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 National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
 Southeast Regional Office
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APR 02 2018

F/SER31: JBH

Chief, Miami Section
 Jacksonville District Corps of Engineers
 Department of the Army
 9900 Southwest 107 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-2017-00045 (LP-AG)	Michael D. Horvitz Revocable Trust	SER-2017-18506	Dock removal; dock construction; boatlift
SAJ-2009-02333 (LP-NML)	Inversions 6464, Inc.	SER-2017-18613	Dock removal; dock construction; mooring piles
SAJ-2007-02403 (LP-PMG)	Guy Attia	SER-2017-18849	Dock construction; mooring pile removal; mooring pile installation

To expedite review of these projects, 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 involved. This Opinion analyzes the potential for the projects to affect sea turtles (loggerhead, Kemp’s ridley, hawksbill, leatherback, and green), smalltooth sawfish, Nassau grouper, and designated critical habitat for Johnson’s seagrass. This analysis is based on project-specific information provided by USACE, the consultant, and NMFS’s review of published literature. We conclude that the projects are likely to adversely affect, but are not likely to destroy or adversely modify Johnson’s seagrass critical habitat. The Opinion includes conservation recommendations for your consideration.

We look forward to further cooperation with you on other USACE projects to ensure the conservation and recovery of our threatened and endangered marine species. If you have any questions regarding this consultation, please contact Brandon Howard, Fishery Biologist, at (225) 389-0508, or by email at Brandon.Howard@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

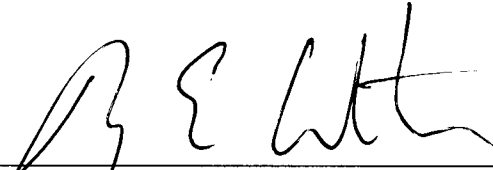
Applicants: Michael D. Horvitz Revocable Trust, Inversions 6464, Inc., and Guy Attia

Activity: Proposed USACE issuance of 3 regulatory permits in Miami-Dade County, Florida (SAJ-2017-00045, SAJ-2009-02333 and SAJ-2007-02403)

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

NMFS Consultation Numbers SER-2017-18506, SER-2017-18613 and SER-2017-18849

Approved By:



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

Date Issued

April 2, 2018

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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
lf	linear feet

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 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 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 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
Michael D. Horvitz Revocable Trust	SER-2017-18506	SAJ-2017-00045
Inversions 6464, Inc.	SER-2017-18613	SAJ-2009-02333
Guy Attia	SER-2017-18849	SAJ-2007-02403

Michael D. Horvitz Revocable Trust: The NMFS received a request from the USACE on March 1, 2017. The NMFS requested additional information via email on May 3, 2017, and the USACE responded the same day and we initiated consultation.

Inversions 6464, Inc.: The NMFS received a request from the USACE on April 26, 2017, and initiated consultation the same day.

Guy Attia: The NMFS received a request from the USACE on August 22, 2017, and initiated consultation the same day.

2 DESCRIPTION OF THE PROPOSED ACTIONS AND ACTION AREAS

2.1 Proposed Actions

Michael D. Horvitz Revocable Trust: The site is located on Biscayne Bay and consists of a single family home with seawall and dock (Figure 1). The applicant proposes to replace an

existing 250-ft² marginal dock with a 490-ft² dock. The new dock would have a 6-ft by 20-ft access pier and 10-ft by 37-ft terminal platform. Two 30-ft by 10-ft vessels could be moored at the new dock, where as only one vessel could be moored at the existing marginal dock. The applicant also would install an 8.5-ft by 11.25-ft (95.63-ft²) elevator boat lift that would support 2 personal water craft. The dock would be supported by thirteen 12-in-diameter wood piles. The existing 250-ft² marginal dock would be removed with a barge mounted crane and by hand. The new piles would be installed with a barge mounted impact hammer and a maximum of 10 piles would be driven per day. The remaining construction would be accomplished from the uplands. The modified structures can accommodate up to 4 vessels, 2 vessels at the wet slips and 2 personal watercraft on the boat lift, where as the existing structure could accommodate 1 vessel. In-water work will take approximately 3 weeks to complete.

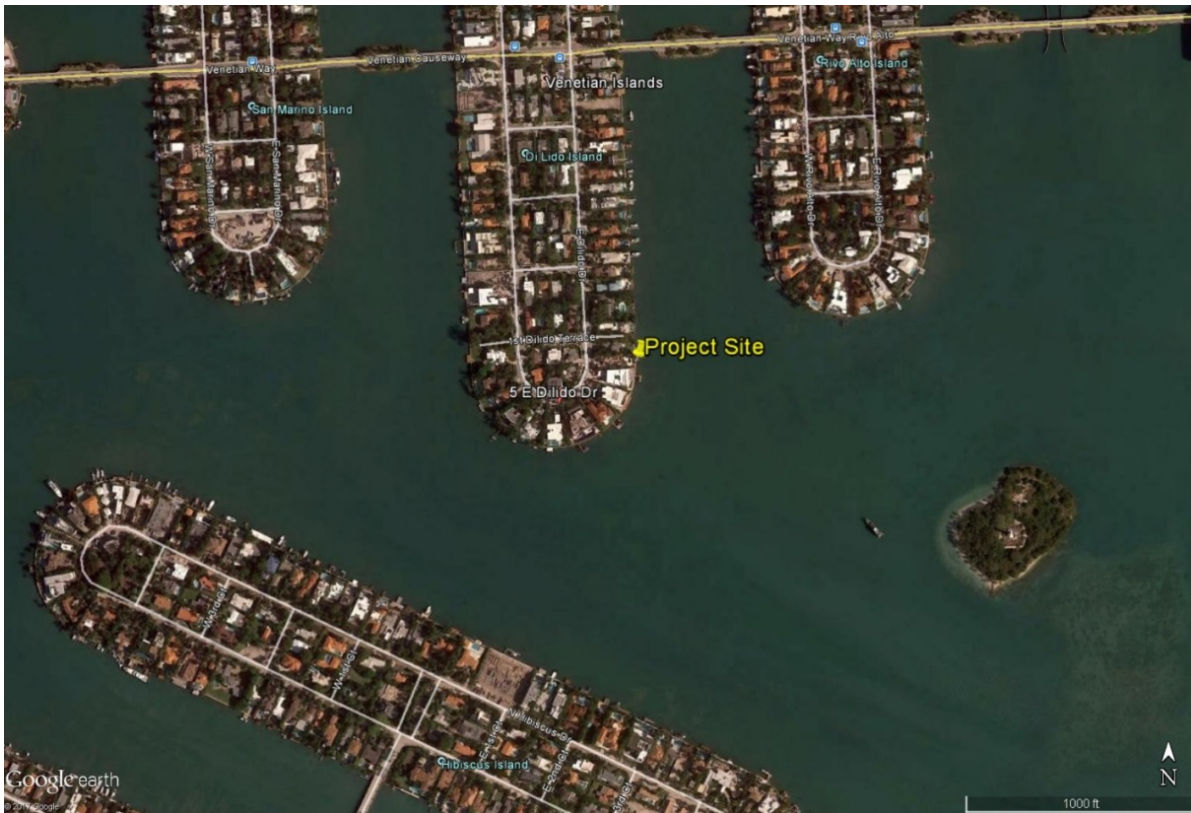


Figure 1. Image of the Michael D. Horvitz Revocable Trust property (©2016 Google)

A benthic survey was conducted on December 8, 2016. The water depths at the site are approximately 2.5-5 ft measured at MLW. The report states sponges, macro algae, tree oyster, barnacles, a single brain coral, and paddle grass were observed. The seagrass (paddle grass) and brain coral will be avoided. The seafloor at the site is characterized as sand and rock. No ESA-listed corals, Johnson’s seagrass, or mangroves were observed.

Inversions 6464, Inc.: The site is located at the confluence of a canal with Biscayne Bay and consists of a single family home with seawall and dock (Figure 2). The applicant proposes to remove a 480-ft² marginal dock and replace it with a 498-ft² dock. The new dock would consist of a 4-ft by 42-ft marginal dock, 4-ft by 45-ft access pier, and 6-ft by 25-ft terminal platform. The applicant would install 2 mooring piles adjacent to the dock. The dock would be supported

by nineteen 12-in-diameter wooden piles, and the 2 mooring piles would be of the same type and size. All piles would be installed with a barge-mounted impact hammer and a maximum of 10 piles would be driven per day. All work would be conducted by barge and using a barge mounted crane. The existing slip is 1,000 ft² and will be relocated to the terminal platform. In-water work will take approximately 2 weeks to complete.

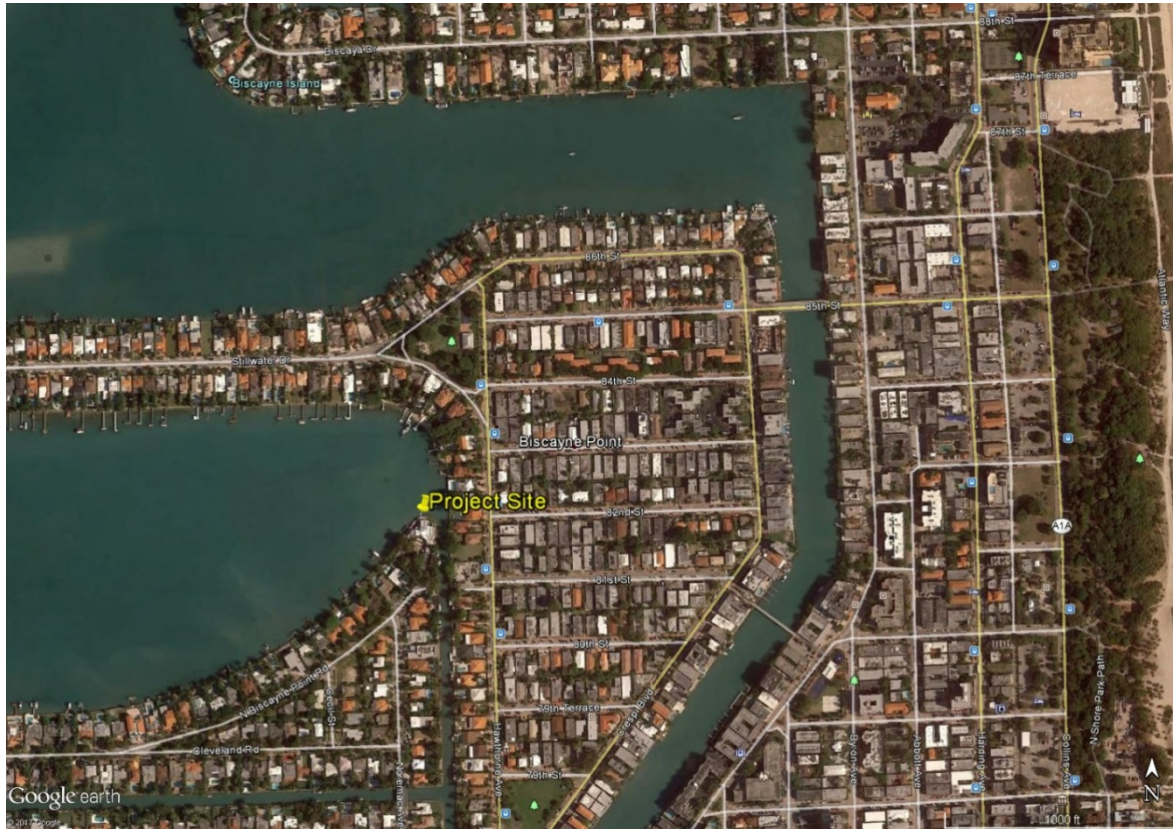


Figure 2. Image of the Inversions 6464, Inc. property (©2016 Google)

A benthic survey was conducted on February 8, 2016. The water depth at the site is approximately 3 ft MLW. The report states shoal grass, sponges, macro algae, and small colonies of coral (*Siderastrea* spp.) were observed. No ESA-listed corals, Johnson's seagrass, or mangroves are present.

Guy Attia: The site is located on Biscayne Bay and consists of a single family home with seawall (Figure 3). The applicant proposes to construct a 500-ft² dock. The new dock would consist of a 6-ft by 50-ft marginal dock with a 4-ft by 50-ft finger pier. Two dolphin pile clusters would be removed and reinstalled and 4 single mooring exclusion piles would be installed adjacent to the marginal portion of the new dock. The dock would be supported by sixteen 12-in-diameter wooden piles, and the 4 mooring exclusion piles and dolphin pile clusters would be of the same type and size. The total number of piles would be 26. All piles would be installed with a barge-mounted impact hammer and a maximum of 10 piles would be driven per day. All work would be conducted by barge and using a barge mounted crane. The new dock provides 2 wet slips; the prior structures provided 1. The existing slip is 2,000-ft². One of the news slips

would be the same size (2,000-ft²) and the other would be 400-ft². In-water work will take approximately 1 week to complete.



Figure 3. Image of the Guy Attia property (©2016 Google)

A benthic survey was conducted on April 27, 2017. The water depth at the site is approximately 5 ft MLW. The report states paddle grass, macro algae, sponges, and small colonies of coral (*Siderastrea* spp.) were observed. No ESA-listed corals, Johnson's seagrass, or mangroves were observed. The project would impact approximately 500 ft² of paddle grass and sponge community.

Construction Conditions

Construction of all 3 projects will occur during daylight hours only and turbidity curtains will be used during construction. The applicants will comply with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* (revised March 23, 2006), which requires work to stop if sea turtles or sawfish are observed within 50 ft of operating or moving construction equipment.¹

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.

2.2 Action Areas

50 CFR 402.02 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, which includes the behavioral response zone in which animals may be affected by pile-driving activities. All 3 projects propose pile installation via an impact hammer. This method of installation has a behavioral response zone of 705 ft from the pile-driving activities.

Table 2. Project Locations

Project Name	Project Address	North American Datum 1983 [NAD 83]
Michael D. Horvitz Revocable Trust	45 E. Dilido Drive, Miami Beach, FL	25.787240 N, 80.157710 W
Inversions 6464, Inc.	1137 N. Biscayne Point Drive, Miami Beach, FL	25.86722 N, 80.129467 W
Guy Attia	11420 N. Bayshore Drive, North Miami Beach, FL	25.881529 N, 80.158991 W

3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

We believe the species 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 [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
Fish			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
Nassau Grouper	T	NLAA	NE
Critical Habitat			
Johnson’s seagrass Unit J		MA	LAA; no DAM
E = endangered; T = threatened; NE = no effect; MA = may affect; NLAA = may affect, not likely to adversely affect; NP = not present; LAA = likely to adversely affect; DAM = destruction or adverse modification			

We would not expect leatherback sea turtles in the action areas 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 would not expect Nassau grouper to be present since the sites are north of Government Cut. The general absence of Nassau grouper outside of the Florida Keys is well documented by the lack of records in Florida Fish and Wildlife Conservation Commission's, Fisheries Independent Monitoring data as well as various surveys conducted by the NMFS's Southeast Fisheries Science Center.

3.1 Species Not Likely to be Adversely Affected

We believe that sea turtles (green (North and South Atlantic DPS), loggerhead (Northwest Atlantic Ocean DPS), hawksbill, and Kemp's ridley), and smalltooth sawfish (U.S. DPS) may be found in or near the action areas and may be affected by the projects covered in this Opinion. We have identified the following potential routes of adverse effects to these species and concluded that these 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 construction machinery or materials, including the construction barges, because these species have the ability to detect and move away from the types of machinery and barges 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 operation of construction equipment to stop if a listed species is observed within 50 ft of operating machinery. Thus, direct physical impacts are considered extremely unlikely to occur and the effect is discountable.

3.1.2 Foraging and Refuge

Sea turtles and smalltooth sawfish may be temporarily unable to use the project sites for forage and shelter habitat due to avoidance of construction activities, or exclusion from the area by turbidity curtains. These effects will be temporary and, in the case of avoidance of the area because of construction, intermittent as construction is limited to the daylight hours and will only occur within a small area adjacent to open water. Also, because these species are highly mobile, we expect that they will move away from the construction activities and forage or seek refuge in adjacent areas with similar habitat. Therefore, the effects to sea turtles and smalltooth sawfish from the impacts of temporary loss of foraging and refuge habitat will be insignificant.

Green and hawksbill sea turtles may be affected by the potential permanent loss of foraging habitat caused by dock construction. The seafloor at all 3 project sites are a diverse community of invertebrates, such as sponges and corals, and seagrass. The Inversions 6464, Inc. and Guy Attia projects would impact seagrass habitat, which provides foraging opportunities for adult green sea turtles. Sponges provide foraging opportunities for adult hawksbills and may be

affected by all 3 projects. However, we believe any effects from this small scale modification of benthic foraging habitat will be insignificant given the availability of ample similar habitat in the project areas and throughout Biscayne Bay.

3.1.3 Risk of Vessel Strike

Together the 3 projects propose 4 new vessel slips (1 additional wet slip and 2 boatlift at the Horvitz project, and 1 additional wet slip at the Guy Attica project). The addition of 4 new slips to this area will not necessarily introduce new vessels or increase vessel traffic in the area, as it may relocate an existing vessel or provide a slip for a vessel that was previously trailered or docked elsewhere in the region. Still, even if 4 new vessels were introduced to the area, we conclude, based on a recent NMFS analysis,² that potential effects on sea turtles resulting from increased vessel traffic associated with the proposed project are discountable. Smalltooth sawfish are a demersal (i.e., bottom-dwelling) species; therefore, we do not expect there to be an increased risk of vessel strike for smalltooth sawfish.

3.1.4 Pile Driving and Noise Effects

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. Physical injurious effects can occur in 2 ways. First, immediate adverse physical effects can occur to listed species if a single noise event exceeds the threshold for direct physical injury. 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 if such effects interfere with 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-82.³ 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.

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 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 injurious cSEL effects are extremely unlikely and

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

³ NMFS. Biological Opinion on Regional General Permit SAJ-82 (SAJ-2007-01590), Florida Keys, Monroe County, Florida. June 10, 2014.

discountable. An animal's movement away from the injurious impact zone is a behavioral response, with the same effects discussed below.

Based on our noise calculations, impact hammer pile installation 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.

3.2 Status of Critical Habitat Likely to be Adversely Affected

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

3.2.1 Johnson's Seagrass Critical Habitat

NMFS designated Johnson's seagrass critical habitat on April 5, 2000 (65 FR 17786; see also 50 CFR 226.213). The specific areas occupied by Johnson's seagrass and designated by NMFS as critical habitat are those with 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 4). 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

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 meters) 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 the Proposed Actions

This consultation focuses on activities that occur 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 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 diverse biological communities including intertidal wetlands, seagrasses, hard bottom, and open water. Unit J is wholly within the Biscayne Bay Aquatic Preserve.

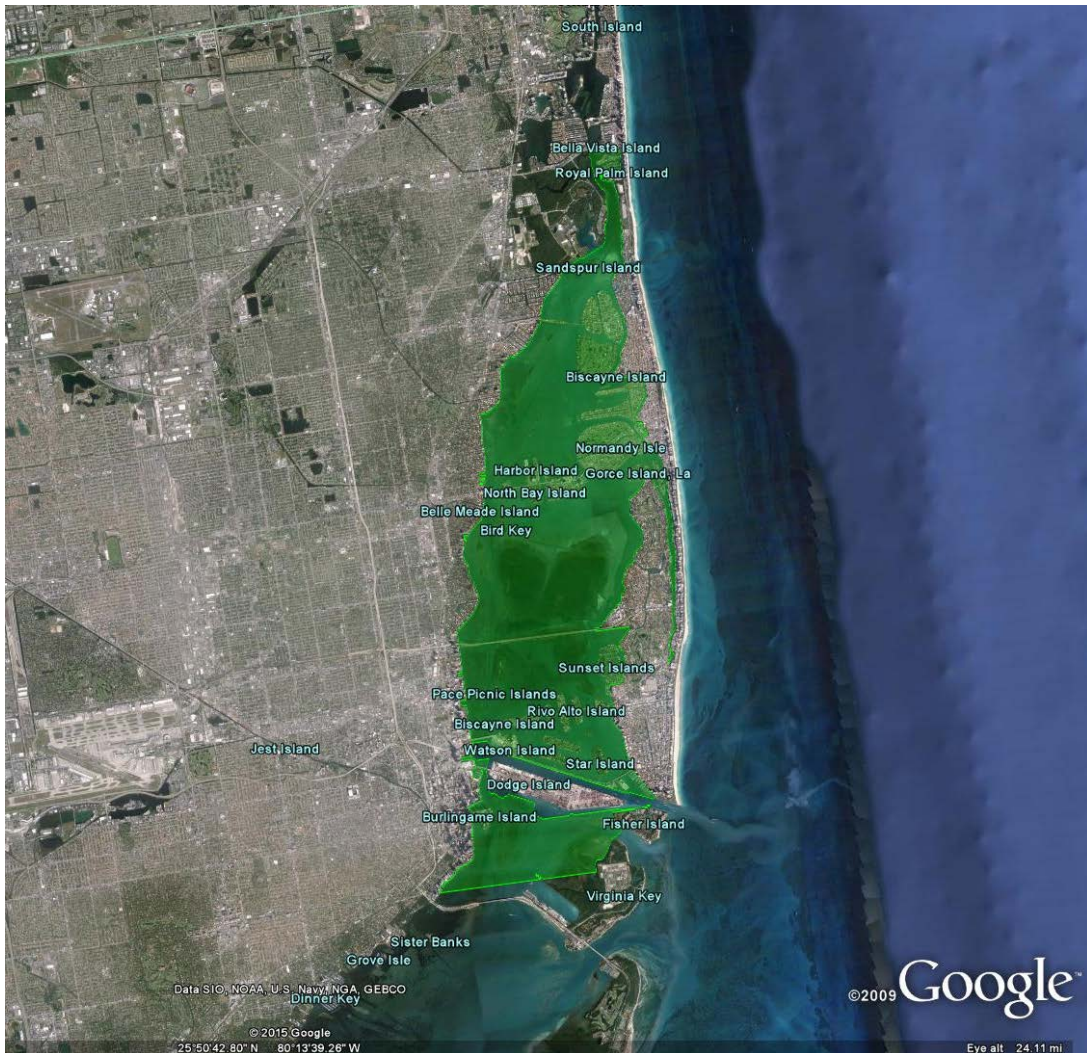


Figure 4. Johnson’s seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)

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.

4 ENVIRONMENTAL BASELINE

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.

4.1 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; 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 may have affected Johnson's seagrass critical habitat, none of these past actions have destroyed or adversely modified Johnson's seagrass critical habitat.

According to NMFS's Public Consultation Tracking System database, there have been no ESA Section 7 consultations 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.

5 EFFECTS OF THE ACTIONS

All projects are located within Johnson's seagrass critical habitat. 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.

We believe the proposed activities will adversely affect the adequate water transparency essential feature and the stable, unconsolidated bottom sediment essential feature. The former will be adversely affected by shading from the new docks and the vessels. Shading results in the complete loss of the water transparency essential feature of Johnson's seagrass critical habitat, and loss of one of the essential features results in a total loss in the conservation function of the critical habitat.

The placement of structures on the bottom, such as the piles to support the docks or the mooring piles will remove the stable, unconsolidated bottom sediment essential feature in the area under the structures. When estimating the amount of critical habitat affected, we do not count the area under the piles that supports the non-grated dock structures separately toward the total area of impact to critical habitat, because this impact from the piles is already included in the area of critical habitat that we estimate to have been lost due to the shading. However, some of the piles supporting the docks, for example 9 piles associated with the Horvitz project and 3 piles associated with the Inversions 6464, Inc. project, will be partially inset within the decking, and thus only partially within the area shaded by the dock. In this instance, we consider the areas covered by these piles to be outside of the area that will be affected by the decking, due to uncertainty in their exact placement and to err in favor of protecting the critical habitat. Thus, we will assume that the entire area under the pile will remove functioning critical habitat.

Round wooden piles with a 12-in diameter are proposed for use as dock supporting piles and mooring piles associated with the Horvitz and Inversions 6464, Inc. projects. Although we recognize that the area of bottom occupied by a single, round 12-in-diameter pile is less than 1 ft², it is very close (approximately 0.8 ft²). In addition, piles are not uniformly shaped (they are tapered and are not perfectly round) and may be installed at varying angles, all of which affect the actual area of bottom they may cover. Therefore, we believe it is reasonable to approximate the area affected by a single pile, while erring in favor of protecting the critical habitat, as 1 ft².

The following effects are expected:

- **Michael D. Horvitz Revocable Trust:** The new dock will shade 490 ft² of waterbottom. However, the new dock will be placed partially in the same area as the existing dock, with 75 ft² of overlap. This 75ft² area was previously shaded from the existing structures, and the water transparency essential feature in this area was already affected. Thus, the dock will newly affect 415 ft² (490 ft² – 75 ft² = 415 ft²) of area containing the water transparency essential feature via shading. The new wet slip and new boat lift will shade an additional 396 ft² of waterbottom,⁴ removing the water transparency essential feature in that area. The area under the piles supporting the dock will remove the stable, unconsolidated bottom sediments essential feature. However, as discussed above, not all of this area is added to the total area of critical habitat adversely affected, because some of the piles are underneath the dock and effects to this area is included in the area affected by the shading. Nine of the 13 piles supporting the dock are partially outside the dock's footprint. This would result in approximately 9 ft² of impacts to the stable, unconsolidated bottom sediment essential feature. In total, the project would adversely affect 820 ft² of functioning critical habitat (415 ft² from shading from the dock + 396 ft² from shading from the vessels + 9ft² underneath the piles).
- **Inversions 6464, Inc.:** We anticipate 381 ft² of adverse impacts to the water transparency essential feature from shading from the dock. The new dock is partially within the footprint of the existing dock, with 117 ft² of overlap. The area within the footprint of the existing dock was already shaded and not functioning as critical habitat, thus the new dock will shade an additional 381 ft² of functioning critical habitat (498 ft² - 117 ft² = 381 ft²). Approximately 5 ft² of impact to the stable, unconsolidated bottom sediment essential feature in the footprint of the 2 mooring piles and 3 of the 19 piles that support the dock and lie outside the docks footprint, for a total of 386 ft² of critical habitat adversely affected.
- **Guy Attia:** We anticipate this project will adversely affect 900 ft² of the water transparency essential feature, from the dock (500 ft²) and new mooring slip (400 ft²), and approximately 10 ft² stable, unconsolidated bottom sediment essential feature in the footprint of the 2 dolphin pile clusters and 4 mooring exclusion piles. Thus, we anticipate that this project will adversely affect a total of 910 ft² of critical habitat.

⁴ The area shaded by the new boat slip is 300 ft² and the personal watercraft lift is 96 ft².

The installation of the piles associated with these projects will have a temporary effect on Johnson’s seagrass critical habitat by increasing turbidity (i.e., it will affect water transparency), but 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.

The Horvitz and Inversions 6464 projects both propose to install a dock partially within the same footprint of an existing dock, leaving a portion of the waterbottom that had previously been covered and shaded from the prior overwater structure unshaded. While removal of the existing dock could have a positive effect on Johnson’s seagrass critical habitat, we do not have sufficient information to determine the scope of any potential positive effect, given the continued use of the area by vessels at the new structures, or to determine whether or how any positive effect will offset the adverse effects from the increased shading associated with other aspects of the projects.

Combined, we believe all 3 projects will adversely affect a total of 2,116 ft² of Johnson’s seagrass critical habitat (Table 5).

Table 5. Johnson’s seagrass critical habitat area impacted in ft²

	Dock Shading	Vessel related	Piles	Total
Michael D. Horvitz Revocable Trust	415	396	9	820
Inversions 6464, Inc.	381		5	386
Guy Attia	500	400	10	910
				2,116 (0.048 acres)

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

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

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

7 DESTRUCTION/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 that diminishes 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, and we have no information indicating range stability has decreased since then. In Section 5, we determined that the proposed actions will result in the total loss of approximately 2,116 ft² (Table 5), approximately 0.0048 ac (2,116 / 43,560 = 0.048), of Johnson's seagrass critical habitat by placement of piles and shading by non-grated, overwater structures and vessels. However, the action area is not at a boundary of the species' range; the area that will be impacted is very small; and the loss of the area for potential colonization will not affect the stability of the species' range now or in the future. Thus, we believe the proposed action will not reduce the ability of the critical habitat 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 to allow for stable vegetative recruitment and genetic diversity. Due to its asexual reproductive mode, self-sustaining populations are present throughout the range of species. 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. The proposed action will result in the loss of functionality of critical habitat in an area of approximately 2,116 ft², which is much smaller than the potential dispersal distance for the species, thus, will not affect the conservation value of the available critical habitat to the extent that it would reduce recruitment or gene flow. Therefore, we believe that the proposed action 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). As discussed in Section 3.2.1, there are approximately 22,574 ac of Johnson's seagrass critical habitat. The loss of 0.048 ac of designated critical habitat for Johnson's seagrass in Unit J would equate to a reduction in available functioning critical habitat of 0.000213% (100 x 0.048 / 22,574). Though the affected portions of the project site will not be available for long-term protection, thousands of acres of designated critical habitat would still be available for long-term protection, including areas adjacent to the action area.

The proposed action will not affect the stability of the geographic range of the species; it will not appreciably diminish the conservation value of the critical habitat in supporting self-sustaining populations; and it will not prevent the long-term protection of the species and its supporting habitat in the remainder of its geographic range.

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

- Hall, L. M., M. D. Hanisak, and R. W. Virnstein. 2006. Fragments of the seagrasses *Halodule wrightii* and *Halophila johnsonii* as potential recruits in Indian River Lagoon, Florida. *Marine Ecology Progress Series* 310:109-117.
- Kenworthy, W.J., Wyllie-Echeverria, S., Coles, R.G., Pergent, G., Pergent-Martini, C., 2006. Seagrass Conservation Biology: An Interdisciplinary Science for Protection of the Seagrass Biome. In: Larkum, A.W.D., Orth, R.J., Duarte, C.M., (Eds.), *Seagrasses: Biology, Ecology, and Conservation*. Springer. Dordrecht, The Netherlands, 595-623.
- Landry, J. B., W. J. Kenworthy, and G. D. Carlo. 2008. The effects of docks on seagrasses, with particular emphasis on the threatened seagrass, *Halophila johnsonii*. Report submitted to NMFS Office of Protected Resources.

NMFS. 2002. Recovery plan for Johnson's seagrass (*Halophila johnsonii*). National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, Maryland.

National Marine Fisheries Service. 2007. Endangered Species Act 5-Year Review Johnson's Seagrass (*Halophila johnsonii* Eiseman). Prepared by NOAA's Johnson's Seagrass Status Review Team, Silver Spring, Maryland. 58 pp.

Shafer, D. J., J. Karazsia, L. Carrubba, and C. Martin. 2008. Evaluation of regulatory guidelines to minimize impacts to seagrasses from single-family residential dock structures in Florida and Puerto Rico. U.S. Army Engineer Research and Development Center, Vicksburg, MS.