 ft² of the adequate water transparency essential feature due to the installation of the docks and associated vessels (see Table 5 below).

The stable, unconsolidated sediments essential feature will be adversely affected by the new seawall and the placement of riprap, as well as the installation of boatlift and mooring piles (McKenney only) and by the piles that fall wholly or partially outside of the dock footprints (both projects). 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 unconsolidated bottom 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. Both projects evaluated in this Opinion have some portion of the piles located in areas that will be unaffected by shading. For the Carmen Fine Art project, the plans show the dock structure is

⁴ 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).

⁵ The dock will shade approximately 450 ft² and the vessel will shade approximately 176 ft².

framed partly on the inside of the piles and partly on the outside of the piles. It appears that 4 of the piles are wholly subsumed by the dock structure and 4 of the piles are partially subsumed by the dock structure (i.e., approximately 50% of each pile falls outside of the framing for the dock). Therefore, the Carmen Fine Art project will impact an additional 1.6 ft² of the sediment essential feature⁶. For the McKenney project, the plans show that 2 of the piles are wholly subsumed by the dock structure and 14 of the piles are wholly outside of the framing for the dock. Therefore, the McKenney project will impact an additional 11 ft² of the sediment essential feature⁷.

The McKenney project also proposes 2 new mooring piles and 4 new piles to support the boatlift (for a total of 6 piles that are not for dock support). Combined, these piles would impact 5 ft² of the sediment essential feature⁸

We believe the McKenney project will remove 100 ft² of the unconsolidated bottom sediment essential feature due to the installation of a new seawall and seawall cap.⁹ In addition, we believe the McKenney project will adversely affect 592 ft² of the stable, unconsolidated sediments essential feature due to the placement of riprap. In order to calculate the effects on the stable, unconsolidated sediments essential feature, we start with the area of the riprap (800 ft²) and subtract the area of overlap with the shaded area under the existing dock that, we believe, is not functioning as critical habitat. The area of the riprap is 800 ft² minus the area where there is overlap with the shaded area under the dock (i.e., length = 26 ft multiplied by the width = 8 ft, which equals 208 ft²); thus, the area of new impact is 800 ft² minus 208 ft², which equals 592 ft² (see Table 5 below). Since the king and batter piles used to support the new seawall terminate under the riprap, we do not include any additional habitat loss from these piles as they are already accounted for under the riprap habitat loss.

Table 5. Impacts to Johnson’s Seagrass Critical Habitat

	Project Name	From new docks and vessels (ft²)	From seawall and seawall cap (ft²)	From riprap placement (ft²)	From new piles that are not for dock support (ft²)	From new piles that wholly or partially fall outside of the dock footprint (ft²)	Total critical habitat impacted (ft²)
1	Carmen Fine Art	626	0	0	0	1.6	627.6
2	McKenney	386	100	592	5	11	1,244
	Total	1,012	100	592	5	12.6	1,721.6

Combined, we believe the 2 projects will adversely affect 1,721.6 ft² of Johnson’s seagrass critical habitat.

⁶ The area of each pile is approximately 0.79 ft², Area = πr^2 where $\pi=3.1412$ and $r = 0.5$ ft. The area of a round pile = .79 ft² x 4 piles divided by 2 = 1.6 ft².

⁷ The area of a round pile = .79 ft² x 14 piles = 11 ft².

⁸ The area of a round pile = .79 ft² x 6 piles = 5 ft².

⁹ The length of the new seawall is 100 ft multiplied by the width (1ft) = 100 ft². The cap, extending out an additional 18”, has the potential to shade an additional area, but that area will already be covered by riprap. Thus, the shading from the cap is no additional impact because of the riprap effects.

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 actions are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

No categories of effects beyond those already described are expected in the action areas, and we did not identify any new future state, tribal or private actions reasonably certain to occur in the action areas of the proposed action. Dock and marina construction will likely continue at current rates, with associated loss and degradation of seagrass habitat, including Johnson's seagrass critical habitat. Because these activities are subject to USACE permitting and thus, the ESA Section 7 consultation requirement, they do not lead to cumulative non-federal effects to be discussed in this section. NMFS and the USACE have developed protocols to encourage the use of light-transmitting materials in future construction of docks constructed in or over submerged aquatic vegetation (SAV), marsh or mangrove habitat, namely the *Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat*, and for docks within the range of Johnson's seagrass, namely NMFS and USACE's *Key for Construction Conditions for Docks or Other Minor Structures Constructed in or over Johnson's Seagrass (Halophila johnsonii)*. Even if all new docks are constructed in full compliance with the NMFS and USACE's guidance, NMFS acknowledges that shading impacts (and thus, impacts to the water transparency essential feature) to Johnson's seagrass will continue via dock construction. As NMFS and the USACE continue to encourage permit applicants to design and construct new docks in full compliance with the construction guidelines discussed above, and the recommendations in Landry et al. (2008), and Shafer et al. (2008), NMFS believes that shading impacts to Johnson's seagrass will be reduced in the short- and long-term. Moreover, even with some shading from grated construction materials, researchers have found all 4 essential features necessary for Johnson's seagrass to persist under docks constructed of grated decking (Landry et al. 2008).

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

The first recovery criterion for Johnson's seagrass is for its present range to remain stable for 10 years or to increase during that time. NMFS's 5-year review (2007) of the status of the species concluded that the first recovery objective had been achieved as of 2007. In fact, the range had increased slightly northward at that time and we have no information indicating range stability has decreased since then. NMFS has determined that the 2 projects will adversely affect a total of 1,871.6 ft² of Johnson's seagrass critical habitat. But the action areas are not at a boundary of the species' range, the areas that will be impacted are very small, and the loss of these potential areas for colonization will not affect the stability of the species' range now or in the future. Thus, we believe the proposed actions' effects will not impact the critical habitat's ability to contribute to range stability for Johnson's seagrass.

The second recovery criterion for Johnson's seagrass requires that self-sustaining populations be present throughout the range at distances less than or equal to the maximum dispersal distance for the species. Due to its asexual reproductive mode, self-sustaining populations are present throughout the species' range. As discussed in Section 3.2, there are approximately 22,574 ac of Johnson's seagrass critical habitat. The loss of 1,721.6 ft² (0.04 ac) of designated critical habitat for Johnson's seagrass would equate to a loss of .00018% of Johnson's seagrass critical habitat (0.04 ac x 100 /22,574 ac). The loss of 1,721.6 ft² (0.04 ac) of designated critical habitat for Johnson's seagrass in Unit J specifically would equate to a loss of 0.00021% of Johnson's seagrass critical habitat (0.04 ac x 100 /18,757 ac in Unit J). This loss of Johnson's seagrass critical habitat will not significantly impact Johnson's seagrass self-sustaining populations by adversely affecting the availability of suitable habitat in which the species can spread/flow in the future. Drifting fragments of Johnson's seagrass can remain viable in the water column for 4-8 days (Hall et al. 2006), and can travel several kilometers under the influence of wind, tides, and waves. Because of this, we believe that the removal of 1,721.6 ft² of critical habitat for these projects 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 actions' adverse effects on Johnson's seagrass critical habitat will not impede achieving the recovery objectives listed above and will, therefore, not appreciably diminish the value of critical habitat for the conservation of the species.

8 CONCLUSION

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

9 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

NMFS believes the following conservation recommendations are reasonable, necessary, and appropriate to conserve and recover Johnson's seagrass. NMFS strongly recommends that these measures be considered and adopted.

1. NMFS recommends that the USACE, in coordination with seagrass researchers and industry, support ongoing research on light requirements and transplanting techniques to preserve and restore Johnson's seagrass, and on collection of plants for genetics research, tissue culture, and tissue banking.
2. NMFS recommends that the USACE continue promoting the use of the October 2002 *Key for Construction Conditions for Docks or other Minor Structures Constructed in or over Johnson's Seagrass* as the standard construction methodology for proposed docks located in the range of Johnson's seagrass.
3. NMFS recommends that the USACE review and implement the recommendations in the July 2008 report, *The Effects of Docks on Seagrasses, With Particular Emphasis on the Threatened Seagrass, Halophila johnsonii* (Landry et al. 2008).
4. NMFS recommends that the USACE review and implement the Conclusions and Recommendations in the October 2008 report, *Evaluation of Regulatory Guidelines to Minimize Impacts to Seagrasses from Single-family Residential Dock Structures in Florida and Puerto Rico* (Shafer et al. 2008).
5. NMFS recommends that a report of all current and proposed USACE projects in the range of Johnson's seagrass be prepared and used by the USACE to assess impacts on the species from 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.

10 REINITIATION OF CONSULTATION

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

11 LITERATURE CITED

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