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SERO-2020-01916

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Ref: Oceanfront Park Boardwalk Repairs, PA-04-FL-4337-PW-06502, City of Marathon,  
Monroe County, Florida

Dear Larissa:

The enclosed Biological Opinion (Opinion) was prepared by the National Marine Fisheries Service (NMFS) pursuant to Section 7(a)(2) of the Endangered Species Act. The Opinion considers the effects of a proposal by the Federal Emergency Management Agency (FEMA) to fund the repair of a public fishing structure in Monroe County, Florida. We base our Opinion on project-specific information provided in the consultation package as well as NMFS's review of published literature. Herein, we analyze the potential for the project to affect the following: green sea turtle (North Atlantic and South Atlantic distinct population segments [DPSs]), Kemp's ridley sea turtle, leatherback sea turtle, loggerhead sea turtle (Northwest Atlantic DPS), hawksbill sea turtle, smalltooth sawfish (United States DPS), giant manta ray, Nassau grouper, loggerhead sea turtle designated critical habitat, and elkhorn and staghorn coral designated critical habitat.

The Oceanfront Park Boardwalk Repairs project has been assigned the tracking number SERO-2020-01916 in our new NMFS Environmental Consultation Organizer (ECO). Please reference the ECO tracking number in all future inquiries and reports regarding this Opinion. We look forward to future cooperation with FEMA on other projects to ensure the conservation and recovery of our threatened and endangered marine species. If you have any questions regarding this Opinion, please contact Dana M. Bethea, Consultation Biologist, by phone at 727-209-5974, or by email at [Dana.Bethea@noaa.gov](mailto:Dana.Bethea@noaa.gov).

Sincerely,

Roy E. Crabtree, Ph.D.  
Regional Administrator

Enclosure: Biological Opinion  
File: 1514-22.o



**Endangered Species Act - Section 7 Consultation  
Biological Opinion**

**Action Agency:** Federal Emergency Management Agency

**Applicant:** The City of Marathon

**Activity:** Oceanfront Park Boardwalk Repairs

PA-04-FL-4337-PW-06502

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

Tracking Number: SERO-2020-01916

**Approved by:**

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

**Date Issued:**

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## Acronyms and Abbreviations

ADA	Americans with Disabilities Act
CFR	Code of Federal Regulations
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPUE	Catch per unit effort
CR	Conservation Recommendations
DO	Dissolved Oxygen
DPS	Distinct Population Segment
DWH	<i>Deepwater Horizon</i>
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FR	Federal Register
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Fish and Wildlife Research Institute
IPCC	Intergovernmental Panel on Climate Change
ISED	International Sawfish Encounter Database
ITS	Incidental Take Statement
MHW	Mean High Water

NA	North Atlantic
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NWA	Northwest Atlantic
Opinion	Biological Opinion
PBFs	Physical or biological features
PRD	NMFS Protected Resources Division
RPMs	Reasonable and Prudent Measures
SA	South Atlantic
SERO	NMFS Southeast Regional Office
STSSN	Sea Turtle Stranding and Salvage Network
T&Cs	Terms and Conditions
U.S.	United States of America
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

### **Units of Measure**

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cm	Centimeter(s)
ft	Foot/feet
ft <sup>2</sup>	Square foot/feet
in	Inch(es)
lbs	Pound(s)
m	Meter(s)

## **Introduction**

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Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. §1531 et seq.), requires that each federal agency ensure that any action authorized, funded, or carried out by the 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 those species. When the action of a federal agency may affect a protected species or its critical habitat, that agency is required to consult with either the National Marine Fisheries Service (NMFS) or the United States Fish and Wildlife Service (USFWS), depending upon the protected species or critical habitat that may be affected.

Consultations on most listed marine species and their designated critical habitat are conducted between the action agency and NMFS. Consultations are concluded after NMFS determines the action is not likely to adversely affect ESA-listed species or designated critical habitat, or issues a Biological Opinion (Opinion) that determines whether a proposed action is likely to jeopardize the continued existence of a federally listed species, or destroy or adversely modify federally designated critical habitat. The Opinion also states the amount or extent of ESA-listed species incidental take that may occur and develops nondiscretionary measures that the action agency must take to reduce the effects of said anticipated/authorized take. The Opinion may also recommend discretionary conservation measures. No incidental destruction or adverse modification of critical habitat may be authorized. The issuance of an Opinion detailing NMFS's findings concludes ESA Section 7 consultation.

This document represents NMFS's Opinion based on our review of effects associated with the Federal Emergency Management Agency's (FEMA) proposed action to fund the repairs to an existing public fishing structure in Monroe County, Florida. This Opinion analyzes the proposed action's effects on threatened and endangered species and designated critical habitat in accordance with Section 7 of the ESA. We based our Opinion on information provided by FEMA, the Sea Turtle Stranding and Salvage Network (STSSN), the International Sawfish Encounter Database (ISED), personal communications, and the published literature cited herein.

## **1. CONSULTATION HISTORY**

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The following is the consultation history for NMFS Environmental Consultation Organizer tracking number SERO-2020-01916 Oceanfront Park Boardwalk Repairs. On July 9, 2020, NMFS received a request for consultation under Section 7 of the ESA from FEMA in a letter dated July 9, 2020. NMFS requested additional information on July 16 and August 11, 2020. NMFS received FEMA's final response on August 25, 2020, and initiated consultation that day.

## **2. DESCRIPTION OF THE PROPOSED ACTION**

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### **2.1 Proposed Action**

FEMA proposes to provide funding to the City of Marathon (the City or applicant) to repair the Oceanfront Park Boardwalk, which was originally constructed in 2014. This project is necessary due to damages sustained during Hurricane Irma, which occurred September 2017. There is no in-water work associated with this project; however, repairs will bring the structure back to its original structure and function. The work will include replacing approximately 832 square feet (ft<sup>2</sup>) of treated wooden decking, 96 treated wooden deck joists, 12 treated wood outer joist beams, 4 treated landward wooden piles, and 1 fish cleaning station. All work will be completed above the mean high water line. All materials removed during repair work will be properly disposed of at a permitted landfill or other designated area. The project is expected to take 4-6 weeks to complete. The City does not have a regular in-water cleanup in place to remove stranded tackle and derelict fishing line and is not proposing such.

To minimize potential impacts to ESA-listed species, FEMA will add the following conditions to the grant (adopted from U.S. Army Corps of Engineers Jacksonville District's Programmatic Biological Opinion [JAXBO]<sup>1</sup>) to be followed during construction:

- The existing parking lot will be used for delivery and storage of construction materials and equipment.
- Prior to the onset of construction activities, the applicant, or designated agent, will conduct a meeting with all construction staff to discuss field identification of ESA-listed species and marine mammals, their protected status, what to do if any are observed within the project area, and applicable penalties that may be imposed if State or Federal regulations are violated. All personnel shall be made aware that there are civil and criminal penalties for harming, harassing, or killing ESA-listed species or marine mammals.
- All activities must be completed during daylight hours. Night work is not permitted.

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<sup>1</sup> Biological Opinion on the Authorization of Minor In-Water Activities throughout the Geographic Area of Jurisdiction of the U.S. Army Corps of Engineers Jacksonville District, including Florida and the U.S. Caribbean (SER-2015-17616), issued November 20, 2017.

- The applicant will follow the NMFS’s *Sea Turtle and Smalltooth Sawfish Construction Conditions*<sup>2</sup>, which requires construction to cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities will not resume until the sea turtle species has departed the project area of its own volition.
- Any injury to any ESA-listed species occurring during construction shall be reported immediately to NMFS’s Protected Resources Division (PRD) at (1-727-824-5312) or by email to [takereport.nmfsser@noaa.gov](mailto:takereport.nmfsser@noaa.gov).

To minimize potential impacts to ESA-listed species, FEMA will add the following best management practices to the grant to be followed by the applicant post-construction:

- The applicant will coordinate an agreement with the Florida Coordinator for the STSSN to assist, as needed, with the rehabilitation of recreational hook-and-line sea turtle captures. Contact information for the State Coordinators for the STSSN are found at the following website: <https://www.fisheries.noaa.gov/state-coordinators-sea-turtle-stranding-and-salvage-network>.
- Upon completion of the structure, educational signs must be posted in a visible location, alerting users of ESA-listed species in the area. The applicant will post the “Save Dolphins, Sea Turtles, Sawfish, and Manta Rays” sign, which is available for download at the following website: <https://www.fisheries.noaa.gov/southeast/consultations/protected-species-educational-signs>.
- The City will post signage that will instruct anglers not to dispose of fish carcasses and/or fishing line or debris in the water.
- The City will conduct out-of-water cleanup on a regular basis to remove any trash or debris from around the public fishing structure.

## 2.2 Proposed Action Area

The Oceanfront Park Boardwalk is located in Marathon, Monroe County, on the southern side of the Florida Keys halfway between Boot Key and Fat Deer Key, approximately 2 miles (mi) inland from the open waters of the Florida Straits (Latitude 24.723677, Longitude -81.044605) (Figure 1).

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<sup>2</sup> 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. ([Sea Turtle and Smalltooth Sawfish Construction Conditions](#)).



**Figure 1. The Oceanfront Park Boardwalk, located midway between Boot Key and Fat Deer Key in Marathon, Monroe County, in the Florida Keys (©2020 Google Earth)**

The Oceanfront Park Boardwalk was constructed in 2014 and has been closed to recreational fishing since sustaining damages in September 2017. The existing boardwalk is approximately 150-foot (ft)-long, has an area of 3,014 ft<sup>2</sup>, runs parallel to the shoreline, and faces the south. The City estimates that prior to closure, 2 to 3 people fish from the boardwalk each day, and when open, is available to the public 365 days a year from dawn to dusk. While the Oceanfront Park has natural shorelines, the area surrounding the boardwalk consists of residential properties with armored shorelines (Figure 2). According to the City and the available STSSN data (2007-2016), there have been no reported encounters of ESA-listed species from recreational fishing activities at the boardwalk. The boardwalk has never been attended and will not be attended upon completion of the proposed action. The boardwalk is not currently lit and there are no plans to install lighting on the boardwalk in the future. Fishing line recycling receptacles and trashcans with lids are currently located landward of the boardwalk to help prevent fishing lines from being disposed of in the ocean or on the beaches. A fish cleaning station is also located landward of the boardwalk and is clearly marked with nearby trash receptacles with lids. All receptacles are clearly marked and are emptied regularly to ensure that fishing lines and debris are disposed of properly.

The action area is defined by regulation as all areas to be affected by the Federal action and not merely the immediate area involved in the action (50 Code of Federal Regulations [CFR] 402.02). The action area includes the boardwalk's physical footprint where above-water construction will occur and the surrounding water accessible to recreational anglers upon completion of the proposed action (i.e., casting distance or approximately 200 ft) (Figure 2). The action area occurs within the boundaries of loggerhead sea turtle and elkhorn and staghorn coral



designated critical habitat. The boardwalk sits atop habitat characterized as karst carbonate bedrock. The water depth in front of the boardwalk is a few inches (in) to 1-ft-deep and drops off vertically to approximately 3-ft-deep. There is a 3-ft-deep man-made boating access channel directly south of the boardwalk that leads both east and west from the property to maintained channels, which eventually lead to the Atlantic Ocean. According to the Seagrass Habitat Mapper in Florida (FWRI 2017<sup>3</sup>), there is continuous seagrass mapped approximately 150 ft south of the boardwalk across the man-made boating access channel (light brown area in Figure 2). There are red mangroves along the shoreline to the west of the boardwalk repair area; however, half of the trees within the margin of the property’s shoreline are buttonwood.



**Figure 2. The Oceanfront Park Boardwalk, surrounding area, and a 200-ft radius (in red) denoting the extent of the action area based on casting distance (©2020 Google Earth)**

### **3. STATUS OF THE SPECIES AND CRITICAL HABITAT**

Table 1 provides the effect determinations for species FEMA and NMFS believe may be affected by the proposed action.

**Table 1. Effects Determinations for Species that May Be Affected by the Proposed Action<sup>4</sup>**

<b>Species</b>	<b>ESA Listing Status</b>	<b>Action Agency Effect Determination</b>	<b>NMFS Effect Determination</b>
<b>Sea Turtles</b>			

<sup>3</sup> <http://geodata.myfwc.com/datasets/seagrass-habitat-in-florida>

<sup>4</sup> E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect; NE = no effect

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Green (North Atlantic [NA] distinct population segment [DPS])	T	LAA	NLAA
Green (South Atlantic [SA] DPS)	T	LAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NE
Loggerhead (Northwest Atlantic [NWA] DPS)	T	LAA	NLAA
Hawksbill	E	LAA	NLAA
<b>Fish</b>			
Smalltooth sawfish (U.S. DPS)	E	LAA	LAA
Nassau grouper	T	NLAA	NLAA
Giant manta ray	T	NLAA	NLAA

We believe the proposed action will have no effect on leatherback sea turtles. Leatherback sea turtles tend to be pelagic and are not expected to be in the shallow waters within action area. Further, leatherback sea turtles feed on jellyfish and not baits typically used by recreational anglers.

We believe the proposed action will have no effect on larval, post-settlement, or small juvenile Nassau grouper (animals less than 19 cm TL) as NMFS does not expect these life stages to be present anywhere in the Florida Keys. Adult and large juvenile Nassau grouper may be present in channels and canals cut through the limestone hardbottom found throughout the Florida Keys. The potential routes of effects to adult and large juvenile Nassau grouper are discussed further below.

Table 2 provides the effect determinations for critical habitat FEMA and NMFS believe may be affected by the proposed action.

**Table 2. Effects Determinations for Critical Habitat that May Be Affected by the Proposed Action**

Species	Critical Habitat Unit	Action Agency Effect Determination	NMFS Effect Determination
Elkhorn and staghorn corals	Florida Area	NE	NE
Loggerhead sea turtle	Constricted Migratory Habitat and Breeding Habitat, LOGG-N-19	NE	NE

The proposed project is located within the boundary of designated critical habitat for elkhorn and staghorn coral (Florida Area). The physical feature essential to the conservation of elkhorn and staghorn corals is substrate of suitable quality and availability to support larval settlement and

recruitment, and reattachment and recruitment of asexual fragments. “Substrate of suitable quality and availability” is defined as natural consolidated hard substrate or dead coral skeleton that is free from fleshy or turf macroalgae cover and sediment cover (50 C.F.R 226.16(a)). While this feature is present in the action area, we believe the proposed action will have no effect on designated critical habitat for elkhorn and staghorn coral because the above water construction and recreational fishing that will occur once the boardwalk is open to the public has no potential to affect the quality or availability of substrate within action area.

The proposed project is also located within the boundary of the Constricted Migratory Habitat and Breeding Habitat of loggerhead sea turtle designated critical habitat (Unit LOGG-N-19). The physical or biological features (PBFs) of loggerhead sea turtle constricted migratory habitat are high use migratory corridors that are constricted (limited in width) by land on one side and the edge of the continental shelf and Gulf Stream on the other side. The PBFs of breeding habitat are sites with high densities of both male and female adult individuals during the breeding season.

The following are the primary constituent elements (PCEs) that support this habitat:

1. Constricted Migratory Habitat PCEs: (1) Constricted continental shelf area relative to nearby continental shelf waters that concentrate migratory pathways; and (2) Passage conditions to allow for migration to and from nesting, breeding, and/or foraging areas.
2. Breeding Habitat PCEs: (1) High densities of reproductive male and female loggerheads; (2) Proximity to primary Florida migratory corridor; and (3) Proximity to Florida nesting grounds.

We believe the proposed action will have no effect on loggerhead sea turtle designated critical habitat (Unit LOGG-N-19) because the above water construction and recreational fishing that will occur once the boardwalk is open to the public has no potential to affect any of the PCEs of the Constricted Migratory Habitat or Breeding Habitat within the action area.

### **3.1 Potential Routes of Effect Not Likely to Adversely Affect Listed Species**

Green, Kemp’s ridley, loggerhead, and hawksbill sea turtles, smalltooth sawfish, Nassau grouper, and giant manta ray may be injured if struck by equipment or materials during above-water construction activities. However, we believe that such route of effect is extremely unlikely to occur. These species are expected to exhibit avoidance behavior by moving away from physical disturbances. The applicant’s implementation of NMFS’s *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce the risk to these species by spotting ESA-listed species near the action area and avoiding interactions with these species during construction activities. If at any point, a listed sea turtle species or smalltooth sawfish is observed within 50 ft of the work site, all construction or operation of any mechanical equipment will cease until the listed sea turtle species or smalltooth sawfish has departed the project area on its own volition.

Green, Kemp’s ridley, loggerhead, and hawksbill sea turtles, smalltooth sawfish, Nassau grouper, and giant manta ray may also be injured due to entanglement in improperly discarded fishing gear upon completion of the proposed action. We believe this route of effect is extremely

unlikely to occur. The City maintains fishing line recycling receptacles and trash cans to keep debris out of the water when the public fishing structure is open for use by the public, and we expect that anglers will appropriately dispose of fishing gear using these bins in the future. The receptacles are clearly marked and will continue to be emptied regularly to ensure they are not overfilled and that fishing lines are disposed of properly. The City also maintains posted signage that instructs anglers not to dispose of fishing line or debris in the water. Further, to the best of our knowledge, there has never been a reported entanglement with any of these species from the Oceanfront Park Boardwalk.

Green, Kemp's ridley, loggerhead, and hawksbill sea turtles are prone to capture by recreational fishing gear used at fishing structures, leading to injury or death. However, we believe the risk of capture by recreational fishing gear to these species once the public fishing structure is re-opened to the public is extremely unlikely to occur. We reviewed the available Sea Turtle and Salvage and Stranding Network data for Zones 1 and 24 in Florida (i.e., stranding data for all areas inside and outside of protected waters, 2007-2016). Zones 1 extend from 82° to 80° West longitude (approximately Key West to Key Colony Beach in the Florida Keys) and Zone 24 extends from 82° West longitude to 25° North latitude (approximately Key Colony Beach to Tavernier in the Florida Keys). There are only 2 reported captures of sea turtles from public fishing structures in the dataset (1 hawksbill sea turtle and 1 loggerhead sea turtle). Neither of those are from the Oceanfront Park Boardwalk. The 2 structures where the reported captures occurred, the 7-Mile Bridge and Truman Annex U.S. Coast Guard Pier, are much larger, public fishing structures that allow anglers access to deeper water that they cannot access from the shore. That is, habitat where sea turtles are more likely to occur. Larger fishing structures like these also tend to have numerous people continuously on site with the sole purpose of fishing. The Oceanfront Park Boardwalk is a relatively small structure that runs parallel to the shoreline, acting more like a private, residential dock than a fishing pier. Water depth at the boardwalk is shallow (inches to 1-ft-deep at the shoreline up to 3-ft-deep in the nearby man-made boating access channel); and tends to have far less use for recreational fishing than public fishing piers, as generally only up to 3 anglers fish from the Oceanfront Park Boardwalk daily when it is open.

Large juvenile and adult Nassau grouper may be affected by recreational fishing that will occur at the boardwalk upon completion of repairs; however, we believe this effect is extremely unlikely to occur. NMFS is not aware of any reported captures of a Nassau grouper from a public, recreational fishing structure in the Florida Keys. Further, while the immediate habitat at the boardwalk is potentially suitable for larger juvenile and adult Nassau grouper (i.e., a channel cut through limestone bottom with overwater structure), habitat in the surrounding area is up to 3-ft-deep and consists of soft bottom and seagrass. All Nassau grouper sampled in the Florida Keys were found in depths greater than 3 ft.<sup>5</sup> Therefore, we think is unlikely that larger juvenile and adult Nassau grouper use the action area as habitat.

Giant manta ray are prone to foul-hooking by recreational fishing gear used at fishing structures that are ocean-facing or located in or near inlet/passes. However, we believe the risk of foul-hooking by recreational fishing gear to giant manta ray once the boardwalk is open to the public

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<sup>5</sup> Florida Fish and Wildlife Conservation Commission/NOAA/National Park Service/University of Miami Rosenstiel School of Marine and Atmospheric Science in-water surveys from Biscayne Bay, the Florida Keys, and Dry Tortugas (n=291; 1999-2014, excluding 2013).

is extremely unlikely to occur. The Oceanfront Park Boardwalk is not directly ocean-facing nor is it located in or near an inlet or pass where giant manta ray are known to congregate. As stated above, it is a relatively small structure that runs parallel to the shoreline that tends to have far less use for recreational fishing than public fishing piers. Further, to the best of our knowledge, there are no reported recreational captures of giant manta ray from the Oceanfront Park Boardwalk.

Additionally, the NMFS educational sign, ‘Save the Dolphins, Sea Turtles, Sawfish, and Manta Ray,’ will be installed in a visible location upon completion of the boardwalk. We believe the placement of the educational sign is a beneficial effect. The sign will provide information to the public on how to avoid and minimize encounters as well as proper handling techniques. The sign will also encourage anglers to report sightings and interactions, thus providing valuable distribution and abundance data to researchers and resource managers. Accurate distribution and abundance data allow management to evaluate the status of the species and refine conservation and recovery measures.

### **3.2 Potential Route of Effect Likely to Adversely Affect Listed Species**

Due to the location of the project (Monroe County, Florida) and the proximity to shallow water and red mangrove shorelines, NMFS determined the potential route of effect likely to adversely affect smalltooth sawfish from the proposed action is the risk of physical injury from recreational hook-and-line interaction upon completion of the boardwalk. We provide greater detail on the potential effects of entanglement, hooking, and trailing line to smalltooth sawfish in the Effects of the Action section below.

### **3.3 Status of Smalltooth Sawfish**

The U.S. DPS of smalltooth sawfish was listed as endangered under the ESA effective May 1, 2003 (68 FR 15674; April 1, 2003).

#### *Species Description and Distribution*

The smalltooth sawfish is a tropical marine and estuarine elasmobranch. It is a batoid with a long, narrow, flattened, rostral blade (rostrum) lined with a series of transverse teeth along either edge. In general, smalltooth sawfish inhabit shallow coastal waters of the Atlantic Ocean (Dulvy et al. 2016) and feed on a variety of fish (e.g., mullet, jacks, and ladyfish)(Poulakis et al. 2017; Simpfendorfer 2001).

Although this species is reported throughout the tropical Atlantic, NMFS identified smalltooth sawfish from the Southeast U.S. as a DPS due to the physical isolation of this population from others, the differences in international management of the species, and the significance of the U.S. population in relation to the global range of the species (see 68 FR15674). Within the U.S., smalltooth sawfish have historically been captured in estuarine and coastal waters from North Carolina southward through Texas, although peninsular Florida has been the region of the U.S. with the largest number of recorded captures (NMFS 2018). Recent records indicate there is a resident reproducing population of smalltooth sawfish in south and southwest Florida from

Charlotte Harbor through the Florida Keys, which is also the last U.S. stronghold for the species (Poulakis and Seitz 2004; Seitz and Poulakis 2002; Simpfendorfer and Wiley 2005). Water temperatures (no lower than 8-12 degrees Celsius) and the availability of appropriate coastal habitat (shallow, euryhaline waters and red mangroves) are the major environmental constraints limiting the northern movements of smalltooth sawfish in the western North Atlantic. Most specimens captured along the Atlantic coast north of Florida are large juveniles or adults (over 10 ft) that likely represent seasonal migrants, wanderers, or colonizers from a historical Florida core population to the south, rather than being members of a continuous, even-density population (Bigelow and Schroeder 1953).

### *Life History Information*

Smalltooth sawfish mate in the spring and early summer (Grubbs unpublished data; Poulakis unpublished data). Fertilization is internal and females give birth to live young. Evidence suggests a gestation period of approximately 12 months and females produce litters of 7-14 young (Feldheim et al. 2017)(Gelsleichter unpublished data). Females have a biennial reproductive cycle (Feldheim et al. 2017) and parturition (act of giving birth) occurs nearly year round though peaking in spring and early summer (March – July) (Poulakis et al. 2011)(Carlson unpublished data). Smalltooth sawfish are approximately 26-31 in (64-80 cm) at birth (Bethea et al. 2012; Poulakis et al. 2011) and may grow to a maximum length of approximately 16 ft (500 cm) ((Brame et al. 2019). Simpfendorfer et al. (2008) report rapid juvenile growth for smalltooth sawfish for the first 2 years after birth, with stretched total length increasing by an average of 25-33 in (65-85 cm) in the first year and an average of 19-27 in (48-68 cm) in the second year. Uncertainty remains in estimating post-juvenile growth rates and age at maturity; yet, recent advances indicate maturity at 7-11 years (Carlson and Simpfendorfer 2015) at lengths of approximately 340 cm for males and 350-370 cm for females (Gelsleichter unpublished data).

There are distinct differences in habitat use based on life history stage as the species shifts use through ontogeny. Juvenile smalltooth sawfish less than 220 cm, inhabit the shallow euryhaline waters (i.e., variable salinity) of estuaries and can be found in sheltered bays, dredged canals, along banks and sandbars, and in rivers (NMFS 2000). These juveniles are often closely associated with muddy or sandy substrates, and shorelines containing red mangroves, *Rhizophora mangle* (Hollensead et al. 2016; Hollensead et al. 2018; Poulakis et al. 2011; Poulakis et al. 2013; Simpfendorfer 2001; Simpfendorfer 2003; Simpfendorfer et al. 2010). (Simpfendorfer et al. 2010) indicated the smallest juveniles (young-of-the-year juveniles measuring < 100 cm in length) generally used the shallowest water (depths less than 0.5 m [1.64 ft]), had small home ranges (4,264-4,557 square meters), and exhibited high levels of site fidelity. Although small juveniles exhibit high levels of site fidelity for specific nursery habitats for periods of time lasting up to 3 months (Wiley and Simpfendorfer 2007), they do undergo small movements coinciding with changing tidal stages. These movements often involve moving from shallow sandbars at low tide to within red mangrove prop roots at higher tides (Simpfendorfer et al. 2010)—behavior likely to reduce the risk of predation (Simpfendorfer 2006). As juveniles increase in size, they begin to expand their home ranges (Simpfendorfer et al. 2010; Simpfendorfer et al. 2011), eventually moving to more offshore habitats where they likely feed on larger prey as they continue to mature.

Researchers have identified several areas within the Charlotte Harbor Estuary that are disproportionately more important to juvenile smalltooth sawfish, based on intra- or inter-annual (within or between year) capture rates during random sampling events within the estuary (Poulakis et al. 2011; Poulakis 2012). These high-use areas were termed “hotspots” and also correspond with areas where public encounters are most frequently reported. Use of these “hotspots” can vary within and among years based on the amount and timing of freshwater inflow. Juvenile smalltooth sawfish use hotspots further upriver during high salinity conditions (drought) and areas closer to the mouth of the Caloosahatchee River during times of high freshwater inflow (Poulakis et al. 2011). At this time, researchers are unsure what specific biotic or abiotic factors influence this habitat use, but they believe a variety of conditions in addition to salinity, such as temperature, dissolved oxygen, water depth, shoreline vegetation, and food availability, may influence habitat selection (Poulakis et al. 2011).

The juvenile “hotspots” may be of further significance following the findings of female philopatry (Feldheim et al. 2017). More specifically, Feldheim et al. (2017) found that female sawfish return to the same parturition (birthing) sites over multiple years (parturition site fidelity). NMFS expects that these parturition sites align closely with the juvenile “hotspots” given the high fidelity shown by the smallest size/age classes of sawfish to specific nursery areas. Therefore, disturbance of these nursery areas could have wide-ranging effects on the sawfish population if it were to disrupt future parturition.

While adult smalltooth sawfish may also use the estuarine habitats used by juveniles, they are commonly observed in deeper waters along the coasts. Poulakis and Seitz (2004) noted that nearly half of the encounters with adult-sized smalltooth sawfish in Florida Bay and the Florida Keys occurred in depths from 200-400 ft (70-122 meters [m]) of water. Similarly, Simpfendorfer and Wiley (2005) reported encounters in deeper waters off the Florida Keys, and observations from both commercial longline fishing vessels and fishery-independent sampling in the Florida Straits report large smalltooth sawfish in depths up to 130 ft (~40 m)(ISED 2014). Yet, current field studies show adult smalltooth sawfish also use shallow estuarine habitats within Florida Bay and the Everglades (Grubbs unpublished data). Further, NMFS expects that females return to shallow estuaries during parturition (when adult females return to shallow estuaries to give birth).

### *Status and Population Dynamics*

Based on the contraction of the species’ geographic range, we expect that the population to be a fraction of its historical size. However, few long-term abundance data exist for the smalltooth sawfish, making it very difficult to estimate the current population size. Despite the lack of scientific data, recent encounters with young-of-the-year, older juveniles, and sexually mature smalltooth sawfish indicate that the U.S. population is currently reproducing (Feldheim et al. 2017; Seitz and Poulakis 2002; Simpfendorfer 2003). The abundance of juveniles publically encountered by anglers and boaters, including very small individuals, suggests that the population remains viable (Simpfendorfer and Wiley 2004), and data analyzed from Everglades National Park as part of an established fisheries-dependent monitoring program (angler interviews) indicated a slightly increasing trend in juvenile abundance within the park over the past decade (Carlson and Osborne 2012; Carlson et al. 2007). Similarly, preliminary results of

juvenile smalltooth sawfish sampling programs in both Everglades National Park and Charlotte Harbor indicate the juvenile population is at least stable and possibly increasing (Poulakis unpublished data, Carlson unpublished data).

Using a demographic approach and life history data for smalltooth sawfish and similar species from the literature, (Simpfendorfer 2000) estimated intrinsic rates of natural population increase for the species at 0.08-0.13 per year and population doubling times from 5.4-8.5 years. These low intrinsic rates<sup>6</sup> of population increase, suggest that the species is particularly vulnerable to excessive mortality and rapid population declines, after which recovery may take decades. Carlson and Simpfendorfer (2015) constructed an age-structured Leslie matrix model for the U.S. population of smalltooth sawfish, using updated life history information, to determine the species' ability to recover under scenarios of variable life history inputs and the effects of bycatch mortality and catastrophes. As expected, population growth was highest ( $\lambda=1.237$  year<sup>-1</sup>) when age-at-maturity was 7 year and decreased to 1.150 year<sup>-1</sup> when age-at-maturity was 11 year. Despite a high level of variability throughout the model runs, in the absence of fishing mortality or catastrophic climate effects, the population grew at a relatively rapid rate approaching carrying capacity in 40 years when the initial population was set at 2,250 females or 50 years with an initial population of 600 females. Carlson and Simpfendorfer (2015) concluded that smalltooth sawfish in U.S. waters appear to have the ability to recover within the foreseeable future based on a model relying upon optimistic estimates of population size, lower age-at-maturity and the lower level of fisheries-related mortality. Another analysis was less optimistic based on lower estimates of breeding females in the Caloosahatchee River nursery (Chapman unpublished data). Assuming similar numbers of females among the 5 known nurseries, that study would suggest an initial breeding population of only 140-390 females, essentially half of the initial population considered by Carlson and Simpfendorfer (2015). A smaller initial breeding population would extend the time to reach carrying capacity.

### *Threats*

Past literature indicates smalltooth sawfish were once abundant along both coasts of Florida and quite common along the shores of Texas and the northern Gulf coast (NMFS 2010) and citations therein). Based on recent comparisons with these historical reports, the U.S. DPS of smalltooth sawfish has declined over the past century (Simpfendorfer 2001; Simpfendorfer 2002). The decline in smalltooth sawfish abundance has been attributed to several factors including bycatch mortality in fisheries, habitat loss, and life history limitations of the species (NMFS 2010).

### Bycatch Mortality

Bycatch mortality is cited as the primary cause for the decline in smalltooth sawfish in the U.S. (NMFS 2010). While there has never been a large-scale directed fishery, smalltooth sawfish easily become entangled in fishing gears (gill nets, otter trawls, trammel nets, and seines) directed at other commercial species, often resulting in serious injury or death (NMFS 2009). This has historically been reported in Florida (Snelson and Williams 1981), Louisiana (Simpfendorfer 2002), and Texas (Baughman 1943). For instance, one fisherman interviewed by Evermann and Bean (1897) reported taking an estimated 300 smalltooth sawfish in just one

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<sup>6</sup> The rate at which a population increases in size if there are no density-dependent forces regulating the population



netting season in the Indian River Lagoon, Florida. In another example, smalltooth sawfish landings data gathered by Louisiana shrimp trawlers from 1945-1978, which contained both landings data and crude information on effort (number of vessels, vessel tonnage, number of gear units), indicated declines in smalltooth sawfish landings from a high of 34,900 pounds (lbs) in 1949 to less than 1,500 lbs in most years after 1967. The Florida net ban passed in 1995 has led to a reduction in the number of smalltooth sawfish incidentally captured, "...by prohibiting the use of gill and other entangling nets in all Florida waters, and prohibiting the use of other nets larger than 500 square feet in mesh area in nearshore and inshore Florida waters"<sup>7</sup> (FLA. CONST. art. X, § 16). However, the threat of bycatch currently remains in commercial fisheries (e.g., South Atlantic shrimp fishery, Gulf of Mexico shrimp fishery, federal shark fisheries of the South Atlantic, and the Gulf of Mexico reef fish fishery), though anecdotal information collected by NMFS port agents suggest smalltooth sawfish captures are now rare.

In addition to incidental bycatch in commercial fisheries, smalltooth sawfish have historically been and continue to be captured by recreational anglers. Encounter data (ISED 2014) and past research (Caldwell 1990) document that rostra are sometimes removed from smalltooth sawfish caught by recreational anglers, thereby reducing their chances of survival. While the current threat of mortality associated with recreational fisheries is expected to be low given that possession of the species in Florida has been prohibited since 1992, bycatch in recreational fisheries remains a potential threat to the species.

### Habitat Loss

Modification and loss of smalltooth sawfish habitat, especially nursery habitat, is another contributing factor in the decline of the species. Activities such as agricultural and urban development, commercial activities, dredge-and-fill operations, boating, erosion, and diversions of freshwater runoff contribute to these losses (SAFMC 1998). Large areas of coastal habitat were modified or lost between the mid-1970s and mid-1980s within the U.S. (Dahl and Johnson 1991). Since then, rates of loss have decreased, but habitat loss continues. From 1998-2004, approximately 64,560 acres of coastal wetlands were lost along the Atlantic and Gulf coasts of the U.S., of which approximately 2,450 acres were intertidal wetlands consisting of mangroves or other estuarine shrubs (Steadman and Dahl 2008). Further, Orlando et al. (1994) analyzed 18 major southeastern estuaries and recorded over 703 mi of navigation channels and 9,844 mi of shoreline with modifications. In Florida, coastal development often involves the removal of mangroves and the armoring of shorelines through seawall construction. Changes to the natural freshwater flows into estuarine and marine waters through construction of canals and other water control devices have had other impacts: altered the temperature, salinity, and nutrient regimes; reduced both wetlands and submerged aquatic vegetation; and degraded vast areas of coastal habitat utilized by smalltooth sawfish (Gilmore 1995; Reddering 1988; Whitfield and Bruton 1989). While these modifications of habitat are not the primary reason for the decline of smalltooth sawfish abundance, it is likely a contributing factor and almost certainly hampers the recovery of the species. Juvenile sawfish and their nursery habitats are particularly likely to be affected by these kinds of habitat losses or alternations, due to their affinity for shallow, estuarine systems. Prohaska et al. (2018) showed that juvenile smalltooth sawfish within the

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<sup>7</sup> "nearshore and inshore Florida waters" means all Florida waters inside a line 3 mi seaward of the coastline along the Gulf of Mexico and inside a line 1 mi seaward of the coastline along the Atlantic Ocean.

anthropogenically altered Charlotte Harbor estuary have higher metabolic stress compared to those collected from more pristine nurseries in the Everglades. Although many forms of habitat modification are currently regulated, some permitted direct and/or indirect damage to habitat from increased urbanization still occurs and is expected to continue to threaten survival and recovery of the species in the future.

### Life History Limitations

The smalltooth sawfish is also limited by its life history characteristics as a relatively slow-growing, late-maturing, and long-lived species. Animals using this life history strategy are usually successful in maintaining small, persistent population sizes in constant environments, but are particularly vulnerable to increases in mortality or rapid environmental change (NMFS 2000). The combined characteristics of this life history strategy result in a very low intrinsic rate of population increase (Musick 1999) that make it slow to recover from any significant population decline (Simpfendorfer 2000).

### Stochastic Events

Although stochastic events such as aperiodic extreme weather and harmful algal blooms are expected to affect smalltooth, we are currently unsure of their impact. A strong and prolonged cold weather event in January 2010 resulted in the mortality of at least 15 juvenile and 1 adult sawfish (Poulakis et al. 2011; Scharer et al. 2012), and led to far fewer catches in directed research throughout the remainder of the year (Bethea et al. 2011). Another less severe cold front in 2011 did not result in any known mortality but did alter the typical habitat use patterns of juvenile sawfish within the Caloosahatchee River. Since surveys began, 2 hurricanes have made direct landfall within the core range of US sawfish. While these storms denuded mangroves along the shoreline and created hypoxic water conditions, we are unaware of any direct effects to sawfish. Just prior to the passage of the most recent hurricane (Hurricane Irma), acoustically tagged sawfish moved away from their normal shallow nurseries and then returned within a few days (Poulakis unpublished data; Carlson unpublished data). Harmful algal blooms have occurred within the core range of smalltooth sawfish and affected a variety of fauna including sea turtles, fish, and marine mammals, but to date no sawfish mortalities have been reported.

### Current Threats

The 3 major factors that led to the current status of the U.S. DPS of smalltooth sawfish – bycatch mortality, habitat loss, and life history limitations – continue to be the greatest threats today. All the same, other threats such as the illegal commercial trade of smalltooth sawfish or their body parts, predation, and marine pollution and debris may also affect the population and recovery of smalltooth sawfish on smaller scales (NMFS 2010). We anticipate that all of these threats will continue to affect the rate of recovery for the U.S. DPS of smalltooth sawfish.

In addition to the anthropogenic effects mentioned previously, changes to the global climate are likely to be a threat to smalltooth sawfish and the habitats they use. The Intergovernmental Panel on Climate Change (IPCC) has stated that global climate change is unequivocal and its impacts to coastal resources may be significant (IPCC 2007; IPCC 2013). Some of the likely effects

commonly mentioned are sea level rise, increased frequency of severe weather events, changes in the amount and timing of precipitation, and changes in air and water temperatures (EPA 2012; NOAA 2012). The impacts to smalltooth sawfish cannot, for the most part, currently be predicted with any degree of certainty, but we can project some effects to the coastal habitats where they reside. Red mangroves and shallow, euryhaline waters will be directly impacted by climate change through sea level rise, which is expected to increase 0.45 to 0.75 m by 2100 (IPCC 2013). Sea level rise will impact mangrove resources, as sediment surface elevations for mangroves will not keep pace with conservative projected rates of elevation in sea level (Gilman et al. 2008). Sea level increases will also affect the amount of shallow water available for juvenile smalltooth sawfish nursery habitat, especially in areas where there is shoreline armoring (e.g., seawalls). Further, the changes in precipitation coupled with sea level rise may also alter salinities of coastal habitats, reducing the amount of available smalltooth sawfish nursery habitat.

#### **4. ENVIRONMENTAL BASELINE**

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By regulation (50 CFR 402.02), environmental baselines for Opinions refer to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to the listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Focusing on the impacts of the activities in the action area specifically allows us to assess the prior experience and state (or condition) of the endangered and threatened individuals. This consideration is important because in some states or life history stages, or areas of their ranges, listed individuals will commonly exhibit, or be more susceptible to, adverse responses to stressors than they would be in other states, stages, or areas within their distributions. These localized stress responses or stressed baseline conditions may increase the severity of the adverse effects expected from the proposed action.

##### **4.1 Status of Species within the Action Area**

Smalltooth sawfish are documented throughout the state of Florida; however, the majority of encounters occur in Lee, Charlotte, and Monroe counties, especially in shallow, coastal habitat fringed by red mangroves. Since the species was listed in 2003, NMFS PRD has documented 1,465 smalltooth sawfish encounters in Monroe County, Florida (A. Brame, NOAA NMFS Southeast Regional Office [SERO] PRD, to consulting biologist on June 25, 2020; ISED data through January 2017). Of those, 411 encounters were due to recreational hook-and-line fishing. Seven of those 411 encounters were reported from a recreational fishing structure (e.g., pier, dock, bridge, or jetty). No reported recreational hook-and-line captures of smalltooth sawfish have occurred at the Oceanfront Park Boardwalk; however, 3 of the 7 encounters in the ISED are from small, public fishing structures (piers/docks) similar in size, shoreline orientation, and

angler use as the Oceanfront Park Boardwalk. NMFS believes that no individual smalltooth sawfish is likely to be a permanent resident of the action area. Due to the presence of red mangroves along the shoreline and the proximity to shallow habitat, some individuals may be present at any given time and may be adversely affected by recreational fishing that will occur at the boardwalk upon completion of the repairs. These same individuals will migrate into coastal and offshore waters of the Gulf of Mexico and potentially areas of the North Atlantic Ocean, and thus may be affected by activities occurring there. Therefore, the status of smalltooth sawfish in the action area is considered to be the same as those discussed in Section 3.3.

## **4.2 Factors Affecting Species within the Action Area**

### **4.2.1 Federal Actions**

In August of 2007, NMFS issued a regulation (72 FR 43176, August 3, 2007) to require any fishing vessels subject to the jurisdiction of the U.S. to take observers upon NMFS's request. The purpose of this measure is to learn more about ESA-listed species interactions with fishing operations, to evaluate existing measures to reduce take, and to determine whether additional measures to address prohibited takes may be necessary. Fishing vessels subject to the jurisdiction of the U.S. could operate in the action area, and therefore, could be required to take a NMFS observer.

Other than the proposed action, no other federally permitted projects are known to have occurred within the action area, as per a review of the NMFS SERO PRD's completed ESA Section 7 consultation database by the consulting biologist on August 25, 2020.

### **4.2.2 State or Private Actions**

#### **Recreational Fishing**

Recreational fishing as regulated by the State of Florida can affect smalltooth sawfish or their habitats within the action area. Pressure from recreational fishing in and adjacent to the action area is likely to continue. Though anglers are not targeting smalltooth sawfish, but instead capturing them incidentally, recreational fishing is currently a major activity that directly interacts with smalltooth sawfish throughout most of its range, including Tampa Bay. Smalltooth sawfish occur as bycatch in the recreational hook-and-line fishery, mostly by shark, red drum (*Sciaenops ocellatus*), snook (*Centropomus undecimalis*), and tarpon (*Megalops atlanticus*) fishers (Wiley and Simpfendorfer 2010), which may operate within the action area.

Located in Monroe County, Florida, the Oceanfront Park Boardwalk was constructed in 2014 and has been closed to recreational fishing since sustaining damages in September 2017. The existing boardwalk is approximately 150-foot (ft)-long, has an area of 3,014 ft<sup>2</sup>, runs parallel to the shoreline, and faces the south. The City estimates 2 to 3 people fish from the boardwalk each day, which, when open, is available to the public 365 days a year from dawn to dusk. As stated above, there have been no reported captures of smalltooth sawfish at the boardwalk (ISED data 2003-2017). We have no way of knowing how many unreported captures of smalltooth sawfish may have occurred at the boardwalk in the past.

#### 4.2.3 Marine Debris and Acoustic Impacts

A number of activities that may affect smalltooth sawfish in the action area include anthropogenic marine debris and acoustic effects. The effects from these activities are difficult to measure. Where possible, conservation actions are being implemented to monitor or study the effects to these species from these sources.

#### 4.2.4 Marine Pollution and Environmental Contamination

Sources of pollutants along the coastal areas include atmospheric loading of PCBs, stormwater runoff from coastal towns and cities into rivers and canals emptying into bays and the ocean, and groundwater and other discharges (Vargo et al. 1986). In addition, marina and dock construction, dredging, aquaculture, oil and gas exploration and extraction, and boat traffic can degrade marine habitats used by smalltooth sawfish. Although pathological effects of oil spills have been documented in laboratory studies of marine mammals and sea turtles (Vargo et al. 1986), the impacts of those and many other anthropogenic toxins have not been investigated in smalltooth sawfish. The development of marinas and docks in inshore waters can negatively affect nearshore habitats. An increase in the number of docks built increases boat and vessel traffic. Fueling facilities at marinas can sometimes discharge oil, gas, and sewage into sensitive estuarine and coastal habitats. Although these contaminant concentrations do not likely affect the more pelagic waters, the species analyzed in this Opinion travel between near shore and offshore habitats and may be exposed to and accumulate these contaminants during their life cycles within the action area.

#### 4.2.5 Stochastic Events

Stochastic (i.e., random) events, such as hurricanes or cold snaps, occur in Florida and can affect sea turtles and smalltooth sawfish in the action area. These events are unpredictable and their effect on the recovery of these ESA-listed species is unknown; yet, they have the potential to directly impede recovery if animals die as a result or indirectly if important habitats are damaged.

### **5. EFFECTS OF THE ACTION**

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Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02).

#### **5.1 Effects of Hook-and-Line Captures to Listed Species**

As discussed above in Section 3, we believe hook-and-line gear commonly used by recreational anglers fishing from the Oceanfront Park Boardwalk may adversely affect smalltooth sawfish.

The sections below provide more detail on the potential effects of entanglement, hooking, and trailing line to smalltooth sawfish.

### 5.1.1 Entanglement

Due to their toothed rostra, smalltooth sawfish can become entangled in fishing gears such as gill nets, otter trawls, trammel nets, cast nets and seines that are directed at other species (NMFS 2009). Entanglement in recreational fishing line can cause effects to smalltooth sawfish including injury to fins and rostra (FWC unpublished data).

### 5.1.2 Hooking

At present, the ISED contains several recreational hook-and-line captures of smalltooth sawfish from fishing structures (A. Brame, NOAA NMFS SERO PRD, to consulting biologist on May 15, 2020). Based on this data, smalltooth sawfish do not appear to be actively attracted to recreational fishing structures or to habituate near recreational fishing structures as a forage source. We believe smalltooth sawfish captures are largely a function of co-occurrence in space and time rather than triggered by the presence of a recreational fishing structure. While hooking interactions within the recreational fishery are numerous, the level of mortality is likely low when smalltooth sawfish are handled and released properly. Further, the threat of mortality associated with recreational fisheries in Florida is expected to be low given that possession of the species in Florida has been prohibited since 1992. Longer fights on recreational hook-and-line gear as opposed to commercial bottom longlines may elevate lactate and  $\text{HCO}_3$  levels (Prohaska et al. (2018); however, smalltooth sawfish appear resilient and, when considered in conjunction with information from ongoing tagging and telemetry studies, post-release survival is expected to be high (Brame et al. 2019).

### 5.1.3 Trailing Line

Trailing line (i.e., line left on animal after it has been captured and released) poses a risk to smalltooth sawfish. The effects to smalltooth sawfish from trailing line are the same as those discussed above under Entanglements.

## 5.2 Estimating Captures by Species

### 5.2.1 Estimating Reported Captures of Smalltooth Sawfish

As previously stated, NMFS PRD has documented 3 smalltooth sawfish recreational hook-and-line encounters in Monroe County from fishing structures similar to the Oceanfront Park Boardwalk since the species was listed in 2003 (ISED data through January 2017). This equals 0.20 encounters per year (3 encounters  $\div$  15 years; Table 3, Line 1).

### 5.2.2 Estimating Unreported Captures of Smalltooth Sawfish

While we believe the best available information for estimating expected reported captures at the Oceanfront Park Boardwalk is the reported captures at similar public fishing structures in the

surrounding area, we also recognize the need to account for unreported captures. To the best of our knowledge, only 2 fishing pier surveys aimed at collecting data regarding unreported recreational hook-and-line captures of ESA-listed species have been conducted in the Southeast. One is from Charlotte Harbor, Florida, and the other is from Mississippi.

The fishing pier survey in Charlotte Harbor, Florida, was conducted at 26 fishing piers in smalltooth sawfish critical habitat (Hill 2013). During the survey, 93 anglers were asked a series of open-ended questions regarding captures of sea turtles, smalltooth sawfish, and dolphins, including whether or not they knew these encounters were required to be reported and if they did report encounters. The interviewer also noted conditions about the pier including if educational signs regarding reporting of hook-and-line captures were present at the pier. Hill (2013) found that only 8% of anglers would have reported a sea turtle hook-and-line capture (i.e., 92% of anglers would not have reported a sea turtle capture).

NMFS conducted the fishing pier survey in Mississippi that interviewed 382 anglers. This survey indicated that approximately 60% of anglers who incidentally captured a sea turtle on hook-and-line reported it (i.e., 40% of anglers would not have reported a sea turtle capture) (Cook et al. 2014). It is important to note that in 2012 educational signs were installed at all fishing piers in Mississippi, alerting anglers to report accidental hook-and-line captures of sea turtles. After the signs were installed, there was a dramatic increase in the number of reported sea turtle hook-and-line captures. Though this increase in reported captures may not solely be related to outreach efforts, it does highlight the importance of educational signs on fishing piers. The STSSN in Mississippi indicated that inconsistency in reporting of captures may also be due to anglers' concerns over their personal liability, public perception at the time of the capture, or other consequences from turtle captures (M. Cook, STSSN, pers. comm. to N. Bonine, NMFS SERO PRD, April 17, 2015). Since there may be a perception that it is always illegal to harm an endangered species, anglers are often afraid to admit the incidental capture.

We will address unreported captures of smalltooth sawfish by assuming: 1) the likelihood of capturing a smalltooth sawfish is the same across all similar structures in the area, and 2) the annual reported captures per year at these fishing structures represents only 8% of the actual captures and 92% will go unreported (Hill 2013). To calculate the expected annual number of unreported recreational hook-and-line captures of smalltooth sawfish from fishing structures in the area, we use the equation:

$$\begin{aligned} & \textit{Expected Annual Unreported Captures} \\ &= (\textit{Expected Annual Reported Captures} \div 8\%) \times 92\% \\ &= (0.20 \div 0.08) \times 0.92 \\ &= 2.30 \textit{ per year (Table 3, Line 2)} \end{aligned}$$

### 5.2.3 Calculating Total Captures of Smalltooth Sawfish

The number of captures in any given year can be influenced by sea temperatures, species abundances, fluctuating salinity levels in estuarine habitats where fishing structures may be located, and other factors that cannot be predicted. For these reasons, we believe basing our future capture estimate on a 1-year estimated capture is largely impractical. Using our experience

monitoring other fisheries, a 3-year time period is appropriate for meaningful evaluation of future impacts and monitoring. The triennial takes are set as 3-year running sums (i.e., 2020-2022, 2021-2023, 2022-2024, and so on) and not for static 3-year periods (i.e., 2020-2022, 2023-2025, 2025-2027, and so on). This approach reduces the likelihood of reinitiation of the ESA consultation process because of inherent variability in captures, while still allowing for an accurate assessment of how the proposed action is performing versus our expectations. Table 3 shows the projected total smalltooth sawfish captures at the Oceanfront Park Boardwalk for any 3-year consecutive period based on the expected annual reported and unreported captures.

**Table 3. Summary of Expected Captures of Smalltooth Sawfish**

<b>Captures</b>	<b>Total</b>
1. Expected Annual Reported	0.20
2. Expected Annual Unreported	2.30
<b>Annual Total</b>	<b>2.50</b>
<b>Triennial (3-year) Total</b>	<b>7.50</b>

We round 7.50 up to 8 to account for the capture of whole animals and to be the most conservative to the species in our Jeopardy analysis. Therefore, we estimate that up to 8 smalltooth sawfish could be caught at the Oceanfront Park Boardwalk during any consecutive 3-year period. We believe that all recreational hook-and-line encounters with smalltooth sawfish from a recreational fishing structure will be non-lethal due to this species’ low stress response when captured on longlines (Prohaska et al. (2018).

## **6. CUMULATIVE EFFECTS**

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ESA Section 7 regulations require NMFS to consider cumulative effects in formulating its Opinions (50 CFR 402.14). Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this Opinion (50 CFR 402.02). At this time, we are not aware of any other non-federal actions being planned or under development in the action area. Within the action area, major future changes are not anticipated in the ongoing human activities described in the environmental baseline. The present, major human uses of the action area are expected to continue at the present levels of intensity in the near future.

## **7. JEOPARDY ANALYSIS**

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The analyses conducted in the previous sections of this Opinion serve to provide a basis to determine whether the proposed action is likely to jeopardize the continued existence of smalltooth sawfish (U.S. DPS). In the Effects of the Action, we outlined how the proposed action would affect this species at the individual level and the extent of those effects in terms of the number of associated interactions, captures, and mortalities of each species to the extent possible based on the best available data. Now we assess the species’ response to this impact, in terms of overall population effects, and whether those effects of the proposed action, when considered in the context of the Status of the Species, the Environmental Baseline, and the Cumulative Effects, are likely to jeopardize the continued existence of ESA-listed species in the wild. To “jeopardize the continued existence of” means to “engage in an action that reasonably would be expected,



directly or indirectly, to reduce appreciably the likelihood of both the survival and the recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species” (50 CFR 402.02). Thus, in making this determination for the species, we must look at whether the proposed action directly or indirectly reduce the reproduction, numbers, or distribution of a listed species. Then, if there is a reduction in 1 or more of these elements, we evaluate whether it would be expected to cause an appreciable reduction in the likelihood of both the survival and the recovery of the species.

The NMFS and USFWS’s ESA Section 7 Handbook (USFWS and NMFS 1998) defines survival and recovery, as they apply to the ESA’s jeopardy standard. Survival means “the species’ persistence . . . beyond the conditions leading to its endangerment, with sufficient resilience to allow recovery from endangerment.” Survival is the condition in which a species continues to exist into the future while retaining the potential for recovery. This condition is characterized by a sufficiently large population, represented by all necessary age classes, genetic heterogeneity, and number of sexually mature individuals producing viable offspring, which exists in an environment providing all requirements for completion of the species’ entire life cycle, including reproduction, sustenance, and shelter. Recovery means “improvement in the status of a listed species to the point at which listing is no longer appropriate under the criteria set out in Section 4(a)(1) of the Act.” Recovery is the process by which species’ ecosystems are restored and/or threats to the species are removed so self-sustaining and self-regulating populations of listed species can be supported as persistent members of native biotic communities.

The status of the species likely to be adversely affected by the proposed action is reviewed in the Status of the Species. For any species listed globally, a jeopardy determination must find that the proposed action will appreciably reduce the likelihood of survival and recovery at the global species range (i.e., in the wild). For any species listed as DPSs, a jeopardy determination must find that the proposed action will appreciably reduce the likelihood of survival and recovery of that DPS.

### **7.1 U.S. DPS of Smalltooth Sawfish**

Recreational fishing from the repaired Oceanfront Park Boardwalk is expected to result in the capture of up to 8 smalltooth sawfish over any consecutive 3-year period. We expect all captures to be non-lethal.

#### **Survival**

The potential non-lethal capture of smalltooth sawfish over any consecutive 3-year period is not expected to have any measurable impact on the reproduction, numbers, or distribution of this species. The individuals captured are expected to fully recover such that no reductions in reproduction or numbers of this species are anticipated. Since these captures may occur in the small, discrete action area and would be released within the general area where caught, no change in the distribution of smalltooth sawfish is anticipated. Thus, after analyzing the magnitude of the effects, in combination with the past, present, and future expected impacts to

the smalltooth sawfish DPS discussed in this Opinion, we believe that recreational fishing from the Oceanfront Park Boardwalk is not reasonably expected to cause an appreciable reduction in the likelihood of survival of the smalltooth sawfish U.S DPS in the wild.

## Recovery

The following analysis considers the effects of non-lethal capture on the likelihood of recovery in the wild. The recovery plan for the smalltooth sawfish (NMFS 2009) lists 3 main objectives as recovery criteria for the species. The 2 objectives and the associated sub-objectives relevant to the proposed action are:

### Objective - Minimize Human Interactions and Associated Injury and Mortality

#### Sub-objectives:

- Minimize human interactions and resulting injury and mortality of smalltooth sawfish through public education and outreach targeted at groups that are most likely to interact with sawfish (e.g., fishermen, divers, boaters).
- Develop and seek adoption of guidelines for safe handling and release of smalltooth sawfish to reduce injury and mortality associated with fishing.
- Minimize injury and mortality in all commercial and recreational fisheries.

### Objective - Ensure Smalltooth Sawfish Abundance Increases Substantially and the Species Reoccupies Areas from which it had Previously Been Extirpated

#### Sub-objectives:

- Sufficient numbers of juvenile smalltooth sawfish inhabit several nursery areas across a diverse geographic area to ensure survivorship and growth and to protect against the negative effects of stochastic events within parts of their range.
- Adult smalltooth sawfish (> 340 cm) are distributed throughout the historic core of the species' range (both the Gulf of Mexico and Atlantic coasts of Florida). Numbers of adult smalltooth sawfish in both the Atlantic Ocean and Gulf of Mexico are sufficiently large that there is no significant risk of extirpation (i.e., local extinction) on either coast.
- Historic occurrence and/or seasonal migration of adult smalltooth sawfish are reestablished or maintained both along the Florida peninsula into the South-Atlantic Bight, and west of Florida into the northern and/or western Gulf of Mexico.

NMFS is currently funding several actions identified in the Recovery Plan for smalltooth sawfish: adult satellite tagging studies, the ISED, and monitoring take in commercial fisheries to name a few. Additionally, NMFS has developed safe-handling guidelines for the species. Despite the ongoing threats from recreational fishing, we have seen a stable or slightly increasing trend in the population of this species. Thus, the proposed action is not likely to impede the recovery objectives above and will not result in an appreciable reduction in the likelihood of the U.S. DPS of smalltooth sawfish's recovery in the wild. NMFS must continue to monitor the status of the population to ensure the species continues to recover.

The potential non-lethal capture of smalltooth sawfish will not affect the population of reproductive adult females. Thus, the recreational fishing effects from the Oceanfront Park Boardwalk will not result in an appreciable reduction in the likelihood of smalltooth sawfish U.S. DPS recovery in the wild.

## Conclusion

The potential non-lethal capture of smalltooth sawfish over any consecutive 3-year period associated with Oceanfront Park Boardwalk is not expected to cause an appreciable reduction in the likelihood of either the survival or recovery of the U.S. DPS of smalltooth sawfish in the wild.

## **8. CONCLUSION**

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After reviewing the Status of the Species, the Environmental Baseline, the Effects of the Action, and the Cumulative Effects using the best available data, it is NMFS's Opinion that the proposed action are not likely to jeopardize the continued existence of the U.S. DPS of smalltooth sawfish.

## **9. INCIDENTAL TAKE STATEMENT**

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Section 9 of the ESA and protective regulations issued pursuant to Section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption.

*Take* is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. *Incidental take* is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that would otherwise be considered prohibited under Section 9 or Section 4(d), but which is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA, provided that such taking is in compliance with the Reasonable and Prudent Measures (RPMs) and the Terms and Conditions (T&Cs) of the Incidental Take Statement (ITS) of the Opinion.

### **9.1 Anticipated Amount or Extent of Incidental Take**

As described in Section 5 above, some smalltooth sawfish captures are expected to go unreported. The take limits prescribed in this Opinion that will trigger the requirement to reinitiate consultation must be based on the amount of take that we expect to be *reported* as it will be impossible to count the incidents that go unreported. We believe the best available information for estimating the future level of reporting of captured smalltooth sawfish at the Oceanfront Park Boardwalk is the data collected from the Hill (2013) fishing pier study. In Section 5.2.1, we developed an estimate of the total number of smalltooth sawfish captures expected to be reported annually (0.20; Table 3, Line 1). We take that number and multiply by 3 to get the 3-year total estimate of reported smalltooth sawfish captures ( $0.20 \times 3 = 0.60$ ). We round 0.60 to 1 to reach a whole number that can be used as the take limit. Therefore, the take

estimate shown in Table 4 is our best estimate of the amount of reported smalltooth sawfish take expected over any consecutive 3-year period due to recreational fishing from the Oceanfront Park Boardwalk.

**Table 4. Incidental Take Limits by Species for Any Consecutive 3-Year Period**

Species	Total Estimated Reported Captures	Incidental Take Limits
Smalltooth sawfish (U.S. DPS)	$0.20 \times 3 = 0.60$ , rounded up to 1	No more than 1 reported capture

### 9.2 Effect of Take

NMFS has determined that the anticipated incidental take is not likely to jeopardize the continued existence of the smalltooth sawfish (U.S. DPS).

### 9.3 Reasonable and Prudent Measures

Section 7(b)(4) of the ESA requires NMFS to issue a statement specifying the impact of any incidental take on a listed species, which results from an agency action otherwise found to comply with Section 7(a)(2) of the ESA. It also states that the RPMs necessary to minimize the impacts of take and the T&Cs to implement those measures must be provided and must be followed to minimize those impacts. Only incidental taking by the federal action agency or applicant that complies with the specified T&Cs is authorized.

The RPMs and T&Cs are specified as required by 50 CFR 402.14(i)(1)(ii) and (iv) to document the incidental take by the proposed action and to minimize the impact of that take ESA-listed species. These measures and terms and conditions are nondiscretionary, and must be implemented by the federal action agency in order for the protection of Section 7(o)(2) to apply. If the applicant fails to adhere to the T&Cs of this ITS through enforceable terms, and/or fails to retain oversight to ensure compliance with these T&Cs, the protective coverage of Section 7(o)(2) may lapse. To monitor the impact of the incidental take, the applicant must report the progress of the action and its impact on the species to NMFS as specified in this ITS [50 CFR 402.14(i)(3)].

NMFS has determined that the following RPMs and associated T&Cs are necessary and appropriate to minimize impacts of the incidental take of ESA-listed species related to the proposed action:

1. The federal action agency must ensure that the applicant provides take reports regarding all interactions with ESA-listed species at the fishing structure
2. The federal action agency must ensure that the applicant minimizes the likelihood of injury or mortality to ESA-listed species resulting from hook-and-line capture or entanglement by activities at the fishing structure.
3. The federal action agency must ensure that the applicant reduces the impacts to incidentally captured ESA-listed species at the fishing structure.
4. The federal action agency must ensure that the applicant coordinates periodic fishing line removal (i.e., cleanup) events with non-governmental or other local organizations.

## 9.4 Terms and Conditions

The following T&Cs implement the above RPMs:

1. To implement RPM 1, the federal action agency must ensure that the applicant reports all known angler-reported hook-and-line captures of ESA-listed species and any other takes of ESA-listed species to the NMFS SERO PRD.
  - a. When the applicant become aware of any reported capture, entanglement, stranding, or other take, the applicant must notify NMFS SERO PRD by email: [takereport.nmfs@noaa.gov](mailto:takereport.nmfs@noaa.gov).
    - i. Emails must reference this Opinion by the NMFS tracking number (SERO-2020-01916 Oceanfront Park Boardwalk Repairs) and date of issuance.
    - ii. The email must state the species, date and time of the incident, general location and activity resulting in capture (e.g., fishing from the boardwalk by hook-and-line), condition of the species (i.e., alive, dead, sent to rehabilitation), size of the individual, behavior, identifying features (i.e., presence of tags, scars, or distinguishing marks), and any photos that may have been taken.
  - b. Every year, the applicant must submit a summary report of capture, entanglement, stranding, or other take of ESA-listed species to NMFS SERO PRD by email: [takereport.nmfs@noaa.gov](mailto:takereport.nmfs@noaa.gov).
    - i. Emails and reports must reference this Opinion by the NMFS tracking number (SERO-2020-01916 Oceanfront Park Boardwalk Repairs) and date of issuance.
    - ii. The report will contain the following information: the total number of ESA-listed species captures, entanglements, strandings, or other take that was reported at or adjacent to the structure included in this Opinion.
    - iii. The report will contain all information if any sea turtles is unexpectedly captured and taken to a rehabilitation facility holding an appropriate USFWS Native Endangered and Threatened Species Recovery permit. This information can be obtained from the appropriate State Coordinator for the STSSN (<https://www.fisheries.noaa.gov/state-coordinators-sea-turtle-stranding-and-salvage-network>)
    - iv. The first report will be submitted by January 31, 2021, and will cover the time period from re-opening the Oceanfront Park Boardwalk until December 31, 2020. The second report will be submitted by January 31, 2022, and will cover calendar year 2021 and the information in the first report. The third report will be submitted by January 31, 2023, and will cover the prior two calendar years (calendar years 2022 and 2021) and the information from the first report. The next report will be submitted by January 31, 2024 and will cover the prior three calendar years (calendar years 2023, 2022, and 2021). Thereafter, reports will be prepared every year, covering the prior rolling three-year time period, and emailed no later than January 31 of any year.

- v. Reports will include current photographs of signs and bins required in T&C 2, below, and records of the clean-ups required in T&C 3 below.
2. To implement RPMs 2 and 3, the federal action agency must make it a condition of its funding that the applicant must:
- a. Install and maintain the following NMFS Protected Species Educational Sign: ‘Save Dolphins, Sea Turtles, Sawfish, and Manta Ray.’
    - i. Signs will be posted at least at the entrance to the structure.
    - ii. Signs will be installed prior to opening for public use.
    - iii. Photographs of the installed signs will be emailed to NMFS’s Southeast Regional Office ([takereport.nmfsser@noaa.gov](mailto:takereport.nmfsser@noaa.gov)) with the NMFS tracking number (SERO-2020-01916 Oceanfront Park Boardwalk Repairs) and date of issuance.
    - iv. Sign designs and installation methods are provided at the following website: <https://www.fisheries.noaa.gov/southeast/consultations/protected-species-educational-signs>.
    - v. Current photographs of the signs will be included in each report required by T&C 1, above.
  - b. Install and maintain fishing line recycling bins and trash receptacles at the structure to reduce the probability of trash and debris entering the water.
    - i. Fishing line recycling bins and trash receptacles will be installed prior to opening for public use.
    - ii. Photographs of the installed bins will be emailed to NMFS’s Southeast Regional Office by email ([takereport.nmfsser@noaa.gov](mailto:takereport.nmfsser@noaa.gov)) with the NMFS tracking number for this Opinion (SERO-2020-01916 Oceanfront Park Boardwalk Repairs) and date of issuance.
    - iii. The applicant must regularly empty the bins and trash receptacles and make sure they are functional and upright.
    - iv. Additionally, current photographs of the bins will be included in each report required by T&C 1, above.
3. To implement RPMs 2, 3, and 4, the federal action agency must make it a condition of its funding that the applicant must:
- a. Perform at least 1 annual underwater cleanup to remove derelict fishing line and associated gear from around the structure.
  - b. Submit a record of each cleaning event in the report required by T&C 1 above.

## **10. CONSERVATION RECOMMENDATIONS**

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

NMFS believes the following CRs further the conservation of the listed species that will be affected by the proposed action. NMFS strongly recommends that these measures be considered and implemented by the federal action agency:

Smalltooth sawfish:

- Conduct or fund outreach designed to increase the public's knowledge and awareness of smalltooth sawfish.

In order for NMFS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, NMFS requests notification of the implementation of any of these or additional conservation recommendations.

## **11. REINITIATION OF CONSULTATION**

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As provided in 50 CFR Section 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 take specified in the ITS 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 Opinion, or (4) a new species is listed or critical habitat designated that may be affected by the identified action.

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