



**UNITED STATES DEPARTMENT OF COMMERCE**

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NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
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F/SER31: NMB

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:

Enclosed is the National Marine Fisheries Service’s Biological Opinion “Opinion” on the U.S. Army Corps of Engineers, Jacksonville District’s proposed actions to issue USACE permits to the applicants in the following table. All projects are located within Miami-Dade County.

	<b>Project</b>	<b>NMFS number</b>	<b>USACE Number</b>
1	Piero Filipi	SER-2015-17526	SAJ-2015-01597 (LP-AG)
2	1519 Bay Drive Partners, LLC	SER-2016-17958	SAJ-2016-01114 (LP-NML)

In order to expedite review of these projects, we are responding to your consultation requests in a batched format. We have batched these projects based on the location, type of project, construction methods, and species. This Opinion analyzes the potential for these projects to affect sea turtles (loggerhead, leatherback, Kemp’s ridley, hawksbill, and green), smalltooth sawfish, Johnson’s seagrass, ESA-listed corals, and designated critical habitat for Johnson’s seagrass in accordance with Section 7 of the Endangered Species Act. This analysis is based on project-specific information provided by USACE, the consultant, and NMFS’s review of published literature. We conclude that these 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 Nicole Bonine, Consultation Biologist, at (727) 824-5336, or by email at [nicole.bonine@noaa.gov](mailto:nicole.bonine@noaa.gov).

Sincerely,

Roy E. Crabtree, Ph.D.  
Regional Administrator

File: 1514-22.F.4



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## Glossary of Commonly Used Acronyms

ESA	Endangered Species Act
DPS	Distinct Population Segment
NMFS	National Marine Fisheries Service
Opinion	Biological Opinion
USACE	U.S. Army Corps of Engineers

## Units of Measurement

ac	acre(s)
ft	foot/feet
ft <sup>2</sup>	square feet
in	inch(es)
km	kilometers
m	meter(s)

## 1 BACKGROUND

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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 shall 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 on any such action. 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 permits 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 USACE and other sources of information including the published literature cited herein.

## 2 CONSULTATION HISTORY

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Between October 30, 2015, and May 17, 2016, NMFS received requests by email for ESA consultations from the USACE for the construction permit applications listed in Table 1. NMFS requested additional information (Table 2) and initiated consultations on August 10, 2015, when all necessary information was received.

**Table 1. USACE Construction Permit Details**

	<b>Applicants</b>	<b>Project Types</b>
1	Piero Filipi	Dock extension
2	1510 Bay Drive Partners, LLC	Dock construction

**Table 2. Consultation History for the Projects**

	<b>Projects</b>	<b>Consultation requested</b>	<b>Requested information</b>	<b>Response received</b>
1	Piero Filipi	10/30/15	6/22/16	8/10/16
2	1510 Bay Drive Partners, LLC	5/17/16	6/24/16	6/29/16

### 3 DESCRIPTION OF THE PROPOSED ACTIONS AND ACTION AREAS

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#### 3.1 Proposed Actions

##### 3.1.1 Piero Filipi Project Description

The project site consists of a single-family residence in the uplands, a marginal dock with 2 boat slips and a seawalled shoreline (Figure 1). The applicant proposes to install a new 315 square feet (ft<sup>2</sup>) dock extension measuring 9-foot (ft) by 35-ft to the existing 182 ft<sup>2</sup> dock. The floating platform will be constructed using barge-mounted equipment. Construction will require the installation of 3 wood piles with 12-inch (in) diameters. The piles will be installed using an impact hammer. Construction will increase the number of wet slips at the site from 2 to 3.

The Miami Department of Environmental Resource Management conducted a benthic survey on October 20, 2014. The survey indicated the presence of sponges and algae, but no ESA-listed corals or mangroves. The survey documented patchy seagrasses at the project area; however, Johnson's seagrass was not observed. The applicant will comply with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, dated March 23, 2006 (enclosed), including the requirement to use turbidity curtains and to cease operating construction equipment if a sea turtle or smalltooth sawfish is seen within 50 ft of moving equipment. In-water work will take approximately 1 week to complete and will be conducted during daylight hours only. The project area is located in designated critical habitat for Johnson's seagrass. The construction of this dock extension and use of non-grated decking will result in 315 ft<sup>2</sup> of shading from the dock and 380 ft<sup>2</sup> of shading from the new vessel mooring area.



Figure 1. Piero Filipi project location and surrounding area (©2016 Google)

### 3.1.2 1510 Bay Drive Partners, LLC Project Description

The project site consists of a single-family residence in the uplands and a seawalled shoreline with riprap at the toe (Figure 2). The applicant proposes to build a new 271 ft<sup>2</sup> wood pier. Dock construction will require the installation of 10 wood piles with 12-in diameters. All dock piles will be installed using a barge-mounted impact hammer. The new dock will allow for the mooring of 2 vessels. The new dock will be non-grated. The applicant also proposes to repair the existing seawall by removing the existing footers and overhang and installing new piles in the same location. The effects from the seawall repair were considered under the programmatic for SAJ-42 (SER-2008-01790) and are the same as those analyzed here for piles considered in this Opinion.

The work will take approximately 3 weeks to complete and will be conducted during daylight hours. The applicant will comply with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, dated March 23, 2006 (enclosed), including the requirement to use turbidity curtains and to cease operating construction equipment if a sea turtle or smalltooth sawfish is seen within 50 ft of moving equipment.

A Marine Resource Survey was conducted by Ocean Consulting on May 10, 2016. The survey documented patchy seagrasses at the project area; however, Johnson's seagrass was not observed. There were no mangroves observed at the project site, but the survey did document small colonies of non-ESA listed coral species, macroalgae, and sponges. The project area is located in designated critical habitat for Johnson's seagrass, Unit J. The construction of this project will result in a loss of 271 ft<sup>2</sup> of seagrass habitat from the new structures and 700 ft<sup>2</sup> from the vessels that will be moored at this location.



Figure 2. 1510 Bay Drive Partners, LLC project location and surrounding area (©2016 Google)



### 3.2 Action Area

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 individual project areas are described in Table 3 and shown in Figures 1 and 2. The action areas for these projects include the waters and submerged lands within and in the footprint of the project sites. Additionally, it includes the immediate vicinity of the project sites and the radius where endangered species could be exposed to potentially harmful noise levels as calculated in Section 4.1.3, i.e., 215 meters from the individual project areas. Figure 3 shows the proximity of the project areas to each other.

**Table 3. Project Locations**

<b>Projects</b>	<b>Project 1 Piero Filipi</b>	<b>Project 2 1510 Bay Drive Partners, LLC</b>
<b>Address</b>	6450 Allison Road, Miami Beach, Miami-Dade County, Florida	1510 Bay Drive, Miami Beach, Miami-Dade County, Florida
<b>Latitude/ Longitude (North American Datum 1983 [NAD 83])</b>	25.846577°N, 80.124754°W	25.850886°N, 80.133407°W

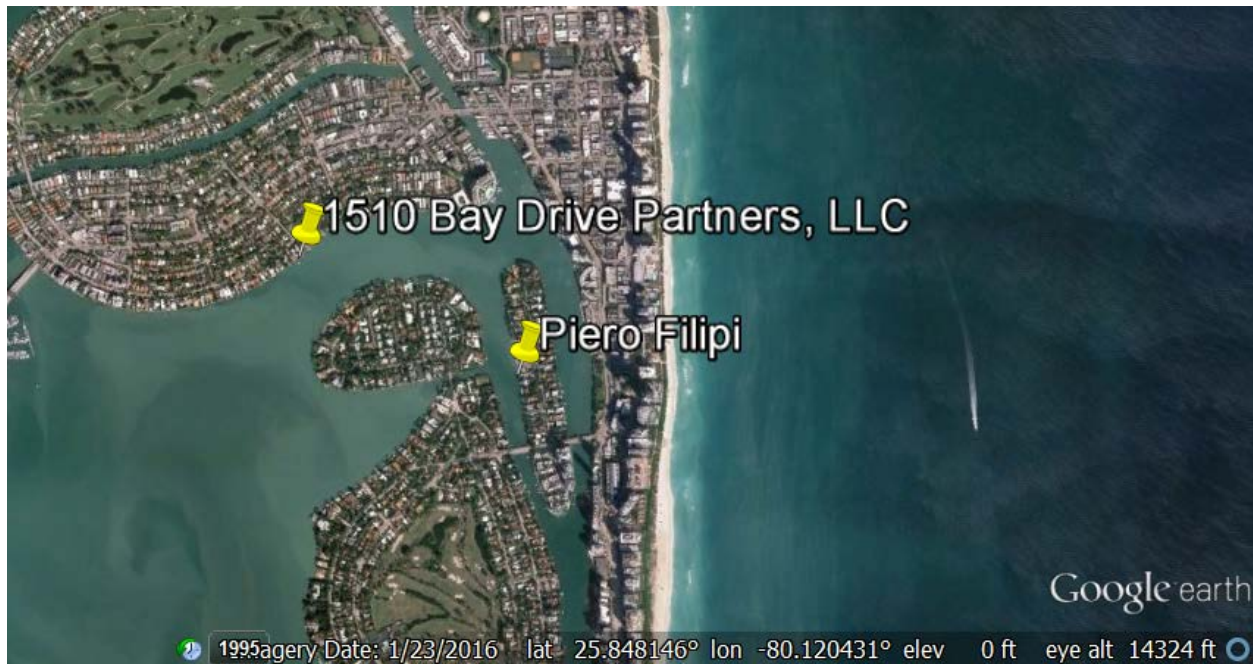


Figure 3. Project locations of Projects 1-2 (©2016 Google)

## 4 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

Table 4 below is a list of ESA-listed species and critical habitat that may be affected by the proposed actions. The following species under jurisdiction of NMFS may be present within the action area and may be affected by the proposed projects as explained in this section. The projects are located in Johnson’s seagrass critical habitat (Unit J- Northern Biscayne Bay).

**Table 4. Effects Determinations for Species and Critical Habitat the Action Agency or NMFS Believes May Be Affected by the Proposed Actions**

Species	ESA Listing Status	Action Agency Effect Determination Projects 1 and 2	NMFS Effect Determination
<b>Sea Turtles</b>			
Green (North and South Atlantic distinct population segments [DPS])	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
<b>Fish</b>			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
<b>Designated Critical Habitat</b>			
Johnson’s seagrass		LAA; no DAM	LAA; no DAM
E = endangered; T = threatened; NE = no effect; NLAA = may affect, not likely to adversely affect; LAA = may affect, likely to adversely affect; DAM = destruction or adverse modification			

We would not expect leatherback sea turtles to be present at the sites 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.

Additionally, we would not expect ESA-listed coral species to be present at the project sites or affected by the projects’ activities because the sites do not contain the hard substrate free from fleshy macroalgae cover and sediment cover necessary for the species to survive. Further, ESA-listed coral species were not observed at the project sites.

Johnson’s seagrass was not documented within the action areas. Thus, the actions will not affect Johnson’s seagrass.

### 4.1 Species Not Likely to be Adversely Affected

Five species of sea turtles (Kemp’s ridley, loggerhead, hawksbill, and green NA and SA DPS) and the smalltooth sawfish may be found in or near the action area. We have identified the

following potential effects to these species and concluded that these species are not likely to be adversely affected by the proposed action for the reasons described below.

#### **4.1.1 Direct Physical Effects**

Potential effects to sea turtles and smalltooth sawfish include the risk of interaction with construction equipment including barges. We believe the chance of direct physical injury from interactions with mechanical equipment and associated barges is discountable as these species are mobile and are likely to avoid the areas during construction. Adherence to NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further help workers spot ESA-listed species near all the project areas and avoid interactions with these species during structure removal and construction.

#### **4.1.2 Foraging and Refuge**

Sea turtles and smalltooth sawfish may be affected during construction by being temporarily unable to use the site for foraging or refuge due to avoidance of construction activities and physical exclusion from areas blocked by turbidity curtains. However, we find these effects to be insignificant given their short duration and the turbidity curtains will be removed soon after all construction-induced turbidity has subsided and water quality has returned to pre-construction conditions). In addition, because construction will only be conducted during daylight hours, the species can return to the sites should they desire at night, when construction stops. Given the availability of suitable habitat nearby and the short duration of the projects, we believe effects to sea turtles and smalltooth sawfish from loss of forage or refuge habitat during construction will be insignificant.

Sea turtles and smalltooth sawfish may be affected by the permanent loss of foraging habitat from the proposed projects. Both projects are all located in areas described as having patchy seagrasses, macroalgae, and sponges. Project 2 also has non-ESA listed corals. Green sea turtles may forage in the area on seagrasses and macroalgae; however, we believe the small loss of patchy seagrasses and macroalgae from these projects will have insignificant effects on green sea turtles availability of foraging habitat in Biscayne Bay, because there is ample similar foraging habitat available for green sea turtles in the surrounding area. We also believe the small loss of sponges will have insignificant effects on the available foraging for hawksbill sea turtles that forage on sponges, because as with green sea turtles, there is ample similar foraging habitat available for green sea turtles in the surrounding area. Areas without seagrasses may still support fish, jellyfish, crustaceans, and mollusks that serve as prey for the other species of listed sea turtles. Juvenile smalltooth sawfish use red mangrove shoreline habitat for foraging and refuge; however, none of these projects supported this habitat. Therefore, we believe the permanent loss of foraging habitat will have insignificant effects to sea turtles and smalltooth sawfish.

#### **4.1.3 Noise Impacts**

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 prevent animals from 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.<sup>1</sup> The noise analysis in this consultation evaluates effects to ESA-listed fish and sea turtles identified by NMFS as potentially affected in the table above.

Table 5 provides a summary of activities from each of the 2 projects that are expected to produce noise effects that may result in physical or behavioral impacts. The location of the projects in a confined space<sup>2</sup> or open-water environment<sup>3</sup> is also considered. This differentiation is important because if a project occurs in a confined space, an animal may be unable to move through or past a noise source to escape it. Both projects are considered to be in open water environments.

**Table 5. Pile Installation**

	<b>Project Name</b>	<b>Pile types</b>	<b>Number of Piles</b>	<b>Installation Method</b>
<b>1</b>	Piero Filipi	12-in-diameter wood piles	3	impact hammer
<b>2</b>	1510 Bay Drive Partners, LLC	12-in-diameter wood piles	10	impact hammer

*The analysis below is distinguished by installation material, method, and location.*

*Installation of wood piles by an impact hammer*

Based on our noise calculations, the installation of 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.

<sup>1</sup> NMFS. Biological Opinion on Regional General Permit SAJ-82 (SAJ-2007-01590), Florida Keys, Monroe County, Florida. June 10, 2014.

<sup>2</sup> A confined space is considered as any area that has another solid object (e.g., shorelines or jetties) or structure within 150 ft of the pile installation site that would effectively serve as a barrier or otherwise prevent species from moving past it to exit the area. This does not include objects such as docks or other pile-supported structures that would not stop or reflect noise.

<sup>3</sup> An open-water environment, the animal would be able to move away from the noise without passing through or by the noise source.

Based on our noise calculations, impact hammer pile installation could also cause behavioral effects at radii of 151 ft (46 m) for sea turtles and 705 ft (215 m) for ESA-listed fishes. Due to the mobility of sea turtles and ESA-listed fish species, we expect them to move away from noise disturbances. Because there is similar habitat nearby, we believe behavioral effects will be insignificant. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise impacts during pile installation. Since installation will occur only during the day, these species will be able to resume normal activities during quiet periods between pile installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

#### 4.1.4 Vessel Traffic Impacts

Sea turtles could be adversely affected by the increase in vessel traffic which will result from the new dock construction, since more vessels may escalate the risk of collisions with these species (Table 6). Still, we believe the risk of adverse effects to sea turtles from vessel strikes will be discountable. As shown in Table 6, 3 wet slips will be added to the area as a result of new construction. A NMFS Protected Resource Division analysis<sup>4</sup> determined that it would take an introduction of at least 300 new vessels to an area to result in a take of 1 sea turtle in any single year. Smalltooth sawfish would be unaffected by vessel traffic because of their bottom dwelling habits.

**Table 6. Proposed Number of New Wet Slips**

	<b>Projects</b>	<b>Proposed wet slips</b>
1	Piero Filipi	1
2	1510 Bay Drive Partners, LLC	2

#### 4.2 Critical Habitat Likely to be Adversely Affected

The term “critical habitat” is defined in Section 3(5)(A) of the ESA as (i) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (1) essential to the conservation of the species and (2) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. “Conservation” is defined in Section 3(3) of the ESA as “...the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which listing under the ESA is no longer necessary.”

#### **Johnson’s Seagrass Critical Habitat**

##### *Description*

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<sup>4</sup> Barnette, M. 2013. Threats and Effects Analysis for Protected Resources on Vessel Traffic Associated with Dock and Marina Construction. NMFS SERO PRD Memorandum. April 18, 2013.

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

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

Ten areas (Units) within the range of Johnson’s seagrass (approximately 200 kilometers [km] of coastline from Sebastian Inlet to northern Biscayne Bay, Florida) are designated as Johnson’s seagrass critical habitat (Table 7). The total range-wide acreage of critical habitat for Johnson’s seagrass is roughly 22,574 acres [ac] (NMFS 2002).

**Table 7. Designated Critical Habitat Units for Johnson’s Seagrass**

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

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

impedes the ability to increase distribution as establishment of new vegetation requires considerable stability in environmental conditions and protection from human-induced disturbances.

#### *Essential Features of Critical Habitat*

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

#### *Critical Habitat Unit Impacted by this Action*

This consultation focuses on activities that occur in Unit J, which encompasses the northern portion of Biscayne Bay from Northeast 163<sup>rd</sup> Street south to Central Key Biscayne at 25°45' N (Figure 4). This portion of Biscayne Bay is bound by heavy residential and commercial development, though a few areas of mangrove shoreline remain. Dredge and fill projects have resulted in a number of spoil islands and channels too deep for seagrass growth. Biscayne Bay supports a diversity of biological communities including intertidal wetlands, seagrasses, hard bottom, assemblages, and open water. Unit J is wholly within the Biscayne Bay Aquatic Preserve.

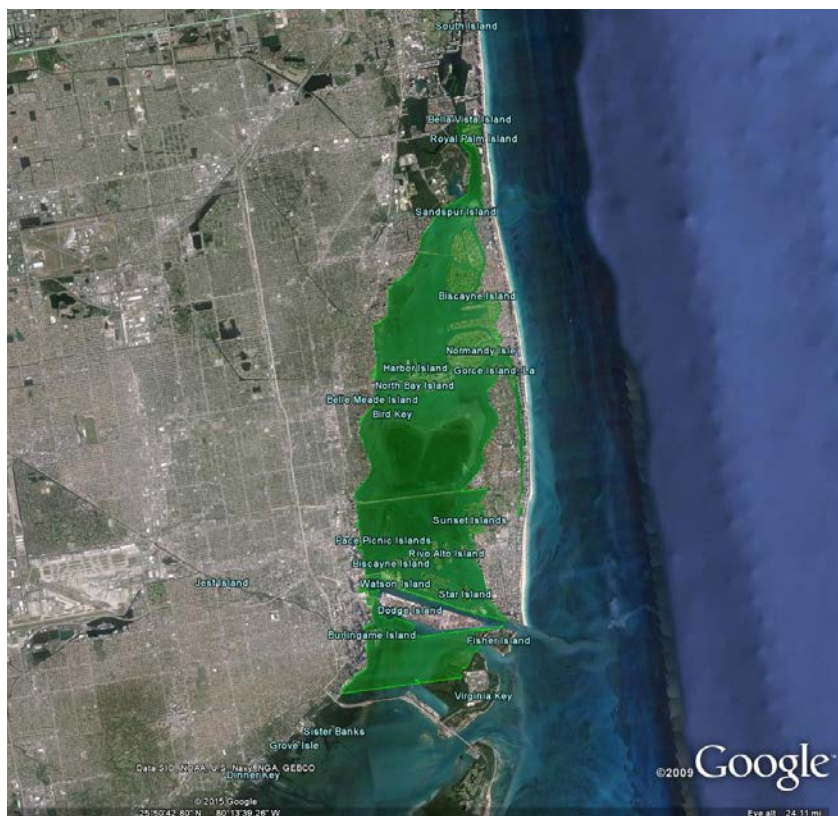


Figure 4. Johnson's seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)

### *Status and Threats*

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

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

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

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

Other threats include inputs from water pollution and adjacent land use. Johnson's seagrass critical habitat located in proximity to rivers, canal mouths, or other discharge structures is affected by land use within the watershed. Waters with low salinity that are highly colored and often polluted are discharged to the estuarine environment. This can impact salinity, water quality, and water transparency, all essential features of Johnson's seagrass critical habitat. Frequent pulses of freshwater discharge to an estuarine area may decrease salinity of the habitat and provoke physiological stress to the species. Nutrient over-enrichment, caused by inorganic and organic nitrogen and phosphorous loading via urban and agricultural land run-off, stimulates increased algal growth, decreased water transparency, and diminished oxygen content within the water. Low oxygen conditions have a demonstrated negative impact on seagrasses and

associated communities. Discharges can also contain colored waters stained by upland vegetation or pollutants. Colored waters released into these areas reduce the amount of sunlight available for photosynthesis by rapidly reducing the amount of shorter wavelength light that reaches the bottom. In general, threats from adjacent land use will be ongoing, randomly occurring events that follow storm events.

## **5 ENVIRONMENTAL BASELINE**

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

### Status of Johnson's Seagrass Critical Habitat within the Action Area

As discussed above, this consultation focuses on an 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.

### 5.1 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.

The Miami-Dade Programmatic General Permit (SAJ-42) authorizes docks that may affect Johnson's seagrass and its designated critical habitat. NMFS issued an Opinion concerning the



Programmatic General Permit on February 10, 2011, and the USACE issued the permit on April 29, 2013.

According to NMFS's Public Consultation Tracking System database, neither of the project areas has had an ESA Section 7 consultation completed 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.

## **6 EFFECTS OF THE ACTION**

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As discussed in Section 3.1, the projects propose to construct docks in Johnson's seagrass critical habitat. Table 8 below provides a summary of the anticipated impacts to Johnson's seagrass critical habitat from the proposed projects' activities.

**Table 8. Impacts to Johnson’s Seagrass Critical Habitat**

	<b>Project Name</b>	<b>Shade<sup>5</sup> impacts from dock shading (ft<sup>2</sup>)</b>	<b>Shade impacts from vessels (ft<sup>2</sup>)</b>	<b>Complete Loss (structures, vessels, and piles) impacts ft<sup>2</sup></b>
1	Piero Filipi	315	380	696
2	1510 Bay Drive Partners, LLC	271	700	971
	<b>Total</b>			<b>1,666</b>

Both projects propose the placement of non-grated, overwater structures. These activities will affect the conversation function of critical habitat by preventing sunlight necessary for the photosynthesis from reaching the seagrass, thereby impacting the water transparency essential feature of the designated critical habitat as described above.

Further, as noted in Section 4.2, installed piles can remove the stable, unconsolidated bottom sediments essential feature for Johnson’s seagrass critical habitat. Here, however, piles are not counted toward the permanent loss described in Table 8 for 2 reasons: (1) the piles are located under the docks and therefore the areas would be counted twice if the footprint of the piles under the docks were added to the total loss, and (2) all 4 essential features must be present in an area for it to function as critical habitat for Johnson’s seagrass.

In addition, although the installation of the piles, seawall, and riprap will have a temporary effect on Johnson’s seagrass critical habitat by increasing turbidity (i.e., 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.

Thus, the projects’ activities will result in a total loss of 1,666 ft<sup>2</sup> of Johnson’s seagrass critical habitat due to their impact (i.e., shading) on the water transparency essential feature.

## **7 CUMULATIVE EFFECTS**

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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. 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

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<sup>5</sup> Shade impacts are the complete loss of the water transparency and unconsolidated sediments essential features rendering the area as a total loss in the conservation function of the critical habitat.

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 (Adam 2012), Landry et al. (2008), and Shafer et al. (2008), NMFS believes that shading impacts to Johnson's seagrass will be reduced in the short- and long-term. Moreover, even with some shading from grated construction materials, researchers have found all 4 essential features necessary for Johnson's seagrass to persist under docks constructed of grated decking (Landry et al. 2008).

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

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

## **8 DESTRUCTION/ADVERSE MODIFICATION ANALYSIS**

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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). Other 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) for Johnson's seagrass, 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<sup>6</sup> 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).

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 has been achieved. In fact, the range has increased slightly northward. NMFS has determined that 1,666 ft<sup>2</sup> of designated critical habitat for Johnson's seagrass will be permanently impacted by the proposed actions from the shading by non-grated overwater structures (Table 8, Section 6). Yet, there is no Johnson's seagrass growing in the footprints of the projects, so the species' range-wide distribution will not be directly affected by the actions. Further, the action areas are not at a boundary of the species' range, the areas that will be impacted are very small, and loss of these potential areas for colonization will not affect the stability of the species' range now or in the future. Thus, the proposed actions 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 range of species. The proposed actions will not reduce the species' overall reproductive capacity because the proposed action will not reduce Johnson's seagrass, which were found beyond the construction areas. In addition, the proposed actions will only reduce a small amount of available critical habitat and thus is not likely to affect self-sustaining populations. As discussed in Section 4.2, there are approximately 22,574 ac of Johnson's seagrass critical habitat. The loss of 1,666 ft<sup>2</sup> (0.04 ac) of designated critical habitat for Johnson's seagrass would equate to a loss of 0.00018% of Johnson's seagrass critical habitat (0.04 ac x 100 /22,574 ac). The loss of 1,666<sup>2</sup> (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). The loss of 0.00017% of Johnson's seagrass critical habitat (0.00021% in Unit J) will not significantly reduce the available affect the critical habitat in a way that will 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

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<sup>6</sup> Self-sustaining population is a population that has been documented to persist for at least 10 years.

influence of wind, tides, and waves. Because of this, we believe that the removal of 1,666 ft<sup>2</sup> of critical habitat for these projects will not break up self-sustaining populations and accordingly will not adversely 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 portion 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 designated critical habitat for the conservation of Johnson's seagrass.

## **9 CONCLUSION**

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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 not likely to destroy or adversely modify Johnson's seagrass critical habitat.

## **10 CONSERVATION RECOMMENDATIONS**

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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 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.
2. 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.

3. 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.

4. 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.

5. 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 (Halophila johnsonii)* as the standard construction methodology for proposed docks located in the range of Johnson's seagrass.

6. 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).

7. 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).

## **11 REINITIATION OF CONSULTATION**

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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.



## 12 LITERATURE CITED

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