



UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office

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St. Petersburg, Florida 33701-5505

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F/SER31: MA

JAN 05 2018

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:

Enclosed is the National Marine Fisheries Service's (NMFS) Biological Opinion on the U.S. Army Corps of Engineers, Jacksonville District's (USACE) proposed action to issue a regulatory permit to (1) Lape Holdings, LLC to install a new 296-square-foot L-shaped dock; (2) Brickell Place Marina, Inc. to install 4 new fender piles and 2 finger piers; and (3) Lape Holdings, LLC to construct a 264-square-foot dock. All 3 projects are located in Miami-Dade County, Florida.

This Opinion analyzes the potential for the projects to affect sea turtles (loggerhead, leatherback, Kemp's ridley, hawksbill, and green), smalltooth sawfish, Johnson's seagrass, 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 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 Melissa Alvarez, Consultation Biologist, at (954) 262-3772, or by email at melissa.alvarez@noaa.gov.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

Enc.: Biological Opinion

File: 1514-22.F.4

Endangered Species Act - Section 7 Consultation



Biological Opinion

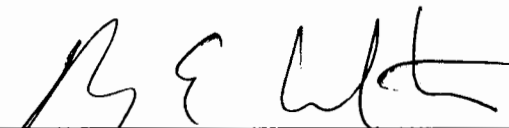
Agency: United States Army Corps of Engineers (USACE), Jacksonville District

Activity: Proposed USACE issuance of 3 regulatory permits for dock construction in Miami-Dade County, Florida (SAJ-2015-02412, SAJ-2004-06137, and SAJ-2015-02411)

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

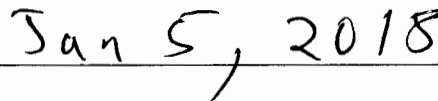
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SER-2017-18510
SER-2017-18515

Approved By:



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

Date Issued



Jan 5, 2018

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Glossary of Commonly Used Acronyms

ESA	Endangered Species Act
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
lin ft	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

NMFS received a request for consultation under Section 7 of the ESA from the USACE for construction permit applications for the following projects:

- 1) **Lape Holdings, LLC. #1** NMFS received a request from the USACE on March 3, 2016. We requested additional information on April 26, 2017 with no response, it was re-sent on July 20, 2017. A response was received on July 26, 2017 and we initiated consultation that day.
- 2) **Brickell Place Marina, Inc.** NMFS received a request from the USACE on March 3, 2017. We requested additional information on April 26, 2017 and received a response on May 26, 2017. We initiated consultation that same day.
- 3) **Lape Holdings, LLC. #2:** NMFS received a request from the USACE on March 3, 2016. We requested additional information on April 26, 2017 with no response, it was re-sent on July 20, 2017. A response was received on July 26, 2017 and we initiated consultation that day.

The USACE’s and NMFS’s determinations on the projects’ effects to listed species and critical habitat that the USACE or NMFS believes may be affected by the proposed actions are listed in Table 1 in section 3.

2 DESCRIPTION OF THE PROPOSED ACTIONS AND ACTION AREAS

2.1 Proposed Actions

Lape Holdings, Inc. #1 The site consists of a 77 foot (ft) linear seawall with a concrete cap and riprap at the toe of the seawall (Figure 1). The applicant proposes to install a new 296 square foot (ft²) wood dock. The new dock would be supported by 13, 12 in diameter wood piles. All wood piles would be installed by barge-mounted impact hammer (no more than 10 piles would be installed per day). The site currently houses no wetlands and one new wetland will be added.

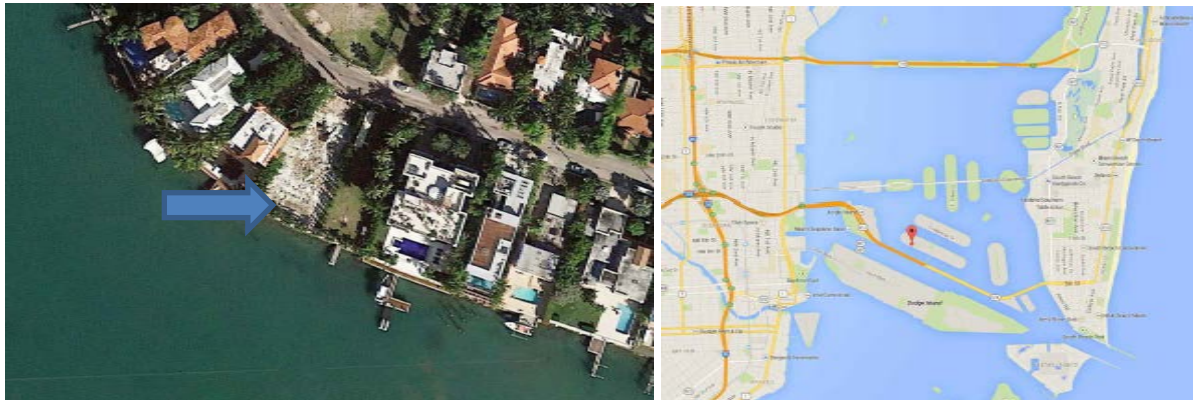


Figure 1. Lape Holdings, Inc. location from project documents

A seagrass survey was conducted on June 29, 2015. The report states that non-listed seagrasses were documented at the site (approximately 5-10% coverage) along with other resources including barnacles and sponges. No Johnson's seagrass, corals, or mangroves were observed at the site, which has an unconsolidated silt and sand substrate. In-water work will take approximately 2 weeks to complete. Turbidity curtains will be used during construction.

Brickell Place Marina, Inc. The site consists of an existing 74 slip marina, comprised of 3 main docks with associated finger piers and mooring piles (Figure 2). The applicant proposes to install four new 12-in wood fender piles and two new 3-ft by 20-ft finger piers with two 12-in concrete piles. The piles will be driven with an impact hammer via a barge-mounted crane (no more than 6 piles will be driven per day). The section 7 checklist states that the site previously provided 70 vessel slips and no new slips are proposed with the addition of the finger piers, as the slips are existing.

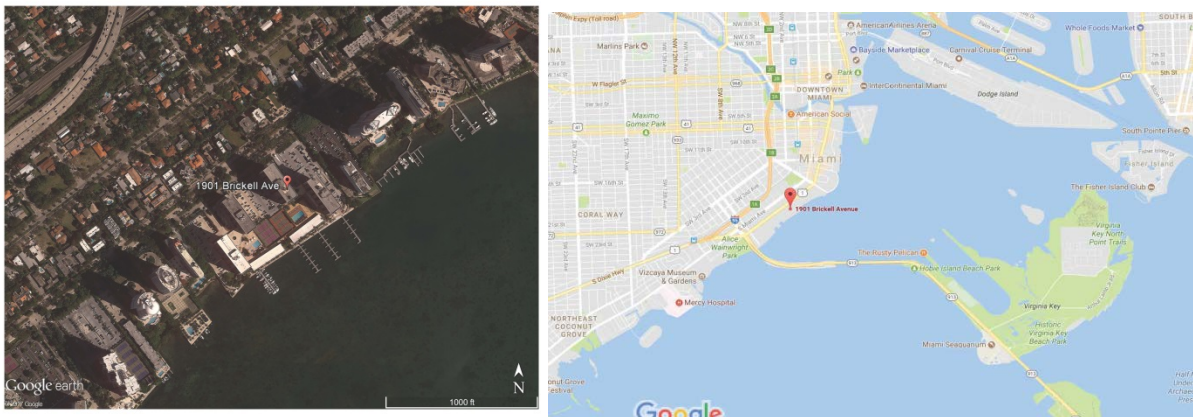


Figure 2. Brickell Place Marina Location

A seagrass survey was conducted on May 24, 2017 in the project footprint. The report states that only non-listed seagrasses, including paddle grass, turtle grass, and star grass, were documented at the site (approximately <25%-60% cover). No mangroves, corals or other benthic invertebrates were observed at the site, which has an unconsolidated silt and sand substrate. In-water work will take approximately 1 week.

Lape Holdings, LLC. #2 The site consists of a 50 ft linear seawall with a concrete cap and riprap at the toe of the seawall (Figure 3). The applicant proposes to install a new 264 ft² wood dock. The new dock would be supported by 13, 12 in diameter wood piles. All wood piles would be installed by barge-mounted impact hammer (no more than 10 piles would be installed per day). The site currently houses no wet slips (dock was previously removed) and one new wet slip will be added.

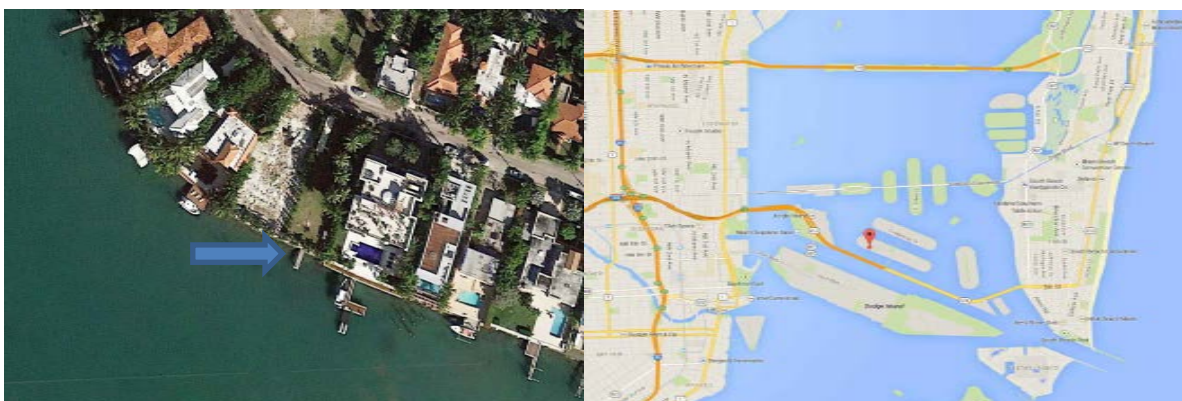


Figure 3. Lape Holdings, Inc. location from project documents

A seagrass survey was conducted on June 29, 2015. The report states that non-listed seagrasses were documented at the site (approximately 10-15% coverage) along with other resources including non-listed coral, oysters and sponges. No Johnson's seagrass or mangroves were observed at the site, which has an unconsolidated silt and sand substrate. In-water work will take approximately 2 weeks to complete. Turbidity curtains will be used during construction.

Each applicant will comply with NMFS's Sea Turtle and Smalltooth Sawfish Construction Conditions (revised March 23, 2006)¹, which requires work to stop if sea turtles or sawfish are observed within 50 ft of operating or moving construction equipment. All project activities will be conducted during daylight hours only.

2.2 Action Areas

50 CFR 404.02 defines action area as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." The action areas for this project include the waters and submerged lands within, and in the immediate vicinity of, the

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.

project site. For the purposes of this Opinion, the “immediate vicinity” 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 which will be the action area in each project.

All 3 projects are located in Miami-Dade County, Florida, and within Biscayne Bay, an open-water environment (Figure 1) and Johnson’s seagrass critical habitat (Northern Biscayne Bay, Unit J).

1. The Lape Holdings, LLC #1project site is located at 25.781122°N, -80.167676°W (North American Datum 1983 [NAD 83]) at 294 S. Coconut Lane, City of Miami Beach, Miami Dade County, Florida.
2. The Brickell Place Marina, Inc. project site is located at 25.75349°N, -80.19616°W (NAD 83) at 1901 Brickell Avenue, City of Miami, Miami Dade County, Florida.
3. The Lape Holdings, LLC #2project site is located at 25.781079°N, -80.167497°W (North American Datum 1983 [NAD 83]) at 290 S. Coconut Lane, City of Miami Beach, Miami Dade County, Florida.

3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

We believe the species listed in Table 1 may be present within the action areas, except for Leatherback sea turtle.

Table 1. 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 segment [DPS])	T	NLAA	NLAA
Kemp’s ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NE
Loggerhead (Northwest Atlantic Ocean DPSs)	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
Critical Habitat			
Johnson’s seagrass Unit J (all 3 projects)		May affect	LAA; no DAM
E = endangered; T = threatened; NE = no effect; NLAA = may affect, not likely to adversely affect; LAA = likely to adversely affect; DAM = destruction or adverse modification			

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

3.1 Species Not Likely to be Adversely Affected

We believe that sea turtles (green, loggerhead, hawksbill, and Kemp's ridley), and smalltooth sawfish may be found in or near the action area and may be affected by the projects covered in this Opinion. We have identified the following potential effects to these species and concluded that they 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 because these species have the ability to detect and move away from the types of construction activities that will be implemented for these projects. The projects will adhere to NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*, which will provide additional protection by requiring construction equipment to stop if a listed species is observed within 50 ft of operating machinery. Thus, direct physical impacts are considered extremely unlikely to occur and the risk of adverse effects is discountable.

3.1.2 Foraging and Refuge

Sea turtles and smalltooth sawfish may be temporarily unable to use the project areas because of the avoidance of construction activities and related noise, or physical exclusion by turbidity curtains. Turbidity curtains will only block potential use of the area by enclosing a small portion of the project areas at any time and will be removed after construction. Because construction will only occur for a short period (depending on the project, it varies from 7-14 days) during daylight hours only, these animals will be able to return to the area once the projects are finished. In addition, there are similar habitats nearby which would support the same activities by sea turtles and smalltooth sawfish. Therefore, we believe any effects on sea turtles and smalltooth sawfish from short-term displacement or exclusion from the project areas will be insignificant.

Green and hawksbill sea turtles may be affected by the potential permanent loss of foraging habitat caused by the dock installations. Seagrass habitat provides foraging opportunities for adult green sea turtles, and the sponges present at 2 of the project sites provide foraging opportunities for adult hawksbills. The 3 projects combined could result in a permanent loss of approximately 1288 ft² of foraging habitat² for green and hawksbill sea turtles. This is a

² This is the sum of all seagrass habitat impact from the three projects, as detailed below.

Lape Holdings, LLC #1 - This is a new dock over the water, we will assume that there will be shading from the 296 ft² wood dock, the new slip (300 ft²) and the addition of 4 new 12-in piles associated with the dock are not located fully under the replacement dock will result in 2 ft² of impacts, totaling 598 ft².

The Brickell Place Marina, Inc. - In total, we expect the new structure (120 ft²) and the additional 4 new 12-in mooring piles will impact 4 ft², for a total of 124 ft². The two piles associated with the finger piers are within the structure footprint and therefore to avoid double counting are included in the 120 ft² area.

Lape Holdings, LLC #2 - This is a new dock over the water, we will assume that there will be shading from the 264 ft² wood dock, the new slip (300 ft²) and the addition of 4 new 12-in piles associated with the dock are not fully located under the replacement dock will result in 2 ft² of impacts, for a total of 566 ft².

relatively small area, the seagrass densities at the project sites are varied (approximately 5-15% cover at 2 of the sites and <25-60% cover at one of the sites), and there are there are undisturbed areas of similar foraging habitat available nearby. Therefore, we believe that the effects from the permanent loss of foraging habitat for green and hawksbill sea turtles will be insignificant.

3.1.3 Risk of Vessel Strike

The two Lape Holdings, LLC projects propose the addition of 1 vessel slip each and the Brickell Place Marina, Inc. does not propose any new slips. The addition of 2 new slips to this area will not necessarily introduce new vessels or increase vessel traffic in the area, as it may relocate existing vessels or provide slips for vessels that were previously trailered or docked elsewhere in the region. Still, even if 2 new vessels are introduced to the area, we conclude, based on a NMFS analysis,³ that potential effects on sea turtles resulting from increased vessel traffic associated with the proposed project are discountable. Smalltooth sawfish is a demersal (i.e., bottom-dwelling) species; therefore, we do not expect there to be a risk of vessel strike for smalltooth sawfish.

3.1.4 Pile Driving and Noise Effects

Effects to listed species as a result of noise created by construction activities can be physically injurious to animals in the affected areas, or result in behavioral changes by animals in the affected areas. Injurious effects can occur in 2 ways. First, effects can result from a single noise event's exceeding the threshold for direct physical injury to animals, and these constitute an immediate adverse effect on affected animals. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals, and these can constitute adverse effects, if animals are exposed to the noise levels for sufficient periods. Behavioral effects can be adverse depending on the circumstances in which they occur (i.e., if such effects prevent animals from feeding, resting, or reproducing). Our evaluation of effects to listed species as a result of noise created by construction activities is based on the analysis prepared in support of the Opinion for SAJ-82.⁴ The noise analysis in this consultation evaluates effects to smalltooth sawfish and sea turtles (see species list in Table 1).

Based on our noise calculations, the installation of wood piles by impact hammer (all 3 projects) will not cause single-strike or peak-pressure injury to sea turtles or smalltooth sawfish. The daily cumulative sound exposure level (cSEL) of multiple pile strikes over the course of a day may cause injury to smalltooth sawfish and sea turtles at a radius of up to 30 ft (9 meters). Due to the mobility of sea turtles and smalltooth sawfish, we expect them to move away from noise disturbances. Because we anticipate the animal will move away, we believe that an animal 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 construction personnel will be visually monitoring for listed species and they will cease construction activities if an animal is sighted per NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*. Thus, we believe the risk of any injurious

³ 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.

⁴ NMFS. Biological Opinion on Regional General Permit SAJ-82 (SAJ-2007-1590), Florida Keys, Monroe County, Florida. June 10, 2014.

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

Based on our noise calculations, 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 smalltooth sawfish. Due to the mobility of sea turtles and smalltooth sawfish, 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 effects will be insignificant.

Based on our noise calculations, installation of concrete piles by impact hammer (Brickell Place Marina, Inc.) will not cause single-strike or peak-pressure injurious noise effects. The cumulative sound exposure level of multiple pile strikes over the course of a day, however, may cause injury to smalltooth sawfish and sea turtles up to 72 ft (22 m) away from the pile. Due to the mobility of sea turtles and smalltooth sawfish and because the project occurs in open water, we expect them to move away from noise disturbances. Because we anticipate the animal will move away, we believe that an animal's suffering physical injury from noise is extremely unlikely to occur and is therefore discountable. An animal's movement away from the injurious sound radius is a behavioral response, with the same effects discussed below.

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

3.2 Johnson's Seagrass Critical Habitat

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."

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

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

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

Table 2. 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 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.

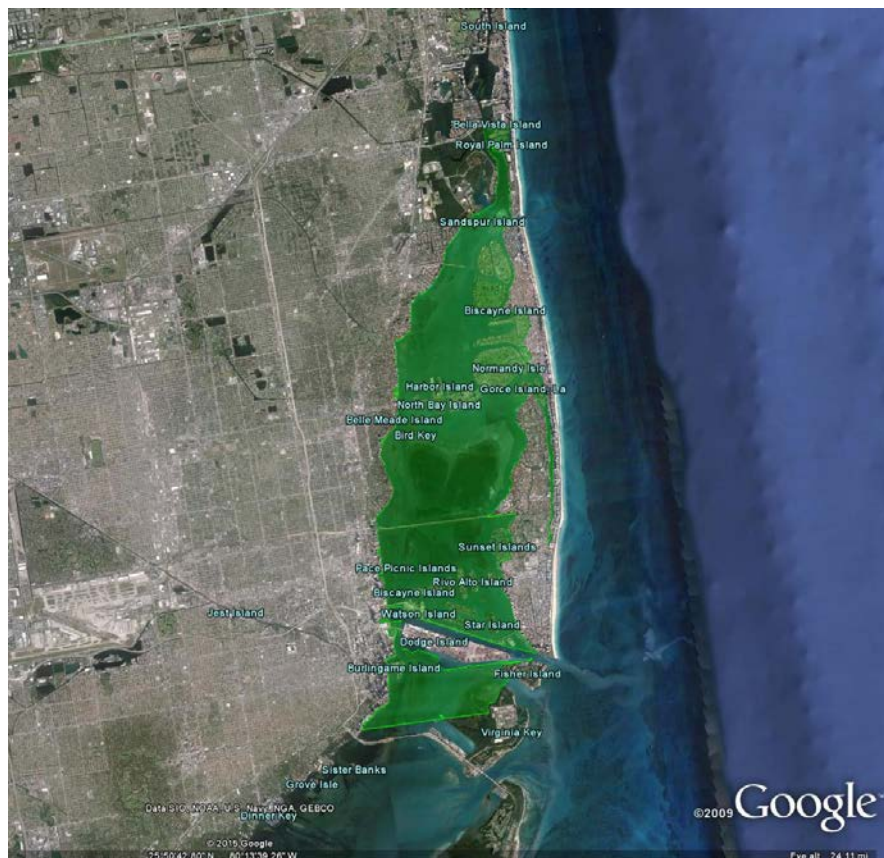


Figure 4. Johnson's seagrass critical habitat Unit J (©2015 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)

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.

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

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

Federal Actions

A wide range of activities funded, authorized, or carried out by federal agencies may affect the essential features of critical habitat for Johnson's seagrass. These include actions permitted or implemented by the USACE such as dredging; dock/marina construction; bridge/highway construction; residential construction; shoreline stabilization; breakwaters; and the installation of subaqueous lines or pipelines. Other federal activities that may affect Johnson's seagrass critical habitat include actions by the Environmental Protection Agency and the USACE to manage freshwater discharges into waterways; management of National Parks; regulation of vessel traffic to minimize propeller dredging and turbidity; and other activities by the U.S. Coast Guard and U.S. Navy. Although these actions have probably affected Johnson's seagrass critical habitat, none of these past actions have destroyed or adversely modified Johnson's seagrass critical habitat. Other than the proposed action, no other federally permitted projects are known to have occurred or have had effects within either action area, as per a review of the NMFS PRD's completed consultation database by the consulting biologist on December 28, 2017.

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.

Natural Disturbances

Large-scale weather events, such as tropical storms and hurricanes, while they often generate runoff conditions that decrease water quality, also produce conditions (wind setup and abrupt water elevation changes) that can increase flushing rates. The effects of storms can be complex. Specifically documented storm effects on healthy seagrass meadows have been relatively minor: (1) scouring and erosion of sediments; (2) erosion of seeds and plants by waves, currents, and surge; (3) burial by shifting sand; (4) turbidity; and (5) discharge of freshwater, including inorganic and organic constituents in the effluents (Oppenheimer 1963; Steward et al. 2006; van Tussenbroek 1994; Whitfield et al. 2002). Storm effects may be chronic (e.g., due to seasonal weather cycles), or acute, such as the effects of strong thunderstorms or tropical cyclones. Studies have demonstrated that healthy, intact seagrass meadows are generally resistant to physical degradation from severe storms, whereas damaged seagrass beds may not be as resilient (Fonseca et al. 2000; Whitfield et al. 2002).

In the late summer and early fall of 2004, 4 hurricanes (with wind strengths at landfall from < 39-120 miles per hour) passed directly over the northern range of Johnson's seagrass in the Indian River Lagoon (approximately 160 miles north of the project area). A post-hurricane random survey in the area of the Indian River Lagoon affected by the 4 hurricanes indicated the presence of Johnson's seagrass was similar to that reported by the St. Johns River Water Management District transect surveys prior to the storms. This indicates that while the species may temporarily decline, under the right conditions, it can recover quickly (Virstein and Morris 2007). Furthermore, despite evidence of longer-term reductions in salinity, increased water turbidity, and increased water color associated with higher than average precipitation in the spring of 2005, there was no evidence of long-term chronic impacts to seagrasses and no direct evidence of damage to Johnson's seagrass that could be considered a threat to the survival of the species (Steward et al. 2006).

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 3 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 that 2 of the 4 essential features required for functional Johnson's seagrass designated critical habitat are likely to be adversely affected by the proposed actions: adequate water transparency, which would allow sunlight necessary for photosynthesis; and stable, unconsolidated sediments that are free from physical disturbance. The adequate water transparency essential feature will be affected by shading due to the construction of new docks and the associated vessels. The unconsolidated sediments free from physical disturbance will be affected by the permanent placement of new piles.

Combined, we believe the proposed actions will adversely affect a total of 1,288 ft² of Johnson's seagrass critical habitat (598 ft² due to Lape Holdings LLC #1, 124 ft² due to Brickell Place Marina, Inc. and 566 ft² due to Lape Holdings LLC #2), discussed below.

5.1 Effects to Adequate Water Transparency

The adequate water transparency essential feature is likely to be adversely affected by shading from the new docks and associated vessels. Shading results in the complete loss of the water transparency essential feature of Johnson's seagrass critical habitat, and the loss of one of the essential features results in a total loss in the conservation function of the critical habitat.

The following permanent water transparency effects due to shading are expected from the proposed actions:

1. Lape Holdings, LLC #1: 596 ft² (296 ft² due to the new dock + 300 ft² for the slip)
2. Brickell Place Marina, Inc.: 120 ft² (120 ft² due to the new dock)
3. Lape Holdings, LLC #2: 564 ft² (264 ft² due to the new dock + 300 ft² for the slip)

Additionally, the adequate water transparency essential feature at the project sites will be affected by increased turbidity due to pile installation. This effect is expected to be temporary and contained to the immediate areas by the use of turbidity curtains that will remain in place until construction is complete and water transparency has returned to pre-construction conditions. Therefore, effects to water transparency due to the installation of piles will be insignificant.

5.2 Effects to Stable, Unconsolidated Sediments

The stable and unconsolidated sediments essential feature is like to be adversely affected by the installation of new, permanent piles. Pile installation results in the complete loss of the stable, unconsolidated sediments essential feature of Johnson's seagrass critical habitat, and the loss of one of the essential features results in a total loss in the conservation function of the critical habitat.

Round, wooden piles with a 12-in diameter are proposed for use as dock supporting piles and/or mooring piles at all three project sites. 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 ($A = \pi r^2 = 3.14 \times 0.25 \text{ ft} = 0.79 \text{ ft}$). In addition, round piles are tapered, are not perfectly round, and may be installed at varying angles, all of which will affect the actual area of bottom they cover. Therefore, we believe it is reasonable to approximate the area affected by a single, 12-in round

wood pile, while erring in favor of protecting the critical habitat, as 1 ft². Brickell Place Marina, Inc., is also utilizing 12-in diameter concrete piles which are being approximated at 1 ft² as well.

The following permanent sediment effects due to the installation of piles are expected from the proposed actions:

1. Lape Holdings, LLC #1: There will be 2 ft² of the sediments essential feature lost from the dock piles (i.e., this is the area of the piles that falls outside of the dock framing).
2. Brickell Place Marina, Inc.: The installation of 4 new 12-inch diameter mooring piles will result in the loss of 4 ft² of the stable, unconsolidated sediments essential feature.
3. Lape Holdings, LLC #2: There will be 2 ft² of the sediments essential feature lost from the dock piles (i.e., this is the area of the piles that falls outside of the dock framing).

Table 3 provides a summary of the anticipated impacts to Johnson's seagrass critical habitat from the proposed projects' activities, as calculated in Section 2.1 and explained above.

Table 3 Impacts to Johnson's Seagrass Critical

	Project Name	Critical habitat impact shade impacts from new docks and vessels (ft²)	Critical habitat impacts from new piles that are not for dock support (ft²)	Critical habitat impacts from new piles that partially fall outside of the dock footprint (ft²)	Total critical habitat impacted (ft²)
1	Lape Holdings, Inc., #1	596	0	2	598
2	Brickell Place Marina, Inc.	120	4	0	124
3	Lape Holdings, Inc., #2	564	0	2	566
	Total	1,280	4	4	1,288

Combined, we believe the 3 projects will adversely affect 1,288 ft² of Johnson's seagrass critical habitat (see Table 3).

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

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

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

7 DESTRUCTION/ADVERSE MODIFICATION ANALYSIS

NMFS's regulations define *destruction or adverse modification* to mean "a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features" (50 CFR § 402.02). Alterations that may destroy or adversely modify critical habitat may include impacts to the area itself, such as those that would impede access to or use of the essential features. We intend the phrase "significant delay" in development of essential features to encompass a delay that interrupts the likely natural trajectory of the development of physical and biological features in the designated critical habitat to support the species' recovery. NMFS will generally conclude that a Federal action is likely to "destroy or adversely modify" designated critical habitat if the action results in an alteration of the quantity or quality of the essential physical or biological features of designated critical habitat, or that precludes or significantly delays the capacity of that habitat to develop those features over time, and if the effect of the alteration is to appreciably diminish the value of

critical habitat for the conservation of the species. This analysis takes into account the geographic and temporal scope of the proposed action, recognizing that “functionality” of critical habitat necessarily means that it must now and must continue in the future to support the conservation of the species and progress toward recovery. Destruction or adverse modification does not depend strictly on the size or proportion of the area adversely affected, but rather on the role the action area serves with regard to the function of the overall designation, and how that role is affected by the action.

Recovery for Johnson’s seagrass as set forth in the final recovery plan (NMFS 2002), will be achieved when the following recovery objectives are met: (1) the species’ present geographic range remains stable for at least 10 years, or increases; (2) self-sustaining populations are present throughout the range at distances less than or equal to the maximum dispersal distance to allow for stable vegetative recruitment and genetic diversity; and (3) populations and supporting habitat in its geographic range have long-term protection (through regulatory action or purchase acquisition). We evaluated the projects’ expected impacts on critical habitat to determine whether it will be able to continue to provide its intended functions in achieving these recovery objectives and supporting the conservation of the species.

The first recovery criterion for Johnson’s seagrass is for its present range to remain stable for 10 years or to increase during that time. NMFS’s 5-year review (2007) of the status of the species concluded that the first recovery objective had been achieved as of 2007. In fact, the range had increased slightly northward at that time and we have no information indicating range stability has decreased since then. NMFS has determined that the three projects will adversely affect a total of 1,288 ft² of Johnson’s seagrass critical habitat due to shading and pile installation. But the action areas are not at a boundary of the species’ range, the areas that will be impacted are very small, and the loss of these potential areas for colonization will not affect the stability of the species’ range now or in the future. Thus, we believe the proposed actions’ effects will not impact the critical habitat’s ability to contribute to range stability for Johnson’s seagrass.

The second recovery criterion for Johnson’s seagrass requires that self-sustaining populations be present throughout the range at distances less than or equal to the maximum dispersal distance for the species. Due to its asexual reproductive mode, self-sustaining populations are present throughout the range of species. As discussed in Section 3.2, there are approximately 22,574 ac of Johnson’s seagrass critical habitat. The loss of 1,288 ft² (0.03 ac) of designated critical habitat for Johnson’s seagrass would equate to a loss of 0.0001% of Johnson’s seagrass critical habitat (0.03 ac x 100 / 22,574 ac). The loss of 1,288 ft² (0.03 ac) of designated critical habitat for Johnson’s seagrass in Unit J specifically would equate to a loss of 0.0002% of Johnson’s seagrass critical habitat (0.03 ac x 100 / 18,757 ac in Unit J). The loss of 0.0001% of Johnson’s seagrass critical habitat (or 0.0002% within Unit J specifically), will not significantly reduce the available effect of 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 influence of wind, tides, and waves. Because of this, we believe that the removal of 1,288 ft² of critical habitat for these projects will not appreciably diminish the conservation value of critical habitat in supporting self-sustaining populations.

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

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

8 CONCLUSION

We have analyzed the best available data, the current status of the species and the critical habitat, environmental baseline, effects of the proposed actions, and cumulative effects to determine whether the proposed actions are likely to destroy or adversely modify Johnson's seagrass critical habitat. Because the proposed action will not appreciably diminish the value of the critical habitat for the conservation of Johnson's seagrass, 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. 2008a).
4. NMFS recommends that the USACE review and implement the Conclusions and Recommendations in the October 2008 report, *Evaluation of Regulatory Guidelines to Minimize Impacts to Seagrasses from Single-family Residential Dock Structures in Florida and Puerto Rico* (Shafer et al. 2008).
5. NMFS recommends that a report of all current and proposed USACE projects in the range of Johnson's seagrass be prepared and used by the USACE to assess impacts on the species from these projects, to assess cumulative impacts, and to assist in early consultation that will avoid and/or minimize impacts to Johnson's seagrass and its critical habitat. Information in this report should include location and scope of each project and identify the federal lead agency for each project. The information should be made available to NMFS.
6. NMFS recommends that the USACE conduct and support research to assess trends in the distribution and abundance of Johnson's seagrass. Data collected should be contributed to the Florida Fish and Wildlife Conservation Commission's Florida Wildlife Research Institute to support ongoing geographic information system mapping of Johnson's seagrass and other seagrass distribution.
7. NMFS recommends that the USACE prepare an assessment of the effects of other actions under its purview on Johnson's seagrass for consideration in future consultations.

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.

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ESTUARINE AND COASTAL MARINE ENVIRONMENTS / Full publication date:
FALL 2002 / Copyright © 2002 Coastal Education & Research Foundation, Inc):86-99.