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
https://www.fisheries.noaa.gov/region/southeast

Tab C, No. 7(b)

05/01/2023

F/SER31:PO

MEMORANDUM FOR: John C. McGovern, Ph.D.
Assistant Regional Administrator
Sustainable Fisheries Division (SFD)

FROM: Andrew J. Strelcheck
Regional Administrator

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Date: 2023.05.01 13:51:23 -04'00'

SUBJECT: Amendment to the 2015 Biological Opinion on the operation of the Coastal Migratory Pelagic (CMP) Fishery as Managed by the Fishery Management Plan (FMP) for CMP Resources in the Gulf of Mexico and Atlantic Region under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (SERO-2021-03456)

This responds to your request that the National Marine Fisheries Service (NMFS) reinitiate Endangered Species Act (ESA) consultation on the operation of the CMP fishery as managed by the FMP to address the listing of new species under the Endangered Species Act (ESA), namely oceanic whitetip shark, giant manta ray, and Gulf of Mexico Rice's whale.

Background

On June 18, 2015, NMFS completed a Biological Opinion (2015 Opinion) regarding the continued operation of the CMP fishery, as managed by the FMP pursuant to the MSA (proposed action). On November 18, 2017, NMFS amended the 2015 Opinion to evaluate the effects of the proposed action on green sea turtle North Atlantic and South Atlantic Distinct Population Segments (DPSs), and Nassau grouper. The 2015 Opinion, as amended in 2017 (hereinafter referred to as the "Amended 2015 Opinion"), concluded that the proposed action is not likely to jeopardize any ESA-listed sea turtle, Atlantic sturgeon, or the U.S. DPS of smalltooth sawfish. The Amended 2015 Opinion also concluded that the proposed action is not likely to adversely affect any other ESA-listed species or critical habitat.

On January 22, 2018, NMFS listed the giant manta ray as threatened under the ESA. On January 30, 2018, NMFS listed the oceanic whitetip shark as threatened under the ESA. On April 15, 2019, NMFS listed the Gulf of Mexico Bryde's whale as endangered under the ESA. In 2021, the Gulf of Mexico Bryde's whale was identified as morphologically and genetically distinct from other whales under the Bryde's whale complex, warranting classification as a new species of baleen whale living in the Gulf of Mexico named *Balaenoptera ricei* or the Rice's whale (this species retained the endangered status under the ESA).

Based on review of the information provided by SFD, NMFS is amending the 2015 Opinion, as amended in 2017, to evaluate the effects of the proposed action's activities on the oceanic whitetip shark, giant manta ray, and Rice's whale. Information suggests that oceanic whitetip shark and giant manta ray may be adversely affected by the operation of the fisheries managed by the FMP. The Rice's whale is not likely to be adversely affected. The attached document includes the amended sections of the Amended 2015 Opinion. All remaining portions of the Amended 2015 Opinion remain in effect.

File: 1514-22.d.19, GOM/SA – Coastal Migratory Pelagic

1. Amend Section 1, *Consultation History*, to insert a paragraph before the last paragraph of this section to read as follows:

On January 22, 2018 (83 FR 2916), the National Marine Fisheries Service (NMFS) listed the giant manta ray as threatened under the Endangered Species Act (ESA), effective February 21, 2018. On January 30, 2018 (83 FR 4153), NMFS listed the oceanic whitetip shark as threatened under the ESA, effective March 1, 2018. On April 15, 2019 (84 FR 15446), NMFS listed the Gulf of Mexico (GOM) Bryde's whale as endangered under the ESA, effective May 15, 2019. In 2021, the GOM Bryde's whale was identified as morphologically and genetically distinct from other whales under the Bryde's whale complex, warranting classification as a new species of baleen whale living in the Gulf of Mexico named the Rice's whale (and this species retained the endangered status under the ESA) (86 FR 47022, August 23, 2021). NMFS subsequently requested reinitiation of consultation under Section 7 to address the final rules to list these species. The request for oceanic whitetip shark and giant manta ray was submitted by memo on June 11, 2018. The request for Byrde's (now Rice's) whale was submitted by memo on July 8, 2019. In these memos NMFS determined that continuing the operation of the CMP fishery managed by the CMP FMP in federal waters during the reinitiation period will not violate Section 7(a)(2) or 7(d) of the ESA.

2. Revise the Description of the Proposed Action in Section 2 with updated information by replacing Section 2 to read as follows:

2 Description of the Proposed Action and Action Area

F/SER2 proposes to continue the operation of the Coastal Migratory Pelagic (CMP) fishery as managed by the Fishery Management Plan (FMP) for the Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region (hereinafter referred to as "CMP FMP") and implementing regulations at 50 CFR Part 622 under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The MSA is the governing authority for all fishery management activities that occur in federal waters within the United States' 200-nautical-mile (nmi) limit, or exclusive economic zone (EEZ). Responsibility for federal fishery management decision making under the CMP FMP is divided between National Marine Fisheries Service (NMFS), and jointly, the Gulf of Mexico Fishery Management Council (GMFMC), South Atlantic Fishery Management Council (SAFMC), and Mid-Atlantic Fishery Management Council (MAFMC). This Opinion analyzes the effects of all fishing activities prosecuted under the CMP FMP, as amended to date.

A detailed description of the fishery operating under the CMP FMP was included in Amendment 18 (GMFMC and SAFMC 2011) to the CMP FMP and is incorporated herein by reference. Amendment 20B (GMFMC and SAFMC 2014) and Amendment 26 (GMFMC and SAFMC 2016) to the CMP FMP provide additional information on the fishery and the following sections provide a brief summary, with an emphasis on the characteristics relevant to the analysis of potential effects on endangered and threatened species. Although Amendment 31 (GMFMC and SAFMC 2018) to the CMP FMP removed Atlantic Migratory Group of cobia (Atlantic cobia) from the CMP FMP, Atlantic cobia is prosecuted by the same vessels using the same gear as the fishing activities managed under the CMP FMP. Thus, the description of the CMP fishery under the CMP FMP also adequately describes the fishery for the Atlantic cobia in federal waters.

2.1 Description of Managed CMP Species

The fishery managed under the CMP FMP includes king mackerel, Spanish mackerel, and the GOM Migratory Group of cobia. Bluefish, cero, little tunny, and dolphin were part of the FMP, but were removed from management via Amendment 18 (GMFMC and SAFMC 2011). The Atlantic Migratory Group of cobia was removed from management via Amendment 31 (GMFMC and SAFMC 2018); however, the harvest of the stock from federal waters is still monitored by NMFS under the Atlantic Coastal Fisheries Cooperative Management Act.

King Mackerel
King mackerel is a pelagic species found throughout the GOM and Caribbean Sea and in the western Atlantic from the Gulf of Maine to Brazil at depths of up to 200 m. Adults are typically found in the southern portion of the species' range in the winter and in the northern portion of the range in the summer. This seasonal migratory pattern is likely a response to both water temperature and food availability. Larger individuals are often solitary and occur around structures, such as wrecks and oil rigs (GMFMC and SAFMC 2016). Smaller individuals form immense schools, which tend to congregate in areas of bottom relief, such as holes or reefs. Sometimes small king mackerel run in schools of similarly sized Spanish mackerel (Brooks and Ortiz 2004).

Spanish Mackerel
Spanish mackerel is a pelagic species, which occurs to depths of 75 meters (m) throughout the GOM and in the western Atlantic from southern New England to the Florida Keys (Collette and Russo 1979). Adults usually are found from the low-tide line to the edge of the continental shelf, and along coastal areas. They inhabit estuarine areas, especially the higher salinity areas, during seasonal migrations, but are considered rare and infrequent in many GOM estuaries. This species, like king mackerel, exhibits seasonal migratory behavior; adults generally move from wintering areas off south Florida and Mexico to more northern latitudes in the spring and summer. Spanish mackerel form immense schools of similar sized individuals (GMFMC and SAFMC 2016).

Cobia
Cobia is distributed worldwide in tropical, subtropical, and warm-temperate waters to depths of 125 m. In the western Atlantic it occurs from Canada south to Argentina, including the Caribbean Sea. It is abundant in warm waters off the coast of the U.S. from the Chesapeake Bay south and throughout the GOM. Cobia prefer to reside near any structure that interrupts the open water such as pilings, buoys, platforms, anchored boats, and flotsam. The species can also found inshore inhabiting bays, inlets, and mangroves (GMFMC and SAFMC 2016, 2022).

2.2 Description of the Gear Used in CMP Fisheries

The main gear types used in CMP fisheries are hook-and-line (including trolling), cast net, and gillnet. Diver-held spearguns are also a main gear type specific to cobia.

2.2.1 Hook-and-Line Gear

Hook-and-line gear includes handline and rod-and-reel gear. Trolling is by far the most common fishing technique employing hook-and-line gear for king mackerel and is used by both commercial and recreational fishers. Trolling involves towing 1-8 lines at various depths with artificial spoons, feathered jigs, or hooks commonly baited with mullet or menhaden through the water behind a slow (e.g., 3-6 knots [kt]) moving vessel. Recreational fishers may also employ a technique called jigging, which involves casting a lure or bait into the water and retrieving it with a jerking motion, keeping the lure or bait near the surface of the water. Chum is used to bring fish to the surface; glass minnows or small sardines are most frequently used.

2.2.2 Cast Nets

Of the CMP species, cast nets are used only for commercial harvest of Spanish mackerel caught in the Atlantic. A cast net is a circular, hand-held net with weights attached to the perimeter. The basic structure of a cast net includes a handline,[1] swivel,[2] horn,[3] brail lines,[4] netting, and leadline.[5] When thrown or cast properly, the net opens up and lands on the surface of the water in a flat circular shape. The leadline causes the net to sink quickly, trapping fish underneath the net. When the handline is pulled, the brail lines draw up, closing the net to form a pocket, catching the trapped fish. The whole net is then pulled out of the water. The mesh size used varies, but normally ranges from 3.25-inches (in) to 4.5-in stretched. Some fishers carry several different mesh sizes onboard so they can select the one they expect to best gill the size of target species they encounter.

2.2.3 Gillnets

A gillnet is a vertical wall of monofilament or twine netting designed to wedge and gill fish as they attempt to swim through. Wedging occurs when an animal is stuck in the mesh at its point of greatest girth. Gilling occurs when a fish penetrates the mesh and the twine slips behind the gill cover preventing the fish from escaping. Gillnets are also known to entangle non-targeted fish and other marine organisms (DeAlteris 1998).

Gillnets are generally characterized as drift (unanchored), set (anchored), or run-around. Drift gillnets (defined in 50 CFR 622.2) are prohibited under the CMP FMP (50 CFR 622.375). Set nets, which may either be sinking or floating, are basically stationary anchored nets. In some areas, fishers either choose or are required to reduce the vertical profile of their gillnets by using "tie-downs." Tie-downs refer to twine used between the floatline and the lead line as a way to create a pocket or bag of netting to trap fish. Fishers may use tie-downs in order to reduce

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[1] A rope, attached at one end to a swivel and the caster's wrist at the other.

[2] Two metal loops or rings attached together that turn at both ends.

[3] A ring with an indentation around the center where the top of the net is tied.

[4] Lines attached to the swivel at one end and to the leadline at the other. Their function is to pucker the net, thus trapping the catch.

[5] A rope with sinkers attached; this rope is at the outside perimeter of the net to sink it.

vertical profile of the net to minimize protected species entanglements. Sink gillnets and run-around gillnets are authorized under the CMP FMP and are discussed in more detail below.

Sink Gillnets
A sink gillnet is not explicitly defined in 50 CFR 600.10 or 622.2, but refers to a gillnet that has the top line submerged beneath the water. Most sink gillnets used are stab nets. A stab net is defined in 50 CFR 622.2 as a gillnet, other than a long gillnet or trammel net, whose weight line sinks to the bottom and submerges the float line. The term is commonly used to refer to a type of sink gillnet fishing technique that is fished in an active manner (i.e., set near schools of mackerel located with fish finders with short soak times). This gear is typically used in the commercial GOM and Atlantic Spanish mackerel fishery. Although federal regulations do not require fishers to tend their nets, they often do so to avoid capturing unwanted bycatch and to ensure strong currents do not foul the gear. Fishermen generally fish the gear within a couple of hours, depending on the catch (GMFMC et al. 2004). Observed Spanish mackerel sink gillnet operations in 2015-2019 documented nets with 3.0-4.8 in stretched mesh with most trips using a 3.8 inch mesh, an average soak time of 1.9 hours, haul time of 0.5 hours, and the entire fishing process (time net was first set until time haul back was completed) averaged 1.9 hours.

Run-Around (Strike) Gillnets
Run-around gillnets are only used in the GOM for the commercial harvest of king mackerel in the Southern Zone and the commercial harvest of Spanish mackerel. In the Atlantic, run-around gillnets are only used for the commercial harvest of Spanish mackerel. Run-around gillnets are also known as strike nets and are often used in conjunction with spotter aircraft to actively encircle a school of fish (Steve et al. 2001). The use of a spotter aircraft to identify large schools also reduces capturing unwanted bycatch. Run-around gillnets are prohibited from use by the recreational sector to harvest CMP species in both the GOM and Atlantic. Run-around gillnets are also prohibited from use commercially for king mackerel in the Western and Northern Zones in the GOM (50 CFR 622.375).

2.4 Spearguns

Spearguns are devices that use rubber bands or pneumatic pressure to throw a spear shaft at a targeted fish. Spearguns and harvest by diving is permitted both recreationally and commercially for cobia in both the GOM and Atlantic. Sometimes, a diver will employ ammunition cartridges (e.g., .223 or .38 caliber bullet) to a casing at the shaft tip known as a powerhead, which efficiently delivers a lethal charge to their quarry. Commercial king mackerel and Spanish mackerel harvest by spearguns is prohibited in the Atlantic (50 CFR 622.375(a)(1) & (b)). Spearguns is prohibited for commercially harvested king mackerel in the GOM.

2.3 Description of the Fisheries

Two migratory groups, GOM and Atlantic, are recognized for king mackerel, Spanish mackerel, and cobia. However, the Atlantic Migratory Group of cobia was removed from management under the CMP FMP with Amendment 31 (GMFMC and SAFMC 2018) and will not be discussed further. Commercial landings data come from the Southeast Fisheries Science Center (SEFSC) Accumulated Landings System, the Northeast Fisheries Science Center (NEFSC)

Commercial Fisheries Data Base System, and SEFSC Coastal Fisheries Logbook Program (CFLP) database. Recreational data come from the Marine Recreational Information Program (MRIP), the Southeast Regional Headboat Survey (Headboat Survey), the Louisiana Creel Survey (LA Creel), and the Texas Parks and Wildlife Department (TPWD). MRIP changed from the Coastal Household Telephone Survey to the Fishing Effort Survey (FES) in 2018. MRIP data prior to 2018 have been calibrated to FES units. All landings are in whole weight.

The Southeast Gillnet Observer Program covers all anchored (sink, stab, and set), strike, and drift gillnet fishing by vessels that fish from Florida to North Carolina in the Atlantic and in all of the Gulf of Mexico year-round. The program was originally designed to document negative impacts on right whale populations (such as incidental catch) by continually monitoring all drift gillnet vessels during the critical calving period.

The program has adapted to the changes of the gillnet fishery over the years. Since 2006, it covers all gillnet fishing regardless of target by vessels that fish from Texas to North Carolina year-round.

The CMP fishery is further summarized below.

2.3.1 Participation and Effort

Table 1 summarizes the number of king mackerel and Spanish mackerel permits for the commercial sector in the GOM and Atlantic. There currently is not a CMP commercial permit for harvest of GOM Migratory Group of cobia. Table 2 summarizes the GOM and South Atlantic charter/headboat CMP permits. A charter/headboat CMP permit is required to harvest all CMP stocks.

Table 1. Number of commercial permits associated with the CMP fisheries as of August 26, 2021.

	Valid[1]
King Mackerel	1,293
King Mackerel Gillnet	15
Spanish Mackerel	1,734

[1] Non-expired; expired permits may be renewed within 1 year of expiration.

Table 2. Number of recreational permits associated with the Charter/Headboat CMP fisheries as of August 26, 2021.

	Valid[1]
South Atlantic Charter/Headboat for Coastal Migratory Pelagic Fish	1,604
GOM Charter Headboat for Coastal Migratory Pelagic Fish	1,178

[1]Non-expired; expired permits may be renewed within 1 year of expiration.

Estimates of average annual recreational effort, 2015-2019 for the CMP species are provided in Tables 3 and 4. Among the 3 species examined, Spanish mackerel is subject to more target and catch effort than the other 2 species for the GOM and Atlantic states. Extrapolated recreational effort derived from the MRIP database, which does not include Texas or Louisiana, can be characterized in terms of the number of trips as follows:

> <u>Target effort</u>: The number of individual angler trips, regardless of trip duration, where the angler indicated that the species was either the first or the second primary target for the trip. The species did not have to be caught.
> <u>Catch effort</u>: The number of individual angler trips, regardless of trip duration and target intent, where the individual species was caught. The fish caught did not have to be kept.
> <u>All trips</u>: The annual average number of recreational trips from 2015-2019 for all types of trips, regardless of target intent or catch success.

Table 3. Average annual recreational effort by target trips and catch trips for each mode compared to all trips taken for all species in the GOM for 2015-2019.

Species	Shore	Charter	Private	Total	All Trips
Target Trips					
King Mackerel	543,612	40,700	277,440	861,752	29,970,106
Spanish Mackerel	1,535,492	31,247	172,872	1,739,610	
Cobia	148,725	3,997	141,186	293,907	
Catch Trips					
King Mackerel	73,814	167,905	221,996	463,714	29,970,106
Spanish Mackerel	1,241,708	133,390	593,163	1,968,263	
Cobia	19,860	12,524	115,247	147,630	

Source: Generated from the MRIP trip and catch files located at https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-downloads.
Note: These estimates were generated with data from Mississippi, Alabama, and west Florida because these three states have MRIP. Texas and Louisiana have their own independent recreational surveys. Texas does not collect effort information on these species and Louisiana only collects effort information on king mackerel.

Table 4. Average annual recreational effort by target trips and catch trips for each mode compared to all trips taken for all species in the Atlantic from 2015-2019.

Species	Shore	Charter	Private	Total	All Trips
Target Trips					
King Mackerel	609,740	19,850	790,582	1,420,172	38,564,584
Spanish Mackerel	1,355,152	21,835	459,910	1,836,897	
Cobia	33,057	1,210	268,147	302,414	
Catch Trips					
King Mackerel	16,355	77,517	416,586	510,458	38,564,584
Spanish Mackerel	585,827	60,280	369,614	1,015,721	
Cobia	0	6,935	356,885	363,820	

Source: Generated from the MRIP trip and catch files located at https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-downloads.
Note: These estimates were generated with data from New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and east Florida because these states have MRIP. Cobia trips only include east Florida since the Atlantic Migratory Group of cobia is no longer federally managed.

2.3.2 King Mackerel

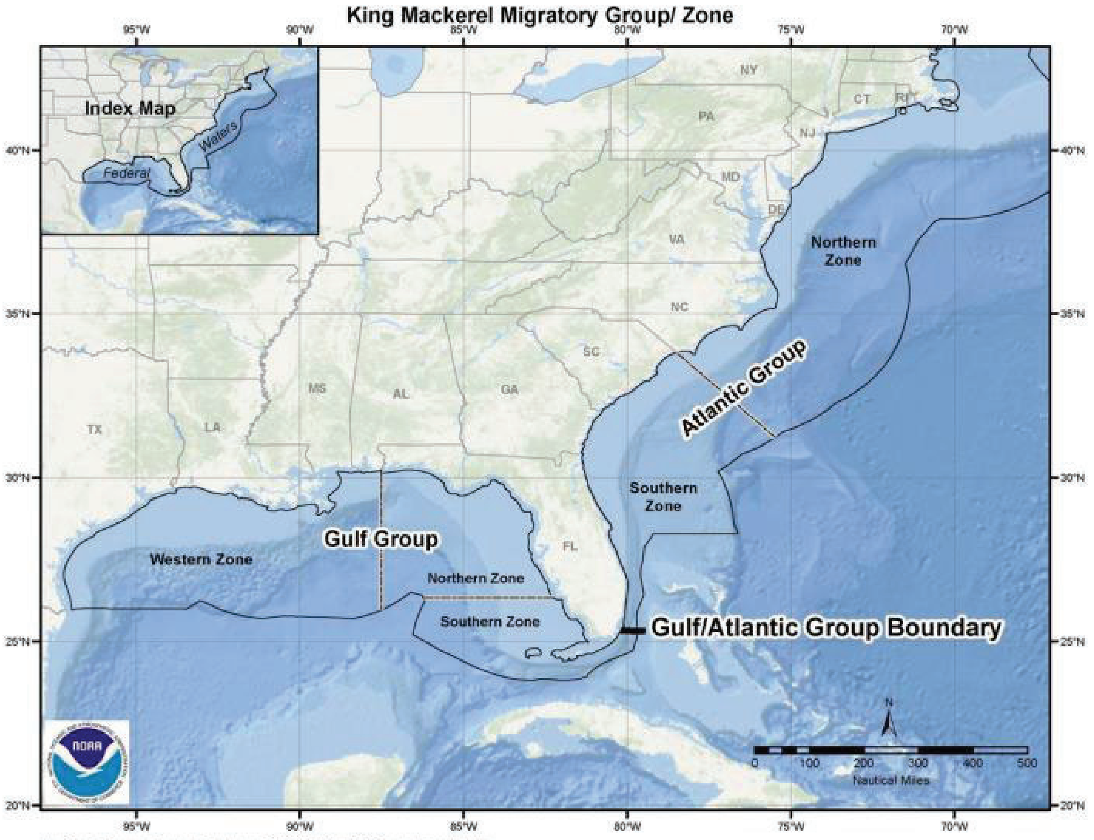
The GOM and Atlantic migratory groups for king mackerel are separated at the Monroe/Miami Dade county line in Florida. Each of these king mackerel migratory groups is divided into regional zones, described further below. For the purposes of quota monitoring, landings are attributed to the migratory group and zone where the fish is landed.

The GOM migratory group king mackerel commercial sector is divided into three regional zones: Western, Northern and Southern (Figure 1). Each zone has its own commercial quota with the Southern Zone being split into hook-and-line and gillnet component quotas. The Southern Zone is from the Lee/Collier county line to the Miami-Dade/Monroe county line off Florida. The commercial fishing year for hook-and-line gear in the Southern Zone runs July 1-June 30 and the gillnet season opens in January on the day after the Martin Luther King, Jr. holiday. Gillnet fishing is allowed during the first weekend thereafter, but not on subsequent weekends or federal holidays. While part of the Southern Zone extends into the South Atlantic Council jurisdiction, regulatory authority was delegated to the Gulf of Mexico Fishery Management Council with Amendment 26 (GMFMC and SAFMC 2017). The Northern Zone extends from the Alabama/Florida state line to the Lee/Collier county line off Florida. The commercial fishing year for the Northern zone is October 1 through September 30. The Western Zone extends from the southern border of Texas to the Alabama/Florida state line. The commercial fishing year for the Western zone is July 1 through June 30.

The recreational fishing year for the GOM migratory group of king mackerel is July 1 through June 30. The recreational private angler component is not separated by zones and has the same boundaries as the GOM migratory group.

Management measures for the Atlantic migratory group apply to king mackerel from New York to the east coast of Florida. The Atlantic migratory group of king mackerel has a fishing year of March 1 through the end of February of the following year. The Atlantic Southern Zone extends from the Miami-Dade/Monroe county line off Florida to the border between South Carolina and North Carolina. The Northern Zone extends from the South Carolina and North Carolina border to Maine.

While current management of the fishery has established fishing years with corresponding quotas for the various zones, for the purposes of this Opinion we are evaluating data on a calendar year basis for the entire fishery (i.e., excluding management groups and zones).



Esri Ocean Basemap Sources: Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors

Figure 1. Gulf and Atlantic king mackerel stock boundaries as currently used for management purposes by the Councils. The Gulf migratory group is divided into commercial management Zones, which are managed by the GMFMC. The Atlantic migratory group, which is managed by the SAFMC, is divided into a Northern and Southern Zone, extending north to the easternmost tip of Long Island, New York.

Commercial king mackerel fisheries operating off the west coast of Florida utilize both hook-and-line and gillnet gear. Those operating off Alabama, Mississippi, Louisiana, and Texas utilize only hook-and-line gear. The majority of king mackerel landings come from the western GOM and off south Florida from November through March. Landings in areas between Virginia and New York are trivial and appear to be a bycatch species. From 2015-2019, the most king mackerel to be landed in these northern states was 2,947 pounds (lb) in 2017 with other years landing totaling less than 1,000 pounds per year. Commercial king mackerel landings between North Carolina and east Florida account for 99% of the Atlantic king mackerel commercial landings. A winter troll fishery operates along the east and south GOM coast, and a run-around gillnet fishery operates off the Florida Keys between January and June. However, the gillnet fishery quota is usually harvested by February (GMFMC et al. 2004). In the Atlantic, gillnets were the predominant gear used to harvest king mackerel between 1966 and 1988. However, because of various state and federal restrictions on the use of gillnets, 98 percent of Atlantic king mackerel are now captured with hook-and-line gear (GMFMC et al. 2004). The remaining 2 percent is taken primarily in state waters off North Carolina using sink nets, with most effort expended in November and December. In 2019, the most prevalent gear for commercial king mackerel landings combined was hook-and-line (66%) followed by hook-and-line by trolling (22%), and gillnet (12%); longline and all other gear types each accounted for less than 1% of the total catch and are typically bycatch gear (not gear types typically used to target king mackerel) (Figure 2).

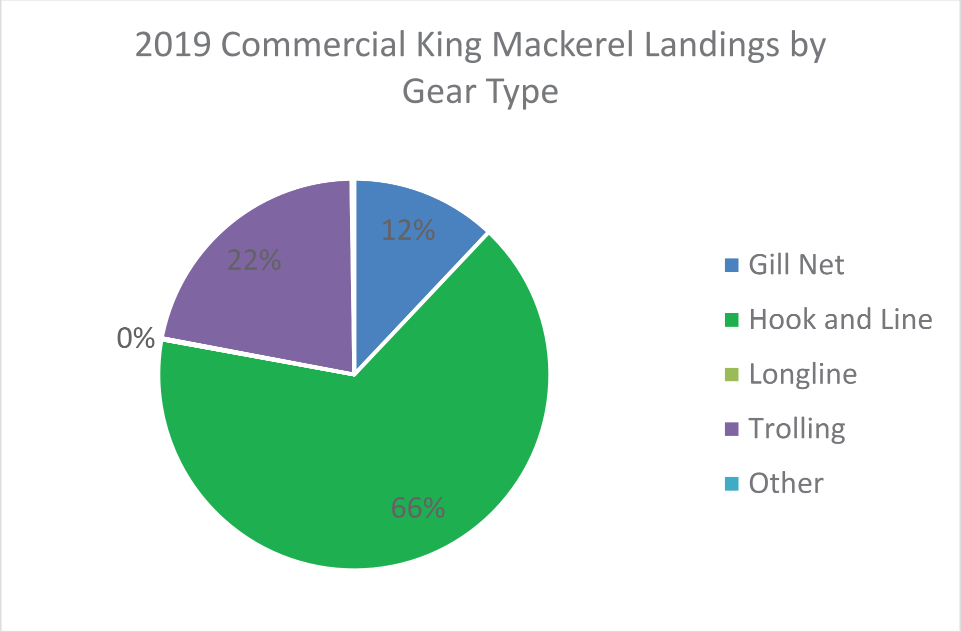


Figure 2. 2019 commercial king mackerel landings by gear type. This includes king mackerel from the GOM and the Atlantic. The "Other" gear types consisted of spears, nets, traps, and non-reported gear types.

The commercial sector is allocated 32% of the GOM annual catch limit (ACL) and 37.1% of the Atlantic ACL. From the late 1980s to the late 1990s, total commercial landings averaged about 5.1 million lb per year. In the most recent 5 years, average total commercial catch has been about 4.5 million lb (Table 5). During that time, total commercial catch in the GOM has decreased from ~3.0 million lb to 1.5 million lb, while total commercial catch in the Atlantic has steadily increased from 1.2 to 3.0 million lb over the same 5-year period (Table 5). The commercial ACLs are managed with minimum size limits, gear, area, and mesh size restrictions, as well as seasonal closures, accountability measures, and trip limit regulations, which vary by geographic area and gear type. Commercial catch is constrained by the ACL in both the GOM and Atlantic. It is expected if the ACLs were to increase, commercial catch would increase as well.

Table 5. 2015-2019 annual commercial landings of king mackerel by region and combined. The landings are in pounds.

Year	Total Catch		
	GOM	Atlantic	Combined
2015	2,934,414	1,282,269	4,216,683
2016	3,124,168	1,857,569	4,981,737
2017	2,326,697	2,662,648	4,989,345
2018	1,395,120	2,611,832	4,006,952
2019	1,505,826	3,044,691	4,550,517

Source: SEFSC landings data provided on September 29, 2021.

Note: Landings are in lb whole weight (ww). GOM landings include Texas to Monroe/Miami Dade county line in Florida. Atlantic landings include from the Monroe/Miami Dade county line in Florida to the easternmost tip of Long Island, New York.

King mackerel have been a popular target for recreational fishers for many years. The recreational sector is allocated 68% of the GOM ACL and 62.9% of the Atlantic ACL. From the late 1980s to the late 1990s, total recreational landings averaged about 11 million lb per year. In the most recent 5 years, average total recreational catch has been about 4.7 million lb (Table 6). During that time, total recreational catch in the GOM has steadily declined from 3.2 to 1.9 million lb. The recreational sector has routinely landed approximately 30% of the recreational ACL, despite changes to the size limit in Amendment 9 (GMFMC and SAFMC 1998) and increases to the bag limit from 2 to 3 fish in Amendment 26 (GMFMC and SAFMC 2017). The total recreational catch in the Atlantic has steadily increased from 1.4 to 2.7 million lb over the same 5-year period (Table 6). The recreational ACLs are managed with minimum size limit, gear, bag limit regulations, and accountability measures. In addition, there are some zone-based restrictions imposed on recreational Atlantic group participants.

Table 6. 2015-2019 annual recreational landings of king mackerel by region and combined.

Year	Total Catch		
	GOM	Atlantic	Combined
2015	3,245,757	1,408,783	4,654,540
2016	2,836,328	2,073,134	4,909,462
2017	2,311,944	1,992,674	4,304,618
2018	2,493,638	2,340,071	4,833,709
2019	1,945,687	2,770,323	4,716,010

Source: Recreational ACL file from October 25, 2021, which contains recreational landings from Headboat Survey, TPWD, LA Creel, and MRIP-FES, which covers landings from the other states in the GOM and Atlantic regions.

Note: Landings are in lb ww. Landings per jurisdiction are split at the Monroe/Miami Dade county line in Florida.

On the Atlantic coast, recreational king mackerel is caught primarily in Florida, though landings are reported north through Virginia. Catches in the northern portion of this range, however, are relatively low and sporadic (Table 7). For example, throughout 2015-2019, less than 1% of the total Atlantic king mackerel recreational landings occurred north of North Carolina (New York to Virginia). In the GOM, recreational king mackerel is caught primarily in Florida (Table 8).

Table 7. 2015-2019 annual Atlantic recreational landings of king mackerel by state. "NY to MD" are the north Atlantic states of New York to Maryland.

Year	East Florida	Georgia	South Carolina	North Carolina	Virginia	NY to MD
2015	1,014,799	3,428	5,6121	334,435	0	0
2016	1,579,082	0	30,226	462,639	1,187	0
2017	1,620,815	27,479	37,105	303,867	2,097	1,313
2018	1,755,363	64,248	125,678	384,269	8,147	2,366
2019	2,007,259	41,998	197,039	511,201	2,519	10,306

Source: Recreational ACL file from October 25, 2021 with contains recreational landings from Headboat Survey and MRIP-FES.
Note: Landings are in lb ww.

Table 8. 2015-2019 annual GOM recreational landings of king mackerel by state.

Year	West Florida	Alabama	Mississippi	Louisiana	Texas
2015	2,429,679	622,799	8,242	5,442	179,596
2016	1,991,704	585,511	14,177	22,065	222,871
2017	1,783,692	217,267	2,774	20,901	287,310
2018	1,534,228	433,412	153,449	28,445	344,104
2019	1,265,928	346,182	1,189	29,187	303,201

Source: Recreational ACL file from October 25, 2021 with contains recreational landings from Headboat Survey, TPWD, LA Creel, and MRIP-FES.
Note: Landings are in lb ww.

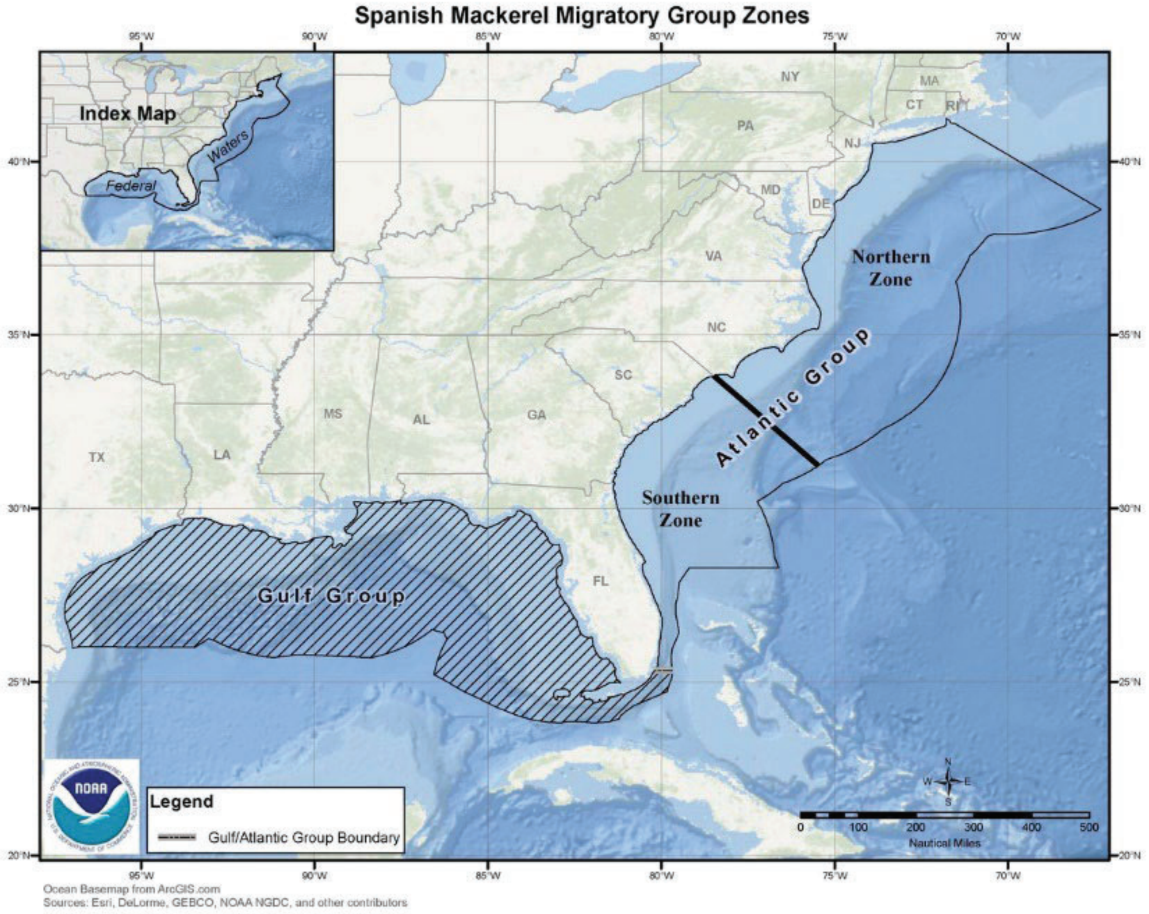
2.3.3 Spanish Mackerel

The Gulf Migratory Group of Spanish mackerel is managed as a stock and extends from the southern border of Texas to the Miami-Dade/Monroe county line off Florida (Figure 3). While part of the Gulf migratory group extends into the South Atlantic Council jurisdiction, regulatory authority was delegated to the Gulf of Mexico Fishery Management Council with Amendment 26 (GMFMC and SAFMC 2017).

The recreational charter/headboat component fishes in the jurisdiction their federal permit is for based on a boundary between the South Atlantic and Gulf jurisdiction being a straight line out from Key West, Florida. For the purposes of quota monitoring, landings are attributed to the area assigned to the migratory group, which for Spanish mackerel is the Monroe/Miami Dade county line in Florida. The commercial and recreational fishing year for the Gulf migratory group is April 1 through March 31. The commercial and recreational fishing year for the Atlantic migratory group is March 1 through the end of February.

Management measures for the Atlantic migratory group of Spanish mackerel apply from the Miami-Dade/Monroe county line off Florida to New York. The Atlantic Southern Zone extends from the Miami-Dade/Monroe county line off Florida to the border between South Carolina and North Carolina. The Northern Zone extends from the South Carolina and North Carolina border to Maine.

While current management of the fishery has established a fishing year with corresponding quotas for the various zones, for the purposes of this Opinion we are evaluating data on a calendar year basis for the entire fishery (i.e., excluding management zones).



Ocean Basemap from ArcGIS.com
Sources: Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors

Figure 3. Gulf and Atlantic Spanish mackerel stock boundaries as currently used for management purposes by the Councils. The Gulf Migratory Group is managed as a stock by the GMFMC. The Atlantic Migratory Group, which is managed by the SAFMC, is divided into a Northern and Southern Zone, extending north to the easternmost tip of Long Island, New York.

While historically the majority of commercial harvest of Spanish mackerel has been landed by gillnets from states waters off the west coast of Florida (due to the 1995 Florida net ban), cast nets have become an increasingly important gear. In 2019, most of Spanish mackerel commercial landings were from gillnets (45%), followed by hook-and-line (34%), cast nets (18%). Pound nets (2%) is typically an incidental catch gear, along with all other gear (each accounted for less than 1% of the total catch) and are not gear types typically used to target Spanish mackerel (Figure 4). Landings in Virginia-New York are relatively trivial, accounting for less than 5% of total Spanish mackerel landings in 2019. For 2015-2019, the most Spanish mackerel to be landed in these northern states originate from state waters (e.g., pound net landings or landings originating within Chesapeake Bay).

The majority of the landings from the Atlantic occur in the late fall-early winter seasons (December through February). Most cast net fisheries operate from October through March off the east coast of Florida, and from May through October farther north (GMFMC et al. 2004). Though cast nets account for a greater percentage of the total Spanish mackerel landings, Spanish mackerel remains the primary species targeted by gillnets off the Florida east coast. The main season for this activity is September through December.

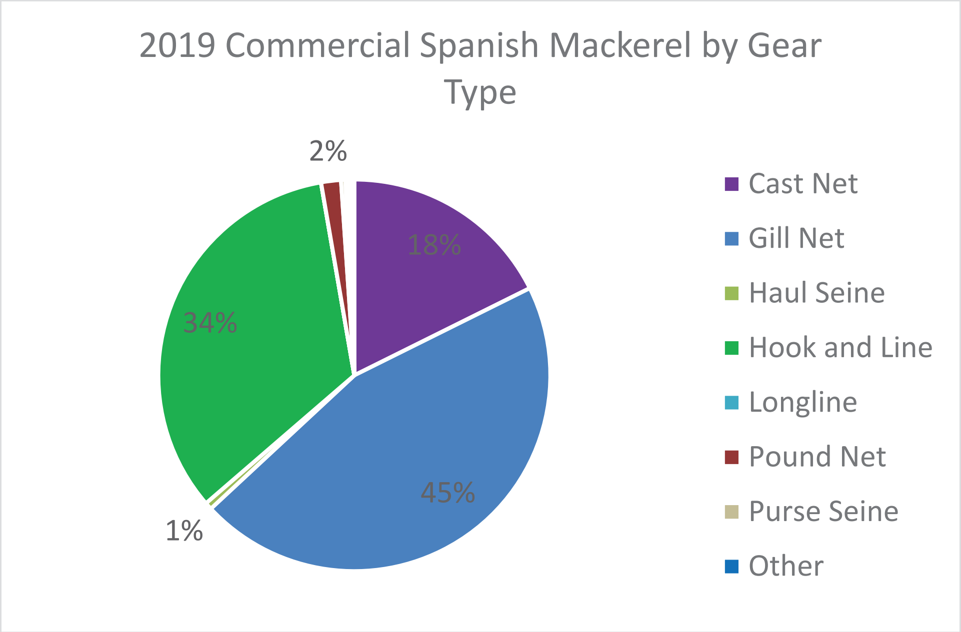


Figure 4. 2019 commercial Spanish mackerel landings by gear type. This includes Spanish mackerel from the GOM and the Atlantic. The "Other" gear types consisted of spears, traps, and non-reported gear types.

The Spanish mackerel component in the GOM has a stock ACL. Overall, the GOM Spanish mackerel component has landed approximately 32% of the stock ACL in the last 5 years with the commercial sector landing approximately 29% of that total. In the Atlantic, the commercial sector is allocated 55% of the Atlantic ACL. From the late 1980s to the late 1990s, total commercial landings averaged about 5.8 million lb per year. In the most recent 5 years, average total commercial catch has been about 4.4 million lb (Table 9). During that time, total catch in the GOM has fluctuated between 0.6 and 1.4 million lb, while total catch in the Atlantic has stayed in the 3+ million lb range over the same 5-year period (Table 9). The commercial ACLs in both the GOM and Atlantic are managed with minimum size limits, gear, area, mesh size restrictions, accountability measures, and trip limit regulations, which vary by geographic area and gear type.

Table 9. 2015-2019 annual commercial landings of Spanish mackerel by region and combined.

Year	Total Catch		
	GOM	Atlantic	Combined
2015	1,128,192	2,381,456	3,509,648
2016	1,398,373	3,106,031	4,504,404
2017	637,629	3,515,997	4,153,626
2018	1,139,433	3,752,109	4,891,542
2019	903,368	3,961,585	4,864,953

Source: SEFSC landings data provided on September 29, 2021.
Note: Landings are in lb ww. GOM landings include Texas to Monroe/Miami Dade county line in Florida. Atlantic landings include from the Monroe/Miami Dade county line in Florida to the easternmost tip of Long Island, New York.

The reduced popularity of Spanish mackerel compared with king mackerel and other offshore stocks is believed to keep catches from increasing in response to less restrictive management measures. In the most recent 5 years of available data, average total recreational catch has been about 3.6 million lb (Table 10). The Spanish mackerel component in the GOM has a stock ACL. Of the overall GOM Spanish mackerel landings, the recreational sector has landed approximately 71% of the total landings in the last 5 years. Recreational catch of Spanish mackerel in the GOM has remained relatively stable at around 2.5 million lb since the early 1990s, despite GMFMC action to increase the bag limit from 3 fish with Amendment 2 in 1987 (GMFMC and SAFMC 1987), to 10 fish from Louisiana to Florida in 1992 with a Regulatory Amendment (GMFMC and SAFMC 1992), and to 15 fish with a Regulatory Amendment in 1999 (GMFMC and SAFMC 1999). In the Atlantic, the recreational sector is allocated 45% of the Atlantic ACL. The total catch in the Atlantic has fluctuated from ~645,000 lb to 1.4 million lb over the same 5-year period (Table 10). The Spanish mackerel ACLs in both the GOM and Atlantic are managed with minimum size limit, gear, bag limit regulations, and accountability measures. Some area restrictions imposed on Atlantic group participants.

Table 10. 2015-2019 annual recreational landings of Spanish mackerel by region and combined.

Year	Total Catch		
	GOM	Atlantic	Combined
2015	2,546,653	645,111	3,191,764
2016	2,554,863	1,255,530	3,810,393
2017	2,582,126	795,800	3,377,926
2018	1,882,975	1,057,479	2,940,455
2019	3,425,483	1,395,032	4,820,516

Source: Recreational ACL file from October 25, 2021 with contains recreational landings from Headboat Survey, TPWD, LA Creel, and MRIP covers landings from the other states in the GOM and Atlantic regions.
Note: Landings are in lb ww. Landings per jurisdiction are split at the Monroe/Miami Dade county line in Florida.

On the Atlantic coast, recreational Spanish mackerel is caught primarily in Florida and North Carolina, though landings are reported north through New York. Catches in the northern portion of this range, however, are relatively low and sporadic (Table 11). For example, throughout

2015-2019, only 1% of the Atlantic recreational landings occurred north of North Carolina (New York to Virginia). In the GOM, recreational Spanish mackerel is caught primarily in Florida (Table 12).

Table 11. 2015-2019 annual Atlantic recreational landings of Spanish mackerel by state. "NY to DE" are the north Atlantic states of New York to Delaware.

Year	East Florida	Georgia	South Carolina	North Carolina	Virginia	Maryland	NY to DE
2015	107,300	1,122	92,838	422,419	10,059	11,374	0
2016	638,626	2,844	63,262	402,523	130,151	18,116	8
2017	230,652	12,999	32,968	486,024	19,013	9,695	4,447
2018	299,129	31,805	99,165	507,068	81,522	29,977	8,813
2019	296,818	77,400	155,452	535,848	232,622	85,977	10,914

Source: Recreational ACL file from October 25, 2021 with contains recreational landings from Headboat Survey and MRIP.
Note: Landings are in lb ww.

Table 12. 2015-2019 annual GOM recreational landings of Spanish mackerel by state.

Year	West Florida	Alabama	Mississippi	Louisiana	Texas
2015	1,646,186	826,541	46,703	21,607	5,616
2016	1,584,155	779,323	155,146	23,189	13,050
2017	1,333,931	1,187,540	26,563	18,290	15,802
2018	1,261,131	486,544	103,308	17,595	14,398
2019	2,204,546	1,166,322	25,266	24,014	5,335

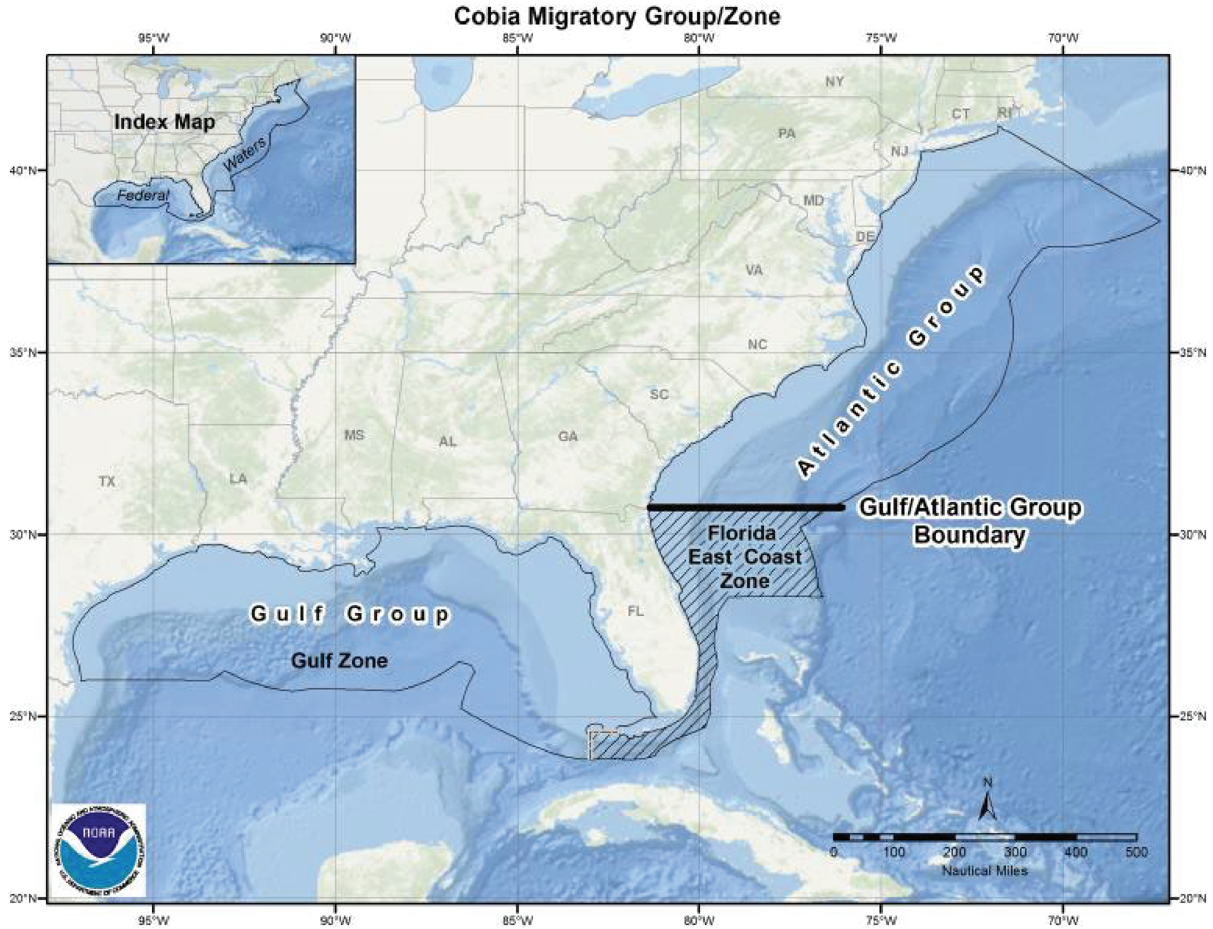
Source: Recreational ACL file from October 25, 2021, with contains recreational landings from Headboat. Survey, TPWD, LA Creel, and MRIP.
Note: Landings are in lb ww.

2.3.4 Cobia

The area occupied by GOM migratory group of cobia is divided into regional zones (Figure 5). Each zone has its own quota with the Gulf Zone being managed as a stock and the Florida East Coast (FLEC) Zone being split by sector. The Gulf Zone extends from the southern border of Texas to the Florida/Georgia state line. The fishing year for both zones is January 1 through December 31.

The recreational charter/headboat component fishes in the Council jurisdiction their federal permit is for with the boundary being a straight line out from Key West, Florida. For the purposes of quota monitoring, landings are attributed to the area assigned to the migratory group, which for the Gulf Migratory Group of cobia is at the Florida/Georgia state line. The fishing year is January 1 through December 31. The recreational private angler component has the same boundaries and fishing year as the commercial sector.

While current management of the CMP fishery has established a fishing year with corresponding quotas for the various zones, for the purposes of this Opinion we are evaluating data on a calendar year basis for the entire fishery (i.e., excluding management zones).



Esri Ocean Basemap Sources: Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors

Figure 5. Gulf and Atlantic cobia migratory group boundaries as currently used for management purposes by the Councils. The Atlantic Migratory Group is no longer federally managed. The Gulf Migratory Group is managed by the GMFMC as a stock in the Gulf Zone and by both the GMFMC and SAFMC in the Florida East Coast Zone by sector.

Gulf Migratory Group cobia commercial fishermen operating off the coast of Louisiana primarily use spear. Those operating off Texas, Mississippi, Alabama, and west Florida primarily utilize hook-and-line gear. The majority of commercial landings come from the Florida with landings being highest in the summer. In 2019, the most prevalent gear for commercial Gulf Migratory Group cobia landings combined was hook-and-line (64%) followed by spearfishing/diving (23%). Longline, while accounting for 12% of landings is typically an incidental catch gear, along with all other gear (each accounted for 1% or less of the total catch) and are not gear types typically used to target cobia (Figure 6).

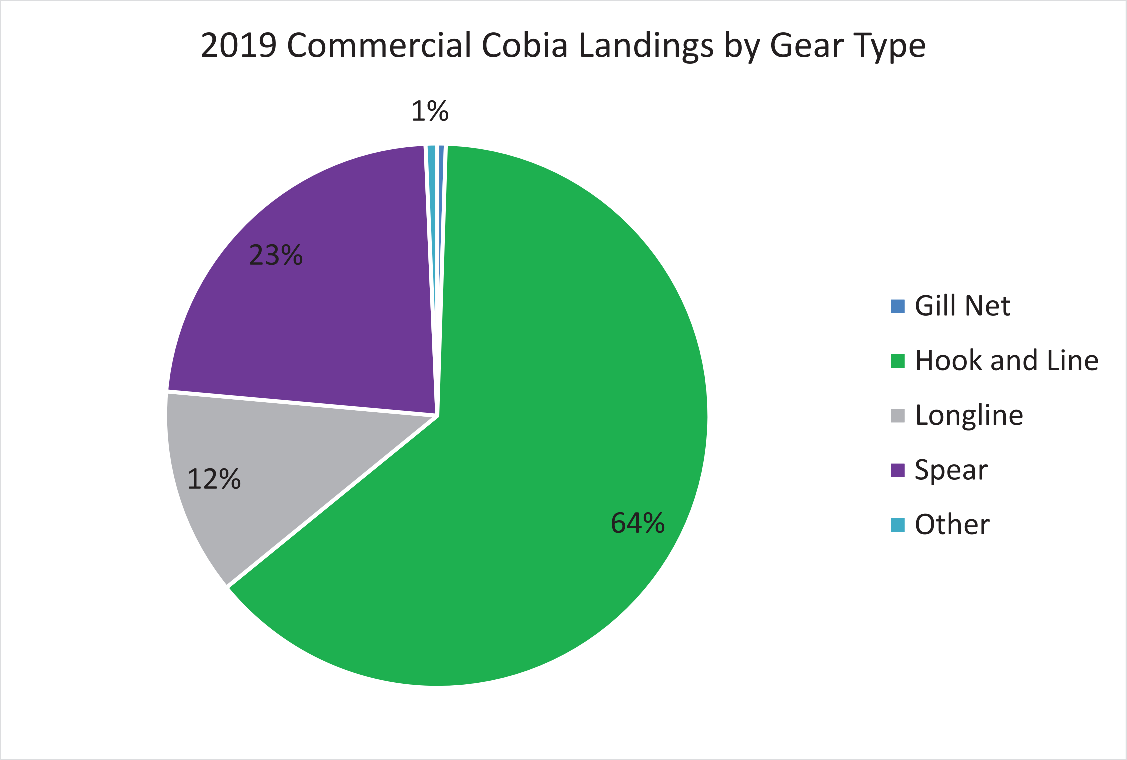


Figure 6. 2019 commercial GOM cobia landings by gear type. GOM cobia includes cobia from both sides of Florida. The "Other" gear types consisted of nets, traps, and non-reported gear types.

The Gulf Migratory Group cobia component in the Gulf Zone has a stock ACL. Overall, the Gulf Zone cobia component has landed approximately 46% of the stock ACL with the commercial sector landing approximately 8% of that total. In the Florida East Coast (FLEC) Zone, the commercial sector is allocated 8% of the FLEC ACL. The commercial sector in the FLEC Zone has averaged landing 60% of their ACL in the past 5 years. From the late 1980s to the late 1990s, total commercial landings averaged about 300,000 lb per year. In the most recent 5 years, average total commercial catch has been about 100,000 lb (Table A). During that time, total commercial catch of cobia has fluctuated between 38,921 and 68,076 pounds in the Gulf Zone, while total catch in the FLEC Zone has fluctuated between 31,408 and 59,748 lb over the same 5-year period with both zone landings declining since 2015. Commercial catch is managed with minimum size limits, gear, area, accountability measures, and possession limits, which vary by geographic area.

Table A. 2015-2019 annual commercial landings of Gulf Migratory Group of cobia by zone and combined.

Year	Gulf Zone	FLEC Zone	Combined
2015	68,076	59,748	127,824
2016	73,118	46,395	119,513
2017	71,453	38,682	110,135
2018	39,886	31,408	71,295
2019	38,921	32,642	71,563

Source: SEFSC landings data provided on September 29, 2021. **Note:** Landings are in lb ww.

Recreational total cobia landings have fluctuated during the past 20 years between 1.5 and 3.5 million lb. Over the last 5 years, total landings averaged 1.1 million lb (Table B). Most landings are in Florida and landings peak during May through June. The GOM Migratory Group of cobia in the Gulf Zone has a stock ACL. Of the overall Gulf Zone landings, the recreational sector has landed approximately 92% of the total landings in the last 5 years. In the FLEC Zone, the recreational sector is allocated 92% of the FLEC ACL. The recreational sector in the FLEC Zone has averaged landing 50% of their ACL in the past 5 years. Recreational catch is managed with minimum size limits, gear, area, accountability measures, and possession limits, which vary by geographic area.

Table B. 2015-2019 annual recreational landings of Gulf Migratory Group of cobia by zone and combined.

Year	Total Catch		
	Gulf Zone	FLEC Zone	Combined
2015	784,566	420,776	1,205,342
2016	974,022	592,812	1,566,834
2017	515,274	323,516	838,790
2018	639,452	614,607	1,254,059
2019	613,832	194,126	807,958

Source: Recreational ACL file from October 25, 2021 with contains recreational landings from Headboat Survey, TPWD, LA Creel, and MRIP.
Note: Landings are in lb ww.

Table C. Annual Gulf Migratory Group cobia recreational landings by State.

Year	East Florida	West Florida	Alabama	Mississippi	Louisiana	Texas
2015	420,776	383,062	118,687	19,806	234,504	28,507
2016	592,812	492,130	121,085	8,794	325,141	26,872
2017	323,516	234,719	78,688	48,428	125,358	28,082
2018	614,607	312,029	93,813	46,733	159,229	27,648
2019	194,126	242,106	174,248	34,242	147,478	15,758

Source: Recreational ACL file from October 25, 2021, contains recreational landings from Headboat Survey, TPWD, LA Creel, and MRIP-FES.
Note: Landings are in lb ww.

2.4 Exempted Fishing, Scientific Research, and Exempted Educational Activity Involving CMP Species

Regulations at 50 CFR 600.745 allow NMFS Southeast Regional Office's (SERO) Regional Administrator to authorize the target or incidental harvest of species managed under an FMP or fishery regulations that would otherwise be prohibited for scientific research activity, limited testing, public display, data collection, exploratory, health and safety, environmental cleanup, hazardous waste removal purposes, or for educational activity. Every year, SERO may issue a small number of exempted fishing permits (EFPs), scientific research permits (SRPs), and/or letters of authorization (LOAs) exempting the collection of a limited number of CMP species from the GOM and/or Atlantic EEZ from regulations implementing the CMP FMP. These EFPs, SRPs, and LOAs involve fishing by commercial or research vessels, similar or identical to the fishing methods of the CMP fisheries, the subject of this Opinion.

We consider EFPs, SRPs, and LOAs, involving fishing consistent with the description of CMP fishing in Section 2.2, are unlikely to increase fishing effort significantly enough to warrant separate consideration in this Opinion. The types and rates of interactions with listed species from these types of EFP, SRP, and LOA activities are expected to be similar to (and fall within) the level of effort and impacts analyzed in this Opinion. For example, issuing an EFP to an active commercial vessel would not likely result in effects other than those that would result from the vessel's normal commercial activities. Similarly, issuing an EFP, SRP, or LOA to a vessel to conduct a minimal number of CMP trips with hook-and-line or gillnet gear would not likely increase fishing effort to a degree that would affect the total annual effort expended in the fisheries.

3. Replace Table 13 in Section 3, *Status of Species and Critical Habitat*, with the following table that includes the newly listed species:

Status of Listed Species in the Action Area

Species		Scientific Name	Status	Geographic Area
Whales	Sei whale	*Balaenoptera borealis*	E	South Atlantic
	Blue whale	*Balaenoptera musculus*	E	South Atlantic, EEZ only
	Fin whale	*Balaenoptera physalus*	E	South Atlantic
	North Atlantic right whale	*Eubalaena glacialis*	E	South Atlantic
	Sperm whale	*Physeter macrocephalus*	E	South Atlantic and GOM, EEZ only
	Humpback whale	*Megaptera novaeangliae*	E	South Atlantic
	Rice's whale	*Balaenoptera ricei*	E	GOM
Sea Turtles	Loggerhead sea turtle: Northwest Atlantic (NWA) DPS	*Caretta caretta*	T	South Atlantic and GOM
	Green sea turtle: North Atlantic and South Atlantic DPSs	*Chelonia mydas*	T	North Atlantic, South Atlantic, and GOM
	Leatherback sea turtle	*Dermochelys coriacea*	E	South Atlantic and GOM
	Hawksbill sea turtle	*Eretmochelys imbricata*	E	South Atlantic and GOM
	Kemp's ridley sea turtle	*Lepidochelys kempii*	E	South Atlantic and GOM

Table (continued)

Species		Scientific Name	Status	Geographic Area
Fishes	Atlantic sturgeon: all DPSs	*Acipenser oxyrinchus oxyrinchus*	E/T	South Atlantic and Mid-Atlantic
	Gulf sturgeon	*Acipenser oxyrinchus desotoi*	T	GOM
	Smalltooth sawfish	*Pristis pectinate*	E	South Atlantic and GOM
	Nassau grouper	*Epinephelus striatus*	T	South Atlantic
	Oceanic whitetip shark	*Carcharhinus longimanus*	T	South Atlantic and GOM
	Giant manta ray	*Manta birostris*	T	South Atlantic and GOM
Invertebrates	Elkhorn coral	*Acropora palmate*	T	South Atlantic and GOM
	Staghorn coral	*Acropora cervicornis*	T	South Atlantic
	Lobed star coral	*Orbicella* (formerly *Montastraea*) *annularis*	T	South Atlantic and GOM
	Mountainous star coral	*Orbicella* (formerly *Montastraea*) *faveolata*	T	South Atlantic and GOM
	Boulder star coral	*Orbicella* (formerly *Montastraea*) *franksi*	T	South Atlantic and GOM
	Pillar coral	*Dendrogyra cylindrus*	T	South Atlantic
	Rough cactus coral	*Mycetophyllia ferox*	T	South Atlantic and GOM

(E= endangered, T=threatened)

4. Amend Section 3.1, *Analysis of Species and Critical Habitats Not Likely to be Adversely Affected*, to include Rice's whale by replacing the first paragraph of Section 3.1 with the following:

3.1 Analysis of Species and Critical Habitats Not Likely to be Adversely Affected

We have determined that the proposed action is not likely to adversely affect any ESA-listed whales (i.e., blue, sei, sperm, fin, North Atlantic right, or Rice's whales), Gulf sturgeon, Nassau grouper, or elkhorn and staghorn corals. We have also determined that the proposed action is not likely to adversely affect designated critical habitats for elkhorn and staghorn corals or loggerhead sea turtles, and will have no effect on designated critical habitat for North Atlantic right whale. These species and critical habitats are excluded from further analysis and consideration in this Opinion. The following discussion summarizes our rationale for these determinations.

5. Amend Section 3.1, *Analysis of Species and Critical Habitats Not Likely to be Adversely Affected*, by inserting the following section on Rice's whale:

Rice's Whale

The historical distribution of Rice's whales may have once encompassed the northern and southern Gulf of Mexico. For the past 25 years, Rice's whales in U.S. waters of the Gulf of Mexico have been consistently located in the northeastern Gulf of Mexico along the continental shelf between roughly 100 and 400 meters depth. A single Rice's whale was observed in the western Gulf of Mexico off the coast of Texas, suggesting that their distribution may occasionally include waters elsewhere in the Gulf of Mexico. NMFS scientists are conducting research to better understand the whales' distribution, and to help determine for example, whether they utilize the western Gulf of Mexico and Mexican waters of the southern Gulf of Mexico, and if so, how frequently they may occur in these other areas. The Rice's whale is one of the few types of baleen whales to prefer warmer, tropical waters and that does not make long-distance migrations. They remain in the Gulf of Mexico year-round.

Analysis of Effects on Rice's Whale

Interactions between fishing gear and whales can result in incidental entanglements and/or captures and potential serious injury and mortalities. The degree of risk from direct fishery interactions to whales is a function of whale size and behavior, the likelihood that a specific gear type will cause a serious injury or mortality, and the degree of spatial overlap between fishing effort and whale habitat (Benjamins et al. 2012). Potential injury from vessel strikes from fishing vessels also exists. Potential indirect fishing threats to Rice's whales include habitat damage, direct competition for prey targeted by fishermen, non-targeted prey lost as bycatch, and indirect competition through depletion of the species consumed by the prey of marine mammals. Fishing impacts from the commercial and recreational sectors of a fishery can also reduce ecosystem productivity and alter food webs by changing species composition and population size structure (Dayton et al. 1995).

Rice's whales are deep-water baleen whales that occur along the shelf break in waters 100-400 m deep in the Desoto Canyon region of the northeastern Gulf of Mexico. Therefore, NMFS does not expect Rice's whales to be present in or even near the areas where most CMP fishing occurs. Some very limited vertical hook-and-line (i.e., handline, rod-and-reel, bandit) effort for king mackerel occurs in waters 100-200 m deep in the Desoto Canyon region. Rice's whales, however, are baleen whales (no teeth) that use different methods to feed in the water column, including skimming the surface, lunging, and creating bubble nets. Because do not bite hooked fish and baited hooks, bycatch via hooking and depredation effects are not a concern. Also, vertical line fisheries were not as identified in the status review or final listing rule as a posing an entanglement risk to Rice's whales. Vertical hook and line fisheries are not known to entangle large whales primarily because they use monofilament line with low test strengths (i.e., breaking strength), and therefore are unlikely to harm Rice's whales. There are no records of interactions between Rice's whales and gear targeting CMP species. NMFS also believes that the very limited overlap between the CMP fishery and whales means that it is very unlikely for boat strikes to occur. As a result, NMFS has determined that any adverse effects on the Rice's whale from interactions with fishing subject to CMP FMP are extremely unlikely to occur.

Rice's whales are thought to feed primarily in the water column on schooling fish such as anchovy, sardine, mackerel, and herring, and on small crustaceans. The status review team concluded that direct competition between the Rice's whale and commercial fisheries did not appear to be likely, based on the current distribution of the whale, the distribution of fishery effort, and presumed fish and invertebrate habitat (Rosel et al. 2016). In addition, based on the status review team's scoring, the threat from trophic impacts due to commercial harvest of prey is a "low" severity threat with "low" certainty (i.e, little published or unpublished data to support the conclusion that this threat did affect, is affecting, or is likely to affect the population with the severity ascribed). In the final listing rule, NMFS agreed that this whale is not vulnerable to this particular threat. Based on this information, NMFS does not believe fishing subject to the CMP FMP will have any trophic level effects on Rice's whales.

Thus, while Rice's whales are susceptible to CMP gear, it is extremely unlikely that they will be adversely affected as a result of the proposed action. Based on our understanding of Rice's whale range, feeding, and habitat preferences relative to the nature of the target species and how the target species are caught, NMFS believes that fishing activities under the CMP FMP are not likely to adversely affect Rice's whales.

6. Amend Section 3.2, *Analysis of Species Likely to be Adversely Affected*, by inserting following sections that provide information on both the oceanic whitetip and giant manta ray:

3.2.9 Oceanic Whitetip Shark

On January 30, 2018, NMFS published a final rule to list the oceanic whitetip shark (*Carcharhinus longimanus*) as a threatened species under the ESA, effective March 1, 2018 (83 FR 4153). The status review report of the oceanic whitetip shark (Young et al. 2016) compiles the best available information on the status of the species as required by the ESA and assesses the current and future extinction risk for the species.

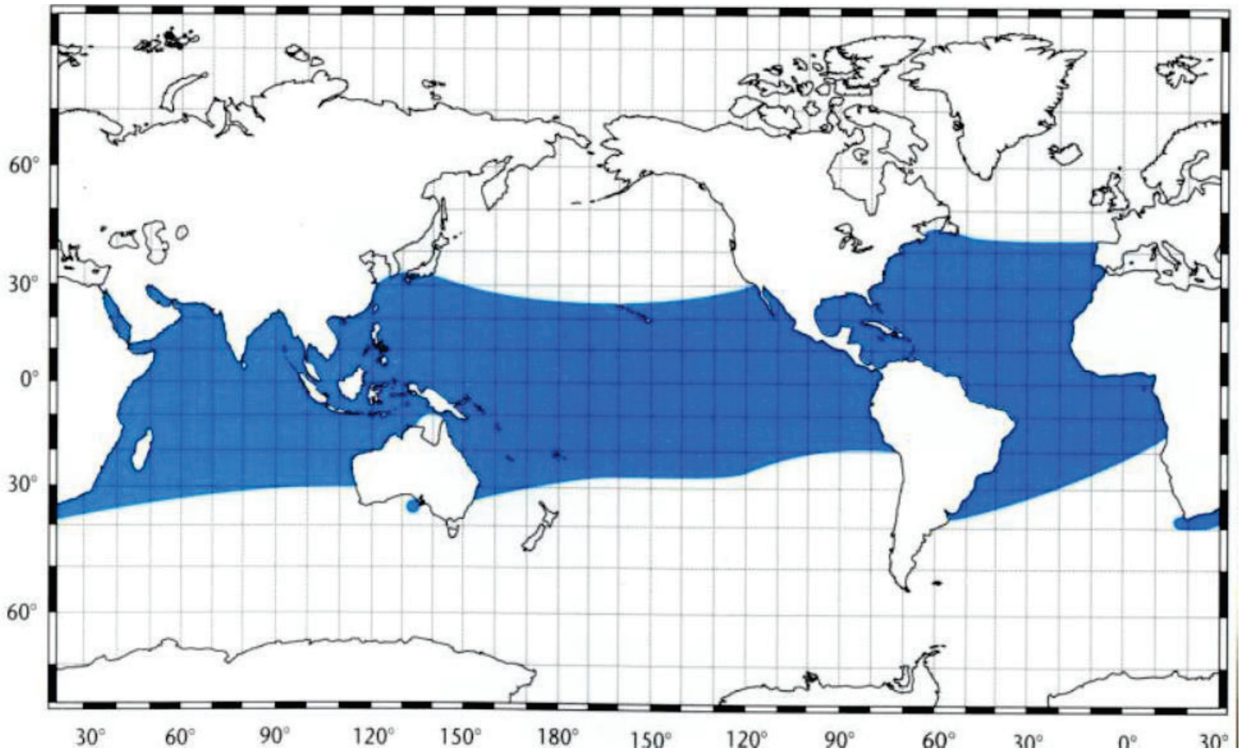
Species Description

The oceanic whitetip shark is a large open ocean apex predatory shark found in subtropical waters around the globe. This species belongs to the family Carcharhinidae and is classified as a requiem shark (containing migratory, live-bearing sharks of the warm seas) (Order Carcharhiniformes). The oceanic whitetip belongs to the genus Carcharhinus, which includes other pelagic species of sharks, such as the silky shark (*C. falciformis*) and dusky shark (*C. obscuras*), and is the only truly oceanic shark of its genus (Bonfil 2009).

The oceanic whitetip shark has a stocky build with a large rounded first dorsal fin and very long and wide paddle-like pectoral fins. The first dorsal fin is very wide with a rounded tip, originating just in front of the rear tips of the pectoral fins. The second dorsal fin originates over or slightly in front of the base of the anal fin. The species also exhibits a distinct color pattern of mottled white tips on its front dorsal, caudal, and pectoral fins with black tips on its anal fin and on the ventral surfaces of its pelvic fins. The head has a short and bluntly rounded nose and small circular eyes with nictitating membranes. The upper jaw contains broad, triangular serrated teeth, while the teeth in the lower jaw are more pointed and are only serrated near the tip. The body is grayish bronze to brown in color, but varies depending upon geographic location. The underside is whitish with a yellow tinge on some individuals. They usually cruise slowly at or near the surface with their huge pectoral fins conspicuously outspread, but can suddenly dash for a short distance when disturbed (Compagno 1984).

Distribution and Habitat Use

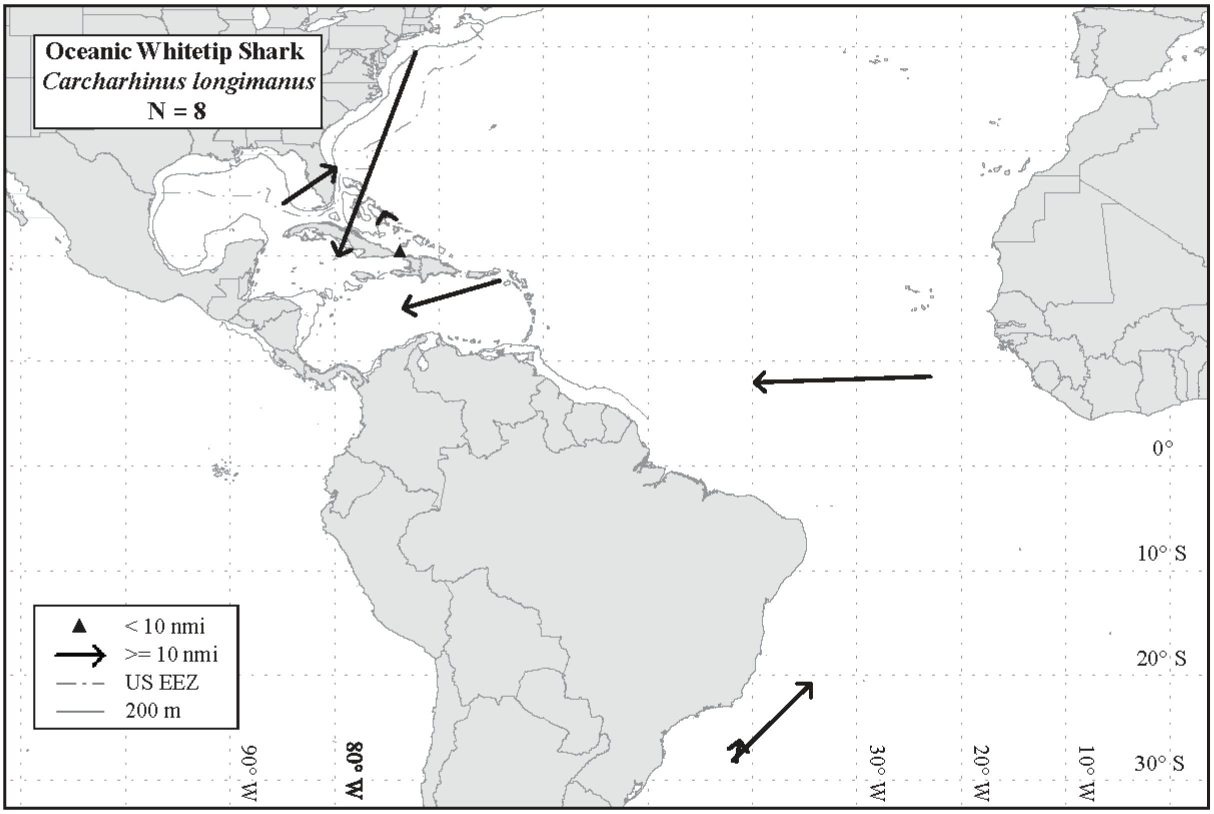
A geographical representation of the species range is provided by Last and Stevens (2009). The oceanic whitetip shark is distributed worldwide in epipelagic tropical and subtropical waters between 30º North latitude and 35º South latitude (Baum et al. 2006). Although the oceanic whitetip can be found in decreasing numbers out to latitudes of 30° N and 35° S, with abundance decreasing with greater proximity to continental shelves, it has a clear preference for open ocean waters between 10° S and 10° N (Backus et al. 1956; Bonfil et al. 2008; Compagno 1984; Strasburg 1958). In the Western Atlantic, oceanic whitetips occur from Maine to Argentina, including the Caribbean and Gulf of Mexico. The oceanic whitetip shark is a highly migratory species of shark that is usually found offshore in the open ocean, on the outer continental shelf, or around oceanic islands in deep water, occurring from the surface to at least 152 meters (m) depth. Essential Fish Habitat (EFH) for the oceanic whitetip shark includes localized areas in the central Gulf of Mexico and Florida Keys, and depths greater than 200 m in the Atlantic (from southern New England to Florida, Puerto Rico and the U.S. Virgin Islands. The species can be found in waters between 15°C and 28°C, but it exhibits a strong preference for the surface mixed layer in water with temperatures above 20 °C, and is considered a surface-dwelling shark. It is however, capable of tolerating colder waters down to 7.75°C for short periods as exhibited by brief, deep dives into the mesopelagic zone below the thermocline (>200 m), presumably for foraging (Howey-Jordan et al. 2013; Howey et al. 2016). However, exposures to these cold temperatures are not sustained (Musyl et al. 2011; Tolotti et al. 2015) and there is some evidence to suggest the species tends to withdraw from waters below 15°C (e.g., the Gulf of Mexico in winter; Compagno 1984). The thermal preferences of oceanic whitetip sharks in conjunction with their reported range within 30° N and S suggest possible thermal barriers to inter-ocean basin movements around the southern tips of Africa and South America (Bonfil *et al.,* 2008; Musyl *et al.,* 2011; Howey-Jordan *et al.,* 2013; Gaither *et al.,* 2015).



Distribution

Little is known about the movement or possible migration paths of the oceanic whitetip shark. Although the species is considered highly migratory and capable of making long distance movements, tagging data provides evidence that this species also exhibits a high degree of philopatry (i.e., site fidelity) in some locations. To date, there have been three tagging studies conducted on oceanic whitetip sharks in the Atlantic. In the Atlantic, young oceanic whitetip sharks have been found well offshore along the southeastern coast of the U.S., suggesting that there may be a nursery in oceanic waters over this continental shelf (Compagno 1984; Bonfil et al. 2008). In the southwestern Atlantic, the prevalence of immature sharks, both female and male, in fisheries catch data suggests that this area may serve as potential nursery habitat for the oceanic whitetip shark (Coelho et al. 2009; Frédou et al. 2015; Tambourgi et al. 2013; Tolotti et al. 2015). Juveniles seem to be concentrated in equatorial latitudes, while specimens in other maturational stages are more widespread (Tambourgi et al. 2013). Pregnant females are often found close to shore, particularly around the Caribbean Islands.

In the Atlantic Ocean, participants in the NMFS Cooperative Shark Tagging Program (CSTP) tagged 645 oceanic whitetips between 1962 and 2015, but only 8 were recaptured. Maximum time at liberty was 3.3 years, maximum distance traveled was 1,225 nmi (2,270 km), and maximum estimated speed was 17 nmi/day (32 km/day; Kohler *et al.,* (1998); NMFS unpublished data). These data show movements by juveniles from a variety of locations, including from the northeastern Gulf of Mexico to the East Coast of Florida, from the Mid-Atlantic Bight to southern Cuba, from the Lesser Antilles west into the central Caribbean Sea, from east to west along the equatorial Atlantic, and from off southern Brazil in a northeasterly direction (Kohler *et al.,* (1998); Bonfil *et al.,* (2008); see Figure 2). An immature female was also tagged in the waters between Cuba and Haiti and was recaptured the next day within 6 nmi (11 km) of the tagging location (NMFS unpublished data). Additionally, an adult of unknown sex was tagged and recaptured three years apart in the vicinity of Cat Island, Bahamas (NMFS unpublished data).

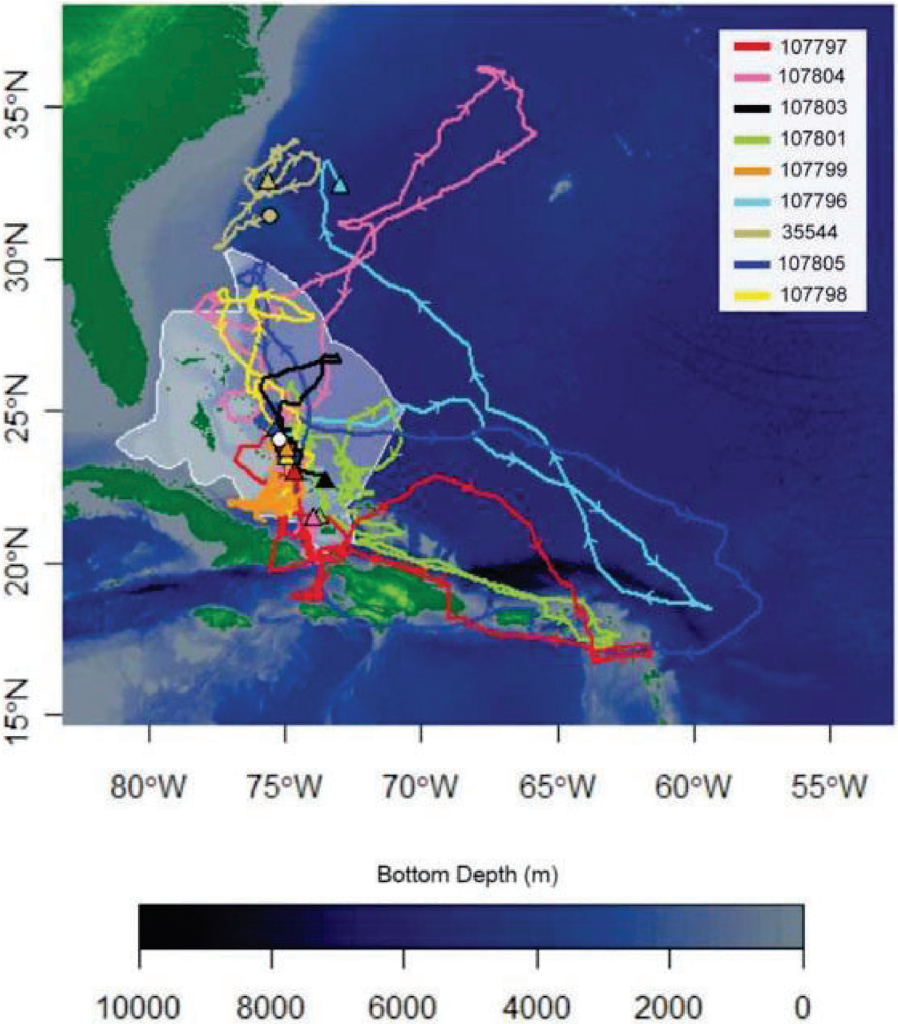


Recapture distribution for the oceanic whitetip shark from the NMFS Co-Operative Shark Tagging Program during 1962-1993 and NMFS Unpublished Data.

In the Gulf of Mexico, a satellite tagged oceanic whitetip shark moved a straight-line distance of 238 km from southeast Louisiana to the edge of the continental shelf about 300 km north of the Yucatan Peninsula. During the track, the shark rarely dove below 150 m staying above the thermocline, and only one dive to 256 m was recorded. The most frequently occupied depth during the entire track was 25.5-50 m (49.8% total time) and temperature was 24.05-26 °C (44.7% total time) (Carlson and Gulak 2012). More recently, a study from Cat Island, Bahamas tagged and tracked 11 mature oceanic whitetip sharks (10 females, 1 male). Individuals tagged at Cat Island stayed within 500 km of the tagging site for ~30 days before scattering across 16,422 km2 of the western North Atlantic (Howey-Jordan *et al*. 2013). Times at liberty ranged from 30-245 days, after which the largest movement by an individual from the tagging site ranged from 290–1,940 km. Individuals moved to several different destinations thereafter (e.g., the northern Lesser Antilles, the northern Bahamas, and north of the Windward Passage (the strait between Cuba and Haiti)), with many returning to the Bahamas after ~150 days. Howey-Jordan *et al.* (2013) found generally high residency times of oceanic whitetips in the Bahamas Exclusive Economic Zone (mean = 68.2% of time). Similar to the tagging study in the Pacific by Musyl *et al.,* (2011), oceanic whitetip sharks in the Bahamas spent 99.7% of their time in waters shallower than 200 m and did not show differences mean depths between day and night, with average day and night temperatures of 26.26±0.003ºC and 26.23±0.003ºC, respectively. According to Howey-Jordan et al. (2013):

“There was a positive correlation between daily sea surface temperature (SST) and mean depth occupied (i.e., as individuals experienced warmer SST, likely resulting from seasonal sea surface warming or migration to areas with warmer SST, mean daily depth increased, suggesting possible behavioral thermoregulation. All individuals made short duration (mean=13.06 minutes) dives into the mesopelagic zone (down to 1,082 m and 7.75◦C), which occurred significantly more often at night."

These tracking data also suggest that oceanic whitetip sharks exhibit site fidelity to Cat Island, Bahamas, although the reasons for this are still unclear. NMFS CSTP data (discussed earlier) from an adult oceanic whitetip, tagged and recaptured three years later in this area, provides supporting evidence of site fidelity to the waters around Cat Island. This information is important given the characterization of this species as highly migratory (Howey-Jordan *et al.,* 2013).



Map with bottom depth showing filtered tracks for nine oceanic whitetip sharks equipped with Standard Rate tags. Colored lines represent tracks from individuals (listed by tag ID) (Howey-Jorden et al. 2013)

For more information on oceanic whitetip distribution, see Young et al. (2016).

Life History Information

The oceanic whitetip shark gives birth to live young (i.e., "viviparous"). Their reproductive cycle is thought to be biennial, giving birth on alternate years, after a lengthy 10–12 month gestation period. The number of pups in a litter ranges from 1 to 14 (mean = 6), and a positive correlation between female size and number of pups per litter has been observed, with larger sharks producing more offspring (Bonfil et al. 2008; Compagno 1984; IOTC 2014; Seki et al. 1998). Age and length of maturity estimates are slightly different depending on geographic location. In the Southwest Atlantic, age and length of maturity in oceanic whitetips was estimated to be 6–7 years and 180–190 cm TL, respectively, for both sexes (Lessa et al. 1999).

Historically, the maximum length effectively measured for the oceanic whitetip was 350 cm TL (Bigelow and Schroder 1948 cited in Lessa et al. 1999), with "gigantic individuals" perhaps reaching 395 cm TL (Compagno 1984), though Compagno's length seems to have never been measured (Lessa et al. 1999). In contemporary times, Lessa et al. (1999) recorded a maximum size of 250 cm TL in the Southwest Atlantic, and estimated a theoretical maximum size of 325 cm TL (Lessa et al. 1999), but the most common sizes are below 300 cm TL (Compagno 1984). The oceanic whitetip has an estimated maximum age of 17 years, with confirmed maximum ages of 12 and 13 years in the North Pacific and South Atlantic, respectively (Seki et al. 1998; Lessa et al. 1999). However, other information from the South Atlantic suggests the species likely lives up to ~20 years old based on observed vertebral ring counts (Rodrigues et al. 2015). Growth rates (growth coefficient, K) have been estimated similarly for both sexes and range from 0.075—0.099 in the Southwest Atlantic to 0.0852–0.103 in the North Pacific (Joung et al. 2016; Lessa et al. 1999; Seki et al. 1998). Using life history parameters from the Southwest Atlantic, (Cortés et al. 2010; Cortés et al. 2012) estimated productivity of the oceanic whitetip shark, determined as intrinsic rate of population increase (r), to be 0.094–0.121 per year (median). Overall, the best available data indicate that the oceanic whitetip shark is a long lived species (at least 20 years) and can be characterized as having relatively low productivity.

To date, only two studies have been conducted on the genetics and population structure of the oceanic whitetip shark, which suggest there may be some genetic differentiation between various populations of the species. Overall, the data showing population structure within the Atlantic relies solely on mitochondrial DNA and does not reflect male mediated gene flow. Thus, while the current data supports three maternal populations within the Atlantic, information regarding male mediated gene flow would provide an improved understanding of the fine-scale genetic structuring of oceanic whitetip in the Atlantic. On the other hand, both mitochondrial DNA and nuclear microsatellite data analyses support at least two global genetic stocks. However, the data from these studies are preliminary, and it is likely that additional population structure within and between oceans will be discovered with additional samples and analyses.

Oceanic whitetip sharks are high trophic-level predators in open ocean ecosystems feeding mainly on teleosts and cephalopods (Backus et al. 1956; Bonfil et al. 2008), but studies have also reported that they consume sea birds, marine mammals, other sharks and rays, molluscs, crustaceans, and even garbage (Compagno 1984; Cortés 1999). Backus et al. (1956) recorded various fish species in the stomachs of oceanic whitetip sharks, including blackfin tuna, barracuda, and white marlin. Based on the species' diet, the oceanic whitetip has a high trophic level, with a score of 4.2 out of a maximum 5.0 (Cortés 1999). The available evidence also suggests that oceanic whitetip sharks are opportunistic feeders.

Status and Population Dynamics

Oceanic whitetip sharks can be found worldwide, with no present indication of a range contraction. While a global population size estimate or trend for the oceanic whitetip shark is currently unavailable, numerous sources of information, including the results of a recent stock assessment and several other abundance indices (e.g., trends in occurrence and composition in fisheries catch data, CPUE, and biological indicators) were available to infer and assess current regional abundance trends of the species. Given the available data, and the fact that the available assessments were not conducted prior to the advent of industrial fishing (and thus not from virgin biomass), the exact magnitude of the declines and current abundance of the global population are unknown. The oceanic whitetip shark was historically one of the most abundant and ubiquitous shark species in tropical seas around the world; however, numerous lines of evidence suggest declines greater than 70-80% in most areas throughout its range, and this species likely continues to experience abundance declines of varying magnitude globally.

In the Northwest Atlantic, the oceanic whitetip shark was described historically as widespread, abundant, and the most common pelagic shark in the warm parts of the North Atlantic (Backus et al. 1956). Recent information, however, suggests the species is now relatively rare in this region.

Several studies have been conducted in this region to determine trends in abundance of various shark species, including the oceanic whitetip shark, and these studies have shown significant declines in abundance. The proposed listing rule provides more detail on the varying estimates on the severity of the declines (81 FR 96304; December 29, 2016). Relative abundance of oceanic whitetip shark may have stabilized in the Northwest Atlantic since 2000 and in the Gulf of Mexico/Caribbean since the late 1990s at a significantly diminished abundance (Young et al. 2016).

Threats

Currently, the most significant threat to oceanic whitetip sharks is mortality in commercial fisheries, largely driven by demand of the international shark fin trade, bycatch related mortality, as well as illegal, unreported, and unregulated (IUU) fishing. Although generally not targeted, oceanic whitetip sharks are frequently caught as bycatch in many fisheries, including pelagic longline fisheries targeting tuna and swordfish, purse seine, gillnet, and artisanal fisheries. Oceanic whitetip sharks are also a preferred species for their large, morphologically distinct fins, as they obtain a high price in the Asian fin market. The oceanic whitetip shark's vertical and horizontal distribution significantly increases its exposure to industrial fisheries, including pelagic longline and purse seine fisheries operating within the species' core tropical habitat throughout its global range.

In addition to declines in oceanic whitetip catches throughout its range, there is also evidence of declining average size over time in some areas, and is a concern for the species' status given evidence that litter size is positively correlated with maternal length. Such extensive declines in the species' global abundance and the ongoing threat of overutilization, the species' slow growth and relatively low productivity, makes them generally vulnerable to depletion and potentially slow to recover from overexploitation. Related to this, the low genetic diversity of oceanic whitetip is also cause for concern and a viable risk over the foreseeable future for this species. Loss of genetic diversity can lead to reduced fitness and a limited ability to adapt to a rapidly changing environment. The biology of the oceanic whitetip shark indicates that it is likely to be a species with low resilience to fishing and minimal capacity for compensation (Rice and Harley 2012).

Available information does not indicate that destruction, modification or curtailment of the species' habitat or range, disease or predation, or other natural or manmade factors are operative threats on this species (81 FR 96304; December 29, 2016).

3.2.10 Giant Manta

NMFS listed the giant manta ray (*Manta birostris*) as threatened under the ESA (83 FR 2916, Publication Date January 22, 2018) and determined that the designation of critical habitat is not prudent on (84 FR 66652, Publication Date December 5, 2019). On December 4, 2019, NMFS published a recovery outline for the giant manta ray (NMFS 2019), which serves as an interim guidance to direct recovery efforts for giant manta ray.

Species Description and Distribution

The giant manta ray is the largest living ray, with a wingspan reaching a width of up to 7 m (23 ft), and an average size between 4-5 m (15-16.5 ft). The giant manta ray is recognized by its large diamond-shaped body with elongated wing-like pectoral fins, ventrally placed gill slits, laterally placed eyes, and wide terminal mouth. In front of the mouth, it has 2 structures called cephalic lobes that extend and help to introduce water into the mouth for feeding activities (making them the only vertebrate animals with 3 paired appendages). Giant manta rays have 2 distinct color types: chevron (mostly black back dorsal side and white ventral side) and black (almost completely black on both ventral and dorsal sides). Most of the chevron variants have a black dorsal surface and a white ventral surface with distinct patterns on the underside that can be used to identify individuals (Miller and Klimovich 2017). There are bright white shoulder markings on the dorsal side that form 2 mirror image right-angle triangles, creating a T-shape on the upper shoulders.

The giant manta ray is found worldwide in tropical and subtropical oceans and in productive coastal areas. They also occasionally occur within estuaries (e.g., lagoons and bays) and Intracostal Waterways (ICWW). In terms of range, within the Northern hemisphere, the species has been documented as far north as southern California and New Jersey on the United States west and east coasts, respectively, and Mutsu Bay, Aomori, Japan, the Sinai Peninsula and Arabian Sea, Egypt, and the Azores Islands (CITES 2013; Gudger 1922; Kashiwagi et al. 2010; Moore 2012). In the Southern Hemisphere, the species occurs as far south as Peru, Uruguay, South Africa, New Zealand and French Polynesia (CITES 2013; Mourier 2012). Within its range, the giant manta ray inhabits tropical, subtropical, and temperate bodies of water and is commonly found offshore, in oceanic waters, and near productive coastlines (Kashiwagi et al. 2011; Marshall et al. 2009).

The Extent of Occurrence (dark blue) and Area of Occupancy (light blue) based on species distribution (Lawson et al. 2017).

Life History Information

Giant manta rays make seasonal long-distance migrations, aggregate in certain areas and remain resident, or aggregate seasonally (Dewar et al. 2008; Girondot et al. 2015; Graham et al. 2012; Stewart et al. 2016). The giant manta ray is a seasonal visitor along productive coastlines with regular upwelling, in oceanic island groups, and at offshore pinnacles and seamounts. The timing of these visits varies by region and seems to correspond with the movement of zooplankton, current circulation and tidal patterns, seasonal upwelling, seawater temperature, and possibly mating behavior. They have also been observed in estuarine waters inlets, with use of these waters as potential nursery grounds (J. Pate, Florida Manta Project, unpublished data; Adams and Amesbury 1998; Medeiros et al. 2015; Milessi and Oddone 2003).

Giant manta rays are known to aggregate in various locations around the world in groups usually ranging from 100-1,000 (Graham et al. 2012; Notarbartolo di Sciara and Hillyer 1989; Venables 2013). These sites function as feeding sites, cleaning stations, or sites where courtship interactions take place (Graham et al. 2012; Heinrichs et al. 2011; Venables 2013). The appearance of giant manta rays in these locations is generally predictable. For example, food availability due to high productivity events tends to play a significant role in feeding site aggregations (Heinrichs et al. 2011; Notarbartolo di Sciara and Hillyer 1989). Giant manta rays have also been shown to return to a preferred site of feeding or cleaning over extended periods of time (Dewar et al. 2008; Graham et al. 2012; Medeiros et al. 2015). In addition, giant and reef manta rays in Keauhou and Ho”ona Bays in Hawaii, appear to exhibit learned behavior. These manta rays learned to associate artificially lighting with high plankton concertation (primary food source) and shifted foraging strategies to include sites that had artificially lighting at night (Clark 2010). While little is known about giant manta ray aggregation sites, the Flower Garden Banks National Marine Sanctuary and the surrounding region might represent the first documented nursery habitat for giant manta ray (Stewart et al. 2018). Stewart et al. (2018) found that the Flower Garden Banks National Marine Sanctuary provides nursery habitat for juvenile giant manta rays because small age classes have been observed consistently across years at both the population and individual level. The Flower Garden Banks National Marine Sanctuary may be an optimal nursery ground because of its location near the edge of the continental shelf and proximity to abundant pelagic food resources. In addition, small juveniles are frequently observed along a portion of Florida's east coast, indicating that this area may also function as a nursery ground for juvenile giant manta rays. Since directed visual surveys began in 2016, juvenile giant manta rays are regularly observed in the shallow waters (less than 5 m depth) from Jupiter Inlet to Boynton Beach Inlet (J Pate, Florida Manta Project, unpublished data). However, the extent of this purported nursery ground is unknown as the survey area is limited to a relatively narrow geographic area along Florida's southeast coast.

The giant manta ray appears to exhibit a high degree of plasticity in terms of its use of depths within its habitat. Tagging studies have shown that the giant manta rays conduct night descents from 200-450m depths (Rubin et al. 2008; Stewart et al. 2016) and are capable of diving to depths exceeding 1,000 m (A. Marshall et al. unpublished data 2011, cited in Marshall et al. (2011)). Stewart et al. (2016) found diving behavior may be influenced by season, and more specifically, shifts in prey location associated with the thermocline, with tagged giant manta rays (n=4) observed spending a greater proportion of time at the surface from April to June and in deeper waters from August to September. Overall, studies indicate that giant manta rays have a more complex depth profile of their foraging habitat than previously thought, and may actually be supplementing their diet with the observed opportunistic feeding in near-surface waters (Burgess et al. 2016; Couturier et al. 2013).

Giant manta rays primarily feed on planktonic organisms such as euphausiids, copepods, mysids, decapod larvae and shrimp, but some studies have noted their consumption of small and moderately sized fishes (Miller and Klimovich 2017). While it was previously assumed, based on field observations, that giant manta rays feed predominantly during the day on surface zooplankton, results from recent studies (Burgess et al. 2016; Couturier et al. 2013) indicate that these feeding events are not an important source of the dietary intake. When feeding, giant manta rays hold their cephalic lobes in an "O" shape and open their mouth wide, which creates a funnel that pushes water and prey through their mouth and over their gill rakers. They use many different types of feeding strategies, such as barrel rolling (doing somersaults repeatedly) and creating feeding chains with other mantas to maximize prey intake.

The giant manta ray is viviparous (i.e., gives birth to live young). They are slow to mature and have very low fecundity and typically give birth to only one pup every 2 to 3 years. Gestation lasts approximately 10-14 months. Females are only able to produce between 5 and 15 pups in a lifetime (CITES 2013; Miller and Klimovich 2017). The giant manta ray has one of the lowest maximum population growth rates of all elasmobranchs (Dulvy et al. 2014; Miller and Klimovich 2017). The giant manta rays generation time (based on *M. alfredi* life history parameters) is estimated to be 25 years (Miller and Klimovich 2017).

Although giant manta rays have been reported to live at least 40 years, not much is known about their growth and development. Maturity is thought to occur between 8-10 years of age (Miller and Klimovich 2017). Males are estimated to mature at around 3.8 m disc width (slightly smaller than females) and females at 4.5 m disc width (Rambahiniarison et al. 2018).

Status and Population Dynamics

The global population size of the giant manta ray is difficult to assess, but abundance trajectories have been estimated based on longtime series of sightings at diving sites. Generally, divers encounter the giant manta ray less frequently than the reef manta ray and this is thought to be due to their oceanic habitat preference. Locally, abundance varies substantially and may be based on food availability and the degree that they were, or are currently being, fished. In most regions, giant manta ray population sizes appear to be small (less than 1,000 individuals). The current photo-identification databases for giant manta rays exist across multiple studied subpopulations, but rarely exceed 1,000 recorded individuals: 267 identified individuals in the Red Sea (Knochel et al. 2022); 588 in Raja Ampat, Indonesia (Beale et al. 2019); 101 in Mozambique (Marshall 2008); 1,141 in the Revillagigedo Archipelago, Mexico (K. Kumli pers. comm. Cited in Harty et al. 2022); 286 in coastal Mexico (J. D. Stewart unpubl. data, cited in Harty et al. 2022); 678 in the Maldives (Hilbourne and Stevens 2019); 59 in coastal Florida U.S. (Pate and Marshall 2020); 85 in the FGBNMS, U.S.(Stewart et al. 2018a); and 2,803 in Ecuador and Peru (Harty et al. 2022).

The global population size is not known, but three regional total abundance estimates are available. The total abundance estimates of giant manta rays populations are 600 in Mozambique (Marshall 2008), 1,875 from Raja Ampat (Beale et al. 2019), and 22,000 in coastal Ecuador and Peru (Harty et al. 2022). Preliminary (uncorrected for availability bias) relative abundance estimates for giant manta rays in the northwestern Atlantic and Gulf of Mexico within the U.S., suggest an abundance ranging from approximately 5,000–14,000 individuals with a coefficient of variation between 14-20%, depending on the month (N. Farmer unpubl. data). While these estimates are preliminary (i.e., uncorrected for availability bias), the availability bias correction would likely result in higher abundance estimates and therefore, the abundance estimates may be conservative (N. Farmer unpubl. data). Peak abundance was predicted in April and November, with the lowest abundance in August. This is consistent with observations and predictions described in Farmer et al. (2021).

Giant manta ray aggregation sites are widely separated, and the lack of genetic sub structuring indicates occasional large-scale movements have occurred. Cross-referencing of regional photo-identification databases has not detected inter-region individual movements (e.g., across ocean basins) (Holmberg and Marshall 2018), indicating a low degree of interchange between ocean basins. Unlike the reef manta ray (*M. alfredi*), no significant genetic sub structuring has been detected within the giant manta ray (Stewart et al. 2016, Hosegood et al. 2019). Long-term studies, including those that have incorporated telemetry, have shown low re-sighting rates but a degree of philopatry.

The trend of the number of individuals varies widely across the range of the giant manta ray, but trends appear stable where they are protected and declining rapidly where fishing pressure is greater. For example, sighting trends appear stable where they receive some level of protections, such as Hawaii (Ward-Paige et al. 2013) and Ecuador (Holmberg and Marshall 2018), although individuals sighted in Ecuador seasonally migrate to Peru (A. Marshall unpubl. data 2019) where directed fishing occurs (Heinrichs et al. 2011). Elsewhere, the number of individuals is likely to be declining in places where the species is targeted or caught regularly as bycatch. For example, in southern Mozambique, a 94% decline in diver sighting records occurred over a 15-year period in a well-studied population (Rohner et al. 2017). Similarly, at Cocos Island, Costa Rica, there has been an 89% decline in diver sighting records of giant manta rays over a 21-year period (White et al. 2015). These steep declines have occurred in less than one-generation length (29 years) (Marshall et al. 2022).

Along with these sightings data, it is suspected (based on historical sightings, distribution data, and habitat suitability), that giant manta ray populations may have been depleted in areas where significant fisheries or threats for manta rays exist, such as the west coast of mainland Mexico (Booda 1984, Rubin 2002), Madagascar, Tanzania (Bianchi 1985), Kenya, Somalia, Pakistan (Nawaz and Khan 2015, Moazzam 2018), India, Sri Lanka, Bangladesh, Myanmar, China, Indonesia, and the Philippines. In these densely populated and heavily fished countries, fishing pressure may have more swiftly depleted resident populations of giant manta ray.

There are narratives consistent with rapid local depletion, and disappearance of manta rays, particularly in Indonesia. In Lamakera, eastern Indonesia, increasing international trade demand for manta ray products in the 1990s resulted in increased fishing effort, with up to 2,400 manta and devil rays landed per year. Consequently, manta ray catches declined sharply in this region, forcing fishers to travel further afield to find manta rays (Dewar 2002). Furthermore, landings of manta species, including giant manta ray (which was the main target), continued to decline in Lamakera despite increased effort, with a reduction in landings of 75% over a 13-year period from 2001 to 2014, leading to possible local extinction of manta species from Lamakera (Lewis et al. 2015). Landings of manta species also declined significantly during the same 13-year period in two other regions in Indonesia where effort also increased: Tanjung Luar (Lombok) (95% declines) and Cilicap (Central Java) (71% declines) (Lewis et al. 2015). Aggregations of manta rays have entirely disappeared from three other locations within Indonesia, that is Lembeh Strait, South Sulawesi and Northwest Alor, with the cause strongly suspected as targeted and bycatch fishing (Lewis et al. 2015). In East Flores and Lembata, Indonesia, manta rays (including the giant manta ray) had historically been fished by indigenous villagers since 1959, with up to 360 individuals caught a year (Barnes 2005). By 2001, less than 10 manta rays had been seen per year for the previous 6-year period (Lewis et al. 2015).

In the Bohol Sea, Philippines, manta rays were targeted for over a century with landings estimated to have declined since the 1960s by 50–90% despite increasing fishing effort (Alava et al. 2002). Concern for the species led to a ban on targeting of giant manta ray in the Philippines in 1998, yet other Mobula species could still be targeted, and giant manta rays continued to be caught (Acebes and Tull 2016, Rambahiniarison et al. 2018). In 2017, all targeted Mobula fisheries in the Bohol Seas were banned, yet Mobula species may still be taken as bycatch in tuna fisheries in the Bohol Sea (Rambahiniarison et al. 2018). Declining trends in the abundance and body size of mobulid fisheries landings occurred in both India and Sri Lanka (Fernando and Stevens 2011, Pillai 1998, Nair et al. 2013, Raje et al. 2007). In Papua New Guinea, local declines have been noted and are attributed to fishing pressure (Rose 2008). Unspecified manta rays (some of which, based on distribution records, were likely giant manta rays) were caught as non-target species in purse seine sets from 1995 to 2006 (Marshall et al. 2022). There was a distinct and significant rise in the number of manta rays caught in these fisheries in 2001, which steadily rose until 2005/2006 when sharp declines were noted in the catch (Rose 2008).

Although sparse, the available data suggest that target fisheries in some regions have rapidly depleted localized populations of the giant manta ray and that local extinction is suspected to have occurred in many parts of their historical range. Globally, the suspected population reduction is 50–79% over three generation lengths (87 years), with a further population reduction suspected over the next three generation lengths (2018–2105), based on current and ongoing threats and exploitation levels, steep declines in monitored populations, and a reduction in area of occupancy. In the few places where manta rays are protected, the number of individuals is stable (Marshall et al. 2022).

Threats

The giant manta ray faces many threats, including fisheries interactions, environmental contaminants (microplastics, marine debris, petroleum products, etc.), vessel strikes, entanglement, and global climate change. Overall, the predictable nature of their appearances, combined with slow swimming speed, large size, and lack of fear towards humans, may increase their vulnerability to threats (Convention on Migratory Species 2014; O'Malley et al. 2013). The ESA status review determined that the greatest threat to the species results from fisheries related mortality (Miller and Klimovich 2017); (83 FR 2916, Publication Date January 22, 2018).

Commercial Harvest and Fisheries Bycatch

Commercial harvest and incidental bycatch in fisheries is cited as the primary cause for the decline in the giant manta ray and threat to future recovery (Miller and Klimovich 2017). We anticipate that these threats will continue to affect the rate of recovery of the giant manta ray. Worldwide giant manta ray catches have been recorded in at least 30 large and small-scale fisheries covering 25 countries (Lawson et al. 2016). Demand for the gills of giant manta rays and other mobula rays has risen dramatically in Asian markets. With this expansion of the international gill raker market and increasing demand for manta ray products, estimated harvest of giant manta rays, particularly in many portions of the Indo-Pacific, frequently exceeds numbers of identified individuals in those areas and are accompanied by observed declines in sightings and landings of the species of up to 95% (Miller and Klimovich 2017). In the Indian Ocean, manta rays (primarily giant manta rays) are mainly caught as bycatch in purse seine and gillnet fisheries (Oliver et al. 2015). In the western Indian Ocean, data from the pelagic tuna purse seine fishery suggests that giant manta and mobula rays, together, are an insignificant portion of the bycatch, comprising less than 1% of the total non-tuna bycatch per year (Chassot et al. 2008; Romanov 2002). In the U.S., bycatch of giant manta rays has been recorded in the coastal migratory pelagic gillnet, gulf reef fish bottom longline, Atlantic shark gillnet, pelagic longline, pelagic bottom longline, and trawl fisheries. Incidental capture of giant manta ray is also a rare occurrence in the elasmobranch catch within U.S. Atlantic and Gulf of Mexico, with the majority that are caught released alive. In addition to directed harvest and bycatch in commercial fisheries, the giant manta ray is incidentally captured by recreational fishers using vertical line (i.e., handline, bandit gear, and rod-and-reel). Researchers frequently report giant manta rays having evidence of recreational gear interactions along the east coast of Florida (i.e., manta rays have embedded fishing hooks with attached trailing monofilament line) (J. Pate, Florida Manta Project, unpublished data). Internet searches also document recreational interactions with giant manta rays. For example, recreational fishers will search for giant manta rays while targeting cobia, as cobia often accompany giant manta rays (anglers will cast at manta rays in an effort to hook cobia). In addition, giant manta rays are commonly observed swimming near or underneath public fishing piers where they may become foul-hooked. The current threat of mortality associated with recreational fisheries is expected to be low, given that we have no reports of recreational fishers retaining giant manta ray. However, bycatch in recreational fisheries remains a potential threat to the species.

Vessel Strike

Vessel strikes can injure or kill giant manta rays, decreasing fitness or contributing to non-natural mortality (Couturier et al. 2012; Deakos et al. 2011). Giant manta rays do not surface to breath, but they can spend considerable time in surface waters, while basking and feeding, where they are more susceptible to vessel strikes (McGregor et al., 2019). They show little fear toward vessels which can also make them extremely vulnerable to vessel strikes (Deakos 2010; C. Horn. NMFS, personal observation). Five giant manta rays were reported to have been struck by vessels from 2016 through 2018; individuals had injuries (i.e., fresh or healed dorsal surface propeller scars) consistent with a vessel strike. These interactions were observed by researchers conducting surveys from Boynton Beach to Jupiter, Florida (J. Pate, Florida Manta Project, unpublished data). The giant manta ray is frequently observed in nearshore coastal waters and feeding within and around inlets. As vessel traffic is concentrated in and around inlets and nearshore waters, this overlap exposes the giant manta ray in these locations to an increased likelihood of potential vessel strike. Yet, few instances of confirmed or suspected mortalities of giant manta ray attributed to vessel strike injury (e.g., via strandings) have been documented. This lack of documented mortalities could also be the result of other factors that influence carcass detection (i.e., wind, currents, scavenging, decomposition etc.). In addition, manta rays appear to be able to heal from wounds very quickly, while high wound healing capacity is likely to be beneficial for their long-term survival, the fitness cost of injuries and number vessel strikes occurring may be masked (McGregory et al., 2019).

Microplastics

Filter-feeding megafauna are particularly susceptible to high levels of microplastic ingestion and exposure to associated toxins due to their feeding strategies, target prey, and, for most, habitat overlap with microplastic pollution hotspots (Germanov et al. 2019). Giant manta rays are filter feeders, and, therefore can ingest microplastics directly from polluted water or indirectly through-contaminated planktonic prey (Miller and Klimovich 2017). The effects of ingesting indigestible particles include blocking adequate nutrient absorption and causing mechanical damage to the digestive tract. Microplastics can also harbor high levels of toxins and persistent organic pollutants, and introduce these toxins to organisms via ingestion. These toxins can bioaccumulate over decades in long-lived filter feeders, leading to a disruption of biological processes (e.g., endocrine disruption), and potentially altering reproductive fitness (Germanov et al. 2019). Jambeck et al. (2015) found that the Western and Indo- Pacific regions are responsible for the majority of plastic waste. These areas also happen to overlap with some of the largest known aggregations of giant manta rays. For example, in Thailand, where recent sightings data have identified over 288 giant manta rays (MantaMatcher 2016), mismanaged plastic waste is estimated to be on the order of 1.03 million tonnes annually, with up to 40% of this entering the marine environment (Jambeck et al. 2015). Approximately 1.6 million tonnes of mismanaged plastic waste is being disposed of in Sri Lanka, again with up to 40% entering the marine environment (Jambeck et al. 2015), potentially polluting the habitat used by the nearby Maldives aggregation of manta rays. While the ingestion of plastics is likely to negatively affect the health of the species, the levels of microplastics in manta ray feeding grounds and frequency of ingestion are presently being studied to evaluate the impact on these species (Germanov et al. 2019).

Mooring and Anchor Lines

Mooring and boat anchor line entanglement may also wound giant manta rays or cause them to drown (Deakos et al. 2011; Heinrichs et al. 2011). There are numerous anecdotal reports of giant manta rays becoming entangled in mooring and anchor lines (C. Horn, NMFS, unpublished data), as well as documented interactions encountered by other species of manta rays (C. Horn, NMFS, unpublished data). For example, although a rare occurrence, reef manta rays on occasion entangle themselves in anchor and mooring lines. Deakos (2010) suggested that manta rays become entangled when the line makes contact with the front of the head between the cephalic lobes, the animal's reflex response is to close the cephalic lobes, thereby trapping the rope between the cephalic lobes, entangling the manta ray as the animal begins to roll in an attempt to free itself. In Hawaii, on at least 2 occasions, a reef manta ray was reported to have died after entangling in a mooring line (A. Cummins, pers. comm. 2007, K. Osada, pers. comm. 2009; cited in Deakos (2011)). In Maui, Hawaii, Deakos et al. (2011) observed that 1 out of 10 reef manta rays had an amputated or disfigured non-functioning cephalic lobe, likely a result of line entanglement. Mobulid researchers indicate that entanglements may significantly affect the manta rays fitness (Braun et al. 2015; Convention on Migratory Species 2014; Couturier et al. 2012; Deakos et al. 2011; Germanov and Marshall 2014; Heinrichs et al. 2011). However, there is very little quantitative information on the frequency of these occurrences and no information on the impact of these injuries on the overall health of the species.

Climate Change Effects

Because giant manta rays are migratory and considered ecologically flexible (e.g., low habitat specificity), they may be less vulnerable to the impacts of climate change compared to other sharks and rays (Chin et al. 2010). However, as giant manta rays frequently rely on coral reef habitat for important life history functions (e.g., feeding, cleaning) and depend on planktonic food resources for nourishment, both of which are highly sensitive to environmental changes (Brainard et al. 2011; Guinder and Molinero 2013), climate change is likely to have an impact on their distribution and behavior. Coral reef degradation from anthropogenic causes, particularly climate change, is projected to increase through the future. Specifically, annual, globally averaged surface ocean temperatures are projected to increase by approximately 0.7 °C by 2030 and 1.4 °C by 2060 compared to the 1986-2005 average (Intergovernmental Panel on Climate Change 2013), with the latest climate models predicting annual coral bleaching for almost all reefs by 2050 (Heron et al. 2016). Declines in coral cover have been shown to result in changes in coral reef fish communities (Jones et al. 2004) (Graham et al. 2008). Therefore, the projected increase in coral habitat degradation may potentially lead to a decrease in the abundance of fish that clean giant manta rays (e.g., *Labroides* spp., *Thalassoma* spp., and *Chaetodon* spp.) and an overall reduction in the number of cleaning stations available to manta rays within these habitats. Decreased access to cleaning stations may negatively affect the fitness of giant manta rays by hindering their ability to reduce parasitic loads and dead tissue, which could lead to increases in diseases and declines in reproductive fitness and survival rates.

Changes in climate and oceanographic conditions, such as acidification, are also known to affect zooplankton structure (size, composition, and diversity), phenology, and distribution (Guinder and Molinero 2013). As such, the migration paths and locations of both resident and seasonal aggregations of giant manta rays, which depend on these animals for food, may similarly be altered (Couturier et al. 2012). As research to understand the exact impacts of climate change on marine phytoplankton and zooplankton communities is still ongoing, the severity of this threat has yet to be fully determined (Miller and Klimovich 2017).

7. Amend Section 4.1, *Status of Species in the Action Area*, by inserting the following paragraphs for the oceanic whitetip shark and giant manta ray:

Oceanic Whitetip Shark
In the Northwest Atlantic, the oceanic whitetip shark was described historically as widespread, abundant, and the most common pelagic shark in the warm parts of the North Atlantic (Backus et al. 1956). Recent information, however, suggests the species is now relatively rare in this region. The status of the species in the action area, as well as the threats to the species, are best reflected in the range-wide status and supported by the species account in Section 3.2.9.

Giant Manta Ray
In the U.S. Atlantic and Caribbean, giant manta ray sightings are concentrated along the east coast as far north as New Jersey, within the Gulf of Mexico, and off the coasts of the U.S. Virgin Islands and Puerto Rico. The status of the species in the action area, as well as the threats to the species, are best reflected in the range-wide status and supported by the species account in Section 3.2.10.

8. Amend Section 4.2, *Factors Affecting Species in the Action Area*, to include oceanic whitetip shark and giant manta ray by replacing the first paragraph with the following:

The CMP fisheries are authorized to operate within the U.S mid-Atlantic, South Atlantic, and the GOM EEZ. The U.S. mid-Atlantic and South Atlantic EEZ extends from 3-200 nmi off the coasts of New York south through Florida. The EEZ boundary changes in GOM to 9-200 off Florida, 3-200 off other GOM states. Therefore, the action area for this consultation is restricted to the EEZ within which the CMP fisheries are authorized to operate. The following analysis examines the impacts of past and ongoing actions that may affect these species' environment specifically within this defined action area. The environmental baseline for this Opinion includes the effects of several activities affecting the survival and recovery of ESA-listed species (i.e., threatened and endangered sea turtles, smalltooth sawfish, Atlantic sturgeon, oceanic whitetip shark, and giant manta ray) in the action area. The activities that shape the environmental baseline in the action area of this consultation are primarily federal fisheries. Other environmental impacts include effects of vessel operations, additional military activities, dredging, oil and gas exploration, permits allowing take under the ESA, private vessel traffic, and marine pollution.

9. Amend Section 4.2.1.1, *Fisheries*, to include oceanic whitetip shark and giant manta ray by replacing the introductory paragraphs with the following:

Threatened and endangered sea turtles, smalltooth sawfish, Atlantic sturgeon, oceanic whitetip shark, and giant manta ray are adversely affected by fishing gear used throughout the continental shelf of the action area. Gill net, pelagic and bottom longline, other types of hook-and-line gear, trawl, and pot fisheries have all been documented as interacting with these species.

For all fisheries for which there is an FMP, impacts have been evaluated under Section 7. Formal Section 7 consultations conducted on the following fisheries, occurring at least in part within the action area, found adversely effects were likely to occur to threatened and endangered sea turtles, smalltooth sawfish, and/or Atlantic sturgeon: dolphin-wahoo; GOM reef fish; GOM and South Atlantic spiny lobster; South Atlantic snapper-grouper; Southeast shrimp; Highly Migratory Species (HMS) pelagic longline; HMS shark; spiny dogfish; Atlantic herring; American lobster; tilefish; Atlantic sea scallop; Northeast multispecies; monkfish; spiny dogfish; Atlantic bluefish; Northeast skate; mackerel, squid, and butterfish; and the summer flounder, scup, and black sea bass fisheries. Anticipated take levels associated with these fisheries are presented in Appendix 1; the take levels reflect the impact on listed species of each activity anticipated from the date of the ITS forward in time.

10. Amend Section 4.2.1.1, *Fisheries*, to include oceanic whitetip shark and giant manta ray by replacing the *Atlantic HMS Pelagic Longline Fisheries* subsection and inserting a new subsection for the *Consolidated Atlantic HMS Fishery* with the following:

Atlantic HMS Pelagic Longline Fisheries
Atlantic pelagic longline fisheries targeting swordfish and tuna are also known to incidentally capture and kill large numbers of loggerhead and leatherback sea turtles, oceanic whitetip sharks, and to a lesser degree giant manta rays. U.S. pelagic longline fishers began targeting HMS in the Atlantic Ocean in the early 1960s. The fishery is comprised of 5 relatively distinct segments, including: the GOM yellowfin tuna fishery (the only segment in our action area); southern Atlantic (Florida East Coast to Cape Hatteras) swordfish fishery; mid-Atlantic and New England swordfish and bigeye tuna fishery; U.S. Atlantic Distant Water swordfish fishery; and the Caribbean tuna and swordfish fishery. Pelagic longlines targeting yellowfin tunas in the GOM are set in the morning (pre-dawn) in deep water and hauled in the evening. Although this fishery does occur in the action area, fishing occurs further offshore than where shrimp trawling occurs. The fishery mainly interacts with leatherback sea turtles and pelagic juvenile loggerhead sea turtles, thus, younger, smaller loggerhead sea turtles than the other fisheries described in this environmental baseline.

Over the past 2 decades, NMFS has conducted numerous consultations on this fishery, some of which required RPAs to avoid jeopardy of loggerhead and leatherback sea turtles. The estimated historical total number of loggerhead and leatherback sea turtles caught between 1992-2002 (all geographic areas) is 10,034 loggerhead and 9,302 leatherback sea turtles, of which 81 and 121 were estimated to be dead when brought to the vessel (NMFS 2004c). This does not account for post-release mortalities, which historically were likely substantial.

NMFS reinitiated consultation in 2003 on the pelagic longline fishery as a result of exceeded incidental take levels for loggerheads and leatherbacks (NMFS 2004c). The resulting 2004 Opinion stated the long-term continued operation of this fishery was likely to jeopardize the continued existence of leatherback sea turtles, but RPAs were implemented allowing for the continued authorization of pelagic longline fishing that would not jeopardize leatherback sea turtles.

On July 6, 2004, NMFS published a final rule to implement management measures to reduce bycatch and bycatch mortality of Atlantic sea turtles in the Atlantic pelagic longline fishery (69 FR 40734). The management measures include mandatory circle hook and bait requirements, and mandatory possession and use of sea turtle release equipment to reduce bycatch mortality. The rulemaking, based on the results of the 3-year Northeast Distant Closed Area research experiment and other available sea turtle bycatch reduction studies, is expected to have significantly benefitted endangered and threatened sea turtles by reducing mortality attributed to this fishery.

Oceanic whitetip sharks and giant manta rays were more recently listed and in 2020 were analyzed in the HMS pelagic longline fishery as part of a re-initiation of that FMP consultation. NMFS anticipates up to 2 annual mortalities of giant manta rays, and up to 166 annual mortalities of oceanic whitetip sharks. The consultation concluded that the fishery is not expected to appreciably reduce the likelihood of survival and recovery of giant manta ray or oceanic whitetip shark in the wild. Therefore, it is NMFS's Opinion the fishery is not likely to jeopardize the continued existence of either species.

Consolidated Atlantic HMS Fishery
The Consolidated Atlantic HMS Fishery fishes with bandit gear, bottom longline, buoy gear, gillnets, green-stick, handline, harpoon, purse seine, rod and reel, and speargun. Both oceanic whitetip sharks and giant manta ray can be taken in the fishery. It is estimated that the total 3-year take in the HMS fisheries associated with the fishery would be no more than 6 oceanic whitetip sharks that would result in 3 mortalities. NMFS expects that every 3 years 9 giant manta rays will be caught by the fisheries associated with the fishery. None of these takes are expected to result in mortalities. The effects from fishery are not expected to cause an appreciable reduction in the likelihood of either the survival or recovery of oceanic whitetip sharks or giant manta rays in the wild, and is not expected to appreciably reduce the likelihood of survival and recovery of this species in the wild. Therefore, it is NMFS's Opinion the fishery is not likely to jeopardize the continued existence of either species.

11. Amend Section 4.2.1.1, *Fisheries*, to include giant manta ray by inserting the following paragraph to the *Southeast Shrimp Trawl Fisheries* subsection:

The giant manta ray has been analyzed in the shrimp FMP consultation (2021) and NMFS anticipates the nonlethal capture of 16,780 giant manta ray over 10 years. NMFS believes the nonlethal take on average of 1,678 giant manta rays per year will not result in population level impacts nor will it change their distribution, is not expected to appreciably reduce the likelihood of giant manta ray surviving and recovering in the wild, and is not likely to jeopardize the continued existence of the species.

12.. Amend Section 4.2.1.2, *Federal Vessel Activity and Military Operations*, to include giant manta ray by replacing the introductory paragraph with the following:

Watercraft are the greatest contributors to overall noise in the sea and have the potential to interact with sea turtles though direct impacts or propellers. Sound levels and tones produced are generally related to vessel size and speed. Larger vessels generally emit more sound than smaller vessels, and vessels underway with a full load, or those pushing or towing a load, are noisier than unladen vessels. Vessels operating at high speeds have the potential to strike sea turtles and giant manta rays. Potential sources of adverse effects from federal vessel operations in the action area include operations of the U.S. Department of Defense (DoD), U.S. Coast Guard (USCG), NOAA, and U.S. Army Corps of Engineers (USACE). NMFS has received anecdotal reports that giant manta rays may be affected by vessel interactions in aggregation areas on the East Coast of Florida evidenced by scarring. There is no evidence that these vessel interactions have caused any giant manta ray mortalities in the action area.

13. Amend Section 4.2.2.1, *State Fisheries*, by inserting a new subsection heading titled, *Other State Fisheries* before the existing third paragraph in the *Other State Fixed Net Fisheries* subsection, and replacing that paragraph with the following:

Other State Fisheries

Beyond commercial fisheries, observations of state recreational fisheries have shown that loggerhead, leatherback, Kemp's ridley, and green sea turtles are known to bite baited hooks, and loggerheads and Kemp's ridleys frequently ingest the hooks. Data reported through the Sea Turtle Stranding and Salvage Network (STSSN) show recreational fishers have hooked sea turtles when fishing from boats, piers, and beach, banks, and jetties. Additionally, Florida recreational fishers are known to occasionally take smalltooth sawfish and giant manta rays. Fishers who capture smalltooth sawfish most commonly are recreationally fishing for snook (*Centropomus undecimalis*), redfish (*Scianops ocellatus*), and sharks (Simpfendorfer and Wiley 2004). Encounter data indicate that the majority of these takes are nonlethal.

14. Amend Section 4.2.2.2, *Vessel Traffic*, to include oceanic whitetip shark and giant manta ray by replacing the existing paragraph with the following:

Commercial traffic and recreational boating pursuits can have adverse effects on sea turtles via propeller and boat strike damage. The STSSN includes many records of vessel interactions (propeller injury) with sea turtles off GOM coastal states such as Florida, where there are high levels of vessel traffic. Due to the benthic nature of sturgeon and sawfish, we would not expect vessel traffic to be a significant threat to these species. Similarly, oceanic whitetip shark swimming behavior suggests that we would not expect traffic to be a significant threat to the species. However, giant manta ray interactions with vessels is documented by injuries recorded during study of the species off the coast of Florida (Pate and Marshall 2020).

15. Amend Section 4.2.3.2, *Marine Pollution and Environmental Contamination*, to include the giant manta ray by inserting the following paragraph to the end of the section:

The giant manta ray faces many threats, including environmental contaminants (microplastics, marine debris, petroleum products, etc.), and as discussed in the Status of Species section, filter-feeding megafauna are particularly susceptible to high levels of microplastic ingestion and exposure to associated toxins due to their feeding strategies, target prey, and, for most, habitat overlap with microplastic pollution hotspots (Germanov et al. 2019). While the ingestion of plastics is likely to negatively affect the health of the species, the levels of microplastics in manta ray feeding grounds and frequency of ingestion are presently being studied to evaluate the impact on these species. Significant proportions of the southeastern continental U.S. coasts have been degraded by inland hydrological projects, urbanization, agricultural activities, and other anthropogenic activities such as dredging, canal development, sea wall construction, and mangrove clearing. These activities have led to the loss and degradation of habitats potentially important to giant manta rays.

16. Amend Section 4.2.4, *Conservation and Recovery Actions Benefiting Listed Species*, to include the oceanic whitetip shark and giant manta ray by inserting the following after the last paragraph:

Oceanic Whitetip Shark
In 2011, NMFS published final regulations to implement ICCAT Recommendation 10–07, which addressed oceanic whitetip sharks caught in association with ICCAT fisheries. That recommendation, and domestic implementing regulations, prohibit retention of oceanic whitetip sharks in the pelagic longline fishery and on recreational (HMS Angling and Charter headboat permit holders) vessels that possess tuna, swordfish, or billfish (76 FR 53652; August 29, 2011). The implementation of regulations to comply with ICCAT Recommendation 10–07 for the conservation of oceanic whitetip sharks is likely the most influential regulatory mechanism in terms of reducing mortality of oceanic whitetip sharks in the U.S. Atlantic. It should be noted that oceanic whitetip sharks are still occasionally caught as bycatch and landed in this region despite its prohibited status in ICCAT associated fisheries (NMFS 2012; 2014), as retention is permitted in other authorized gear other than pelagic longlines (e.g., gillnets, bottom longlines); however, these numbers have decreased. Prior to the implementation of the retention prohibition on oceanic whitetip, an analysis of the 2005–2009 HMS pelagic longline logbook data indicated that, on average, a total of 50 oceanic whitetip sharks were kept per year, with an additional 147 oceanic whitetip sharks caught per year and subsequently discarded (133 released alive and 14 discarded dead). Thus, without the prohibition, approximately 197 oceanic whitetip sharks could be caught and 64 oceanic whitetip sharks (32%) could die from being discarded dead or retained each year (NMFS 2011b). Since the prohibition was implemented in 2011, estimated commercial landings of oceanic whitetip declined from 1.1 mt in 2011 to 0.03 mt (dressed weight) in 2013 (NMFS 2012a; NMFS 2014a). From 2013–2014, NMFS reported a total of 81 oceanic whitetip pelagic longline interactions, with 83% (67 individuals) released alive and 17% (14 individuals) discarded dead (NMFS 2014; 2015).

While the retention ban for oceanic whitetip does not prevent incidental catch or subsequent at-vessel and post-release mortality, it likely provides minor ecological benefits to oceanic whitetip sharks via a reduction in overall fishing mortality in the Atlantic pelagic longline fishery (NMFS 2011b). As discussed in section 4.6.3, in addition to general commercial and recreational fishing regulations for management of HMS, the U.S. has implemented significant national laws for the conservation and management of sharks: the Shark Finning Prohibition Act and the Shark Conservation Act. Thus, although the international shark fin trade is likely a driving force behind the overutilization of many global shark species, including the oceanic whitetip, the U.S. participation in this trade appears to be diminishing.

Overall, regulations to control for overutilization of oceanic whitetip sharks in U.S. waters, including fisheries management plans with quotas and trip limits, species-specific retention prohibitions in pelagic longline gear, and finning regulations are not in and of themselves inadequate such that they are contributing to the global extinction risk of the species. In fact, it is likely that the stable CPUE trend observed for the oceanic whitetip shark in the Northwest Atlantic is largely a result of the implementation of management measures for pelagic sharks under the 2006 Consolidated HMS FMP. However, because oceanic whitetip sharks are highly migratory and frequently move beyond the action area under U.S. jurisdiction, these regulatory mechanisms are limited on the global stage in that they only provide protections to oceanic whitetip sharks while in U.S. waters.

Giant Manta Ray
Manta rays were included on Appendix II of CITES at the 16 Conference of the CITES Parties in March 2013, with the listing going into effect on September 14, 2014. Export of manta rays and manta ray products, such as gill plates, require Start CITES permits that ensure the products were legally acquired and that the Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species (after taking into account factors such as its population status and trends, distribution, harvest, and other biological and ecological elements). Although this CITES protection was not considered to be an action that decreased the current listing status of the threatened giant manta ray (due to its uncertain effects at reducing the threats of foreign domestic overutilization and inadequate regulations, and unknown post-release mortality rates from bycatch in industrial fisheries), it may help address the threat of foreign overutilization for the gill plate trade by ensuring that international trade of this threatened species is sustainable. Regardless, because the United States does not have a significant (or potentially any) presence in the international gill plate trade, we have concluded that any restrictions on U.S. trade of the giant manta ray that are in addition to the CITES requirements are not necessary and advisable for the conservation of the species.

17. Amend Section 4.2.5, *Summary and Synthesis of Environmental Baseline*, to include the oceanic whitetip shark and giant manta ray by inserting the following paragraphs at the end of the section:

Oceanic Whitetip Shark
Several factors adversely affect oceanic whitetip sharks in the action area, and these factors are ongoing and are expected to occur contemporaneously with the proposed action. Fisheries in the action area likely have had the greatest adverse impacts.

Giant Manta Ray

Several factors adversely affect giant manta rays in the action area, and these factors are ongoing and are expected to occur contemporaneously with the proposed action. Fisheries in the action area likely have had the greatest adverse impacts.

18. Amend Section 5, *Effects of the Action* to include oceanic whitetip sharks and giant manta ray by replacing the existing *Activities Likely to Adversely Affect Listed Species* subsection with the following:

Activities Likely to Adversely Affect Listed Species
In Section 3, we determined listed species likely to be adversely affected via gear interactions are limited to sea turtles, smalltooth sawfish, Atlantic sturgeon, oceanic whitetip sharks, and giant manta rays. Potential routes of direct effects of the proposed action on these species include fishing gear interactions resulting in the capture, injury, or death of an individual, and vessel interactions. Based on our understanding of the effects of the proposed action on these species, direct effects of the proposed action are expected to result only when listed species interact with the fishing gear.

There are 3 basic types of gear used in the CMP fisheries: hook-and-line, cast nets, and gill nets. Section 2 describes these gear and how recreational and commercial fishers use them to target CMP species. The type of fishing gear, the area, and the manner in which they are used, all affect the likelihood of interactions with sea turtles, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip sharks, and giant manta rays. For this reason, each gear type is evaluated separately in the following subsections.

19. Amend Section 5.1, Hook-and-Line Gear, to include oceanic whitetip sharks and giant manta rays by replacing the existing Hook-and-Line Gear section with the following:

5.1 Hook-and-Line Gear

Sea turtles, smalltooth sawfish, and Atlantic sturgeon are not likely to be adversely affected by CMP hook-and-line fishing. Sea turtles, Atlantic sturgeon, and smalltooth sawfish are both vulnerable to capture on hook-and-line gear, however, no interactions are reported in the data. This is possibly due in part to the techniques commonly used for some gear to target CMP species makes effects on these listed species extremely unlikely to occur. Sea turtles are unlikely to be caught during hook-and-line trolling because of the speed (4-10 kt) at which the lure is pulled through the water. As cedar plugs and spoons are generally used when trolling, it is unlikely that a sea turtle of any size would actively pursue the gear and get hooked. Likewise, we also believe sea turtles would be unlikely to be snagged by jigged gear as it is deployed at or near the surface and constantly reeled and jigged back to the boat. It is possible that a sea turtle could be incidentally snagged if it comes in contact with a trolled or jigged hook, but the chances of this occurring are extremely low. The same logic also applies to why we believe effects on Atlantic sturgeon and smalltooth sawfish are extremely unlikely to occur. Fishers who capture smalltooth sawfish most commonly report that they were fishing for snook, redfish, or sharks

(Simpfendorfer and Wiley 2004), not CMP species. Additionally, Atlantic sturgeon and smalltooth sawfish are largely bottom-dwelling species, whereas CMP lures and baits are typically fished near the surface of the water. This also greatly reduces the likelihood of Atlantic sturgeon and smalltooth sawfish interactions with trolling gear. In summary, we believe effects from these gear types on Atlantic sturgeon, smalltooth sawfish, and sea turtles are extremely unlikely to occur.

NMFS data indicate that oceanic whitetip sharks and giant manta rays have been captured in the CMP fishery and these species are discussed further below.

5.1.1 Effects on Oceanic Whitetip Sharks

Type of Interaction

Hooking
Direct effects of CMP fisheries on oceanic whitetip sharks are expected to result from physical interactions with the hook and line component of the fishery. Bycatch mortality for oceanic whitetip sharks is a concern, as it has been documented in other sharks caught in hook and line fisheries.

<u>Factors Affecting the Likelihood of Post-Release Mortality</u>

Studies on oceanic whitetip shark post-release mortality in the CMP fishery do not exist. Data from other fisheries that capture this species is poor and lacking in sufficient detail to draw definitive conclusions. However, the best available information reveals that regardless of species of sharks, fisheries or gear type, health condition at release largely dictate survival outcomes (Musyl and Gilman, 2019). It is not known whether sublethal effects are manifested at the population level (i.e., spawning, migration, and reproduction) for pelagic sharks released from fishing gear. Musyl and Gilman (2019) suggest that though improved handling practices can enhance survival of released sharks, improving health condition at haulback could dramatically reduce mortality rates.

<u>Extent of Effects of CMP Fishery on Oceanic Whitetip Sharks</u>

This section focuses on quantifying the take of individual animals from the proposed action. Therefore, we must estimate the number of oceanic whitetip sharks that are likely to interact with or be captured by gear as a result of the proposed action. Only data for a ten year period were collected due to the implementation of Annual Catch Limits for all species. Also, it is assumed that recent landings data will be the best prediction of future landings. Therefore, data from 2010 to 2020 were collected and analyzed.

The only commercial sector records of oceanic whitetip sharks during the 10 year period are from the discard logbook program which reported interactions of 6 oceanic whitetip sharks. All 6 of these interactions were discards that came from hook and line gear. These 6 sharks were released in 2019 in the Gulf of Mexico. The discard logbook samples about 20% of the commercial fleet. Therefore, it is likely that there were 80% more oceanic whitetip interactions from commercial fishing discards over that same 10 year period, but were not reported because the captains were not required to report discards for those trips.

Recreational surveys collect information on harvest and discards. In the 10 year period of data between 2010 and 2020, the recreational survey of Marine Recreational Information Program (MRIP) has had 0 records of a harvest for an oceanic whitetip shark. In the same 10 year period, the recreational survey of Southeast Region Headboat Survey (SRHS) had two records of oceanic whitetip shark harvest with hook and line gear. Both of the SRHS oceanic whitetip shark records occurred in the GOM with one in 2014 and another harvest in 2019. No extrapolating was required for the SRHS number as the reported data represents approximately 100% of the fishing effort that occurs.

While no animals have been reported in MRIP data, NMFS is estimating that up to 2 animals could be taken over 10 years in this sector of the fishery (to conservatively account for possible take it is assumed that interactions covered by the MRIP exceed 0 and are similar to the SRHS).

Summary of Estimated Oceanic Whitetip Shark Interactions

Commercial

Six discards were recorded by 20% of the commercial fishing effort in the 10 year period. Because only 20% of the commercial fishery is required to report discards, we multiply the number of discards by 5 in order to understand what might result from 100% coverage, i.e., 20% multiplied by 5 equals 100%. Thus, 6 oceanic whitetip sharks (over 10 years) at 100% coverage adjustment = 6 x 5 = 30 over 10 years, or an average of 3 per year.

Recreational

The combined MRIP and SRHS recreational interactions with oceanic whitetip sharks over the 10 year period is estimated to be 4 (MRIP 2 + SRHS 2 = 4) oceanic whitetip sharks, or on average .4 per year.

Oceanic Whitetip Shark Mortality Estimate

While all animals captured in the commercial fishery were returned to the water alive, we also consider post-release mortality of individuals released alive but later die as a result of injuries sustained by the interactions. There are currently no studies that have determined the post-release mortality of oceanic whitetip sharks following hooking in the CMP fishery. However, a reasonable proxy can be taken from Musyl and Gilman (2019), who conducted a meta-analysis of post-release fishing mortality from a combination of various fisheries in apex predatory pelagic sharks. The meta-analysis included two individual studies on oceanic whitetip sharks, and Musyl and Gilman (2019) concluded a weighted summary effect of 11% post-release mortality for oceanic whitetip sharks from those studies. However, because of the very limited size of the studies on which that conclusion was based (15 tagged sharks), we do not consider it to be the best available information on post fishery-interaction mortality. Rather than relying on these studies alone, we look to the meta-analysis, which compiles information from 27 studies and 346 tagged sharks, including the information from the oceanic whitetip studies (15 tagged oceanic whitetips). Based on their meta-analysis, Musyl and Gilman (2019) provide multiple estimates of post-release mortality for the apex predatory sharks. We utilize the author's meta-analysis conclusion for apex predatory pelagic sharks that excluded what they deemed "extreme" mortality events (e.g., silky sharks "braided" or wrapped up in purse seines, and thresher sharks hooked on their long caudal fins). We believe that meta-analysis is more appropriate than the analysis including the "extreme" mortality events because the "extreme" events occurred with different fishing gear (purse seine) or represented interactions typical for a different species (tail hooking on the very long and vulnerable tails thresher sharks use to hit and stun their prey). The remaining studies incorporated in the meta-analysis focus primarily on hook-and-line fisheries, and therefore we believe it is more representative than the broader analysis with the "extreme" mortalities. Excluding these "extreme" mortality events, the meta-analysis concluded that there was a 20% post-release mortality for apex predatory sharks that interacted with hook-and-line fisheries. Therefore, we apply 20% post-release mortality for apex predatory pelagic sharks to the estimate of 10 oceanic whitetip shark interactions with commercial hook-and-line fishing gear to estimate 6 mortalities in a ten year period (30 interactions every 10 years x 0.2 post-release mortality rate = 6 mortalities every 10 years).

For the recreational sector, the available data on hook-and-line fishing gear interactions were reported as mortalities. Therefore, to conservatively estimate the potential effects, NMFS assumes 100% of oceanic whitetip shark interactions with recreational hook-and-line fishing gear result in mortalities, for an estimate of 4 mortalities every 10 years.

5.1.2 Effects on Giant Manta Rays

Type of Interaction

Hooking
Direct effects of CMP fisheries on giant manta rays are expected to result from physical interactions with the hook and line component of the fishery.

Factors Affecting the Likelihood of Post-Release Mortality

Specific studies on oceanic giant manta ray post-release mortality in the CMP fishery do not exist. Generally, giant manta rays released alive can suffer from both physical injury and physiological stress associated with the fisheries capture (Skomal 2007). Physical injury and physiological stress caused by capture can vary with the fishing gear type used, handling and release practices, and the sensitivity of the captured species to the various stressors associated with different gear types (Davis 2002; Rufilson 2007; Frick et al. 2010a; Jones et al. 2010). These factors (i.e., physical injury and physiological stress) can directly influence the ability of the animal to survive post release.

Extent of Effects of CMP Fishery on Giant Manta Rays

This section focuses on quantifying the take of individual animals from the proposed action. Only data for a ten year period were collected due to the implementation of Annual Catch Limits for all species managed during this time. Also, it is assumed that recent landings data will be the best prediction of future landings. Therefore, data from 2010 to 2020 were collected and analyzed to estimate the number of oceanic giant manta rays that are likely to be captured as a result of the proposed action.

Commercial sector interactions with giant manta during the 10 year period were recorded in both the discard logbook and the observer programs. The discard logbook program only had one giant manta interaction during those 10 years. This discard came from 2017 with hook and line gear in the South Atlantic region and was released alive. The discard logbook samples 20% of the commercial fleet. Therefore, it is likely that there were 80% more giant manta interactions from commercial fishing discards over that same 10 year period, but were not reported because the captains were not required to report discards for those trips.

MRIP surveys collect harvest and discard data for manta rays in two categories: giant manta and manta family. The records of manta family were excluded because these data cannot be confirmed to be only giant manta (*Manta birostris*) and could include devil rays (*Mobula hypostoma*). In the 10 years between 2010 and 2020, the recreational survey of MRIP did not have any harvest of giant manta. However, there were some MRIP discards of giant manta during this time. The expanded discard estimates (which are an extrapolation of reported captures based on effort) resulted in a total of 2,348 giant manta discards in the South Atlantic and the Gulf of Mexico. In both regions the estimated discards have percent standard error (PSE) values over 100 indicating a high level of uncertainty. SRHS did not have any reported harvest or discards for giant manta over the same 10 year period.

Summary of Estimated Giant Manta Ray Interactions

Commercial

One discard was recorded by 20% of the commercial fishing effort in the 10 year period. Because only 20% of the commercial fishery is required to report discards, we multiply the number of discards by 5 in order to understand what might result from 100% coverage, i.e., 20% multiplied by 5 equals 100%. Thus, 1 giant manta ray (over 10 years) at 100% coverage adjustment = 1 x 5 = 5 over 10 years (all discarded alive), or an average of .5 per year.

Recreational

The extrapolated MRIP survey using most recent available data estimates 2,348giant manta discards in the South Atlantic and the Gulf of Mexico for a total of over 10 years, or an average of 235 (234.8 rounded) per year.

Giant Manta Ray Mortality Estimate

There are currently no comprehensive studies that have determined the post-release mortality of giant manta rays following hooking in the CMP fishery. All of the giant manta rays caught were released alive (NMFS unpublished data). Unlike sea turtles, there are no criteria for assessing the post-release mortality of giant manta rays. However, NMFS (2022) examined the effects of interactions after release by analyzing elasmobranch species with similar physiology and biology to the giant manta ray. The rate calculated for the recreational hook and line fishery for NMFS (2022) represents the best available information to apply to the hook and line component of the CMP fishery, which we estimate to capture .5 animals annually (commercial), and 235 annually (recreational). Applying the 8.5% post-release mortality rate in NMFS (2022) to the 236 (rounded) annually estimated captures suggests that 20 giant manta rays (236 x .085 = 20) are killed by hooking in the CMP fishery annually.

20. Amend Section 5.2, Cast Net Gear, to include oceanic whitetip shark and giant manta rays by replacing the existing Cast Net Gear section with the following:

5.2 Cast Net Gear

Sea turtles, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip sharks, and giant manta rays are not likely to be adversely affected by cast net gear. There are no documented interactions between CMP cast nets and sea turtles, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip sharks, or giant manta rays. As described in Section 2, cast nets are thrown over visually detected schools of CMP species and the gear is retrieved almost immediately. Sea turtles, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip sharks, and giant manta rays are significantly larger than target CMP species. In the rare event a sea turtle, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip shark, or giant manta ray is amidst a school of mackerel, it would likely be easy for fishers to detect and avoid their incidental capture. Also, the area these nets cover is relatively small (e.g., maximum 10-12 ft diameter), thus bycatch of sea turtles, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip sharks, and giant manta rays is extremely unlikely. Based on this information, we believe effects on sea turtles, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip sharks, or giant manta rays from cast nets are not likely to occur.

21. Amend Section 5.3, Gill Net Gear, to include oceanic whitetip shark and giant manta rays by replacing the existing first paragraph of the Gill Net Gear section with the following:

5.3 Gill Net Gear

Run-around gill nets, also known as strike nets, are often used in conjunction with spotter aircraft to actively encircle a school of fish (Steve et al. 2001). In general, the nets are set encircling the school, or a part of the school, and then closed off. Sea turtles, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip sharks, and giant manta rays are significantly larger than target CMP species. In the rare event a sea turtle, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip shark, or giant manta ray is amidst a school of CMP species, with the use of aircraft and targeting protocol, it would likely be easy for fishers to detect and avoid the incidental capture of ESA species. Based on this information, we believe adverse effects on sea turtles, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip sharks, and giant manta rays from strike nets are extremely unlikely to occur.

Oceanic whitetip sharks are not likely to be adversely affected by other gill net gear. There are no documented interactions between CMP gillnets oceanic whitetip sharks, with no information to suggest interaction between this species and other gill net gear. Based on this information, we believe effects on oceanic whitetip sharks from gill nets are not likely to occur.

We believe gill net gear (other than strike nets) used in the CMP fisheries may adversely affect sea turtles, smalltooth sawfish, Atlantic sturgeon, and giant manta rays. Therefore, the following sections discuss this gear's potential effects on these listed species.

22. Amend Section 5.3, Gill Net Gear, to include giant manta rays by inserting a new section 5.3.4 after the existing section 5.3.3 as follows:

5.3.4 Effects on Giant Manta Rays

Type of Interaction

Entanglement
Direct effects of CMP fishery on giant manta rays are expected to result from physical interactions with gear use, particularly with gill net used in the Spanish mackerel component of the fishery. Gillnets used in the king mackerel component of the fishery are less likely to entangle giant manta rays because they used with a spotter plane, which can identify where giant manta rays are located, and thus avoided. Furthermore, gillnets used in the king mackerel component of the fishery are open on the bottom, which allows giant manta rays to escape without entanglement. Nonetheless, it is possible that an animal could become entangled in gillnets used in the CMP fishery.

Factors Affecting the Likelihood of Post-Release Mortality

Studies on giant manta ray post-release mortality in the gill net component of the CMP fishery do not exist. Data from other fisheries that capture this species is also poor and lacking in sufficient detail to draw definitive conclusions. However, it appears that health condition at release largely dictate fish survival outcomes (Musyl and Gilman, 2019). It is not known whether sublethal effects are manifested at the population level (i.e., spawning, migration, or reproduction) for animals released from gill net fishing gear. Musyl and Gilman (2019) suggest that though improved handling practices can enhance survival of released fish, improving health condition at haulback could dramatically reduce mortality rates.

Extent of Effects of CMP Fishery on Giant Manta Rays

This section focuses on quantifying the take of individual animals from the proposed action. We must estimate the number of giant manta rays that are likely to be captured as a result of the proposed action. Only data for the recent ten year period were collected due to the implementation of Annual Catch Limits for all species. Also, it is assumed that recent landings data will be the best prediction of future landings. The SEFSC analyzed the available data from this period. Estimates of total takes of giant manta ray by the gill net component of the CMP fishery was extrapolated from the data by multiplying either catch per set or probability of catch per set by the total effort (extracted from the logbooks). Total effort data reflects gillnet trip reports received by the Coastal Fisheries Logbook Program.

Interactions with manta rays were observed in 2018 for commercial gillnet sets targeting Spanish mackerel. No other interactions with giant manta rays for the gill net component of the king mackerel fishery were reported or observed. Gill nets are not authorized gear type for recreational fishing under the CMP FMP. 50 CFR 600.725(v)(III) & (IV). A standard binomial model was used to estimate probability and the coefficient of variation (CV) of capture per set.

The 95% confidence intervals were estimated using the “Wilson” interval, which has been shown to have a reasonable coverage particularly for extreme probabilities. As the estimation of confidence intervals for the binomial has been noted to be problematic, the delta approach was also used to estimate the mean and variance of takes per set. The extrapolated take estimate for 2018 was 16.4 individuals. Confidence limits were 2.9-89.1 using the Wilson interval or 3.2-84.1 using the delta approach (SEFSC 2022).

Summary of Estimated Giant Manta Ray Interactions
Commercial
Seventeen (16.4 rounded to 17) giant manta rays were estimated to be taken in a 10 year period, or an average of 1.7 animals per year.

Giant Manta Ray Mortality Estimate
There are currently no comprehensive studies that have determined the post-release mortality of giant manta rays following entanglement in gillnets used in the CMP fishery. The giant manta rays caught in 2018 were released alive. Unlike sea turtles, there are no criteria for assessing the post-release mortality of giant manta rays. However, NMFS (2022) examined the effects of interactions after release from gillnet gear by analyzing elasmobranch species with similar physiology and biology to the giant manta ray, and represent the best available information to apply to the CMP fishery, which we estimate to capture 1.7 animals annually. Applying the 35.9% post-release mortality rate from NMFS (2022) suggests that 1 giant manta ray (1.7 x .359 = 0.61 rounded) is killed by gillnets in the CMP fishery annually.

23. Amend Section 5.5, Summary, to include oceanic whitetip shark and giant manta rays by replacing the existing first paragraph of the Summary section with the following, and replacing the existing Table 22 with the following table:

Based on our review in this section, gill net gear used in the federal CMP fisheries of the Atlantic and GOM have adversely affected sea turtles, smalltooth sawfish, Atlantic sturgeon, oceanic whitetip sharks, and giant manta rays in the past via entanglement and, in the case of sea turtles, via forced submergence. Cast net gear has not likely affected these species. However, hook and line and gillnet gear adversely affected oceanic whitetip sharks and giant manta rays. We anticipate the operations of the federal CMP fisheries, as currently managed, will not change this conclusion or alter the entanglement patterns documented in the past. Table 22 summarizes the anticipated take we expect on a 3-year basis in the future.

Table 22. Summary of Anticipated 3-Year Take and Mortality Estimates

Species	Take	Total
Green sea turtle North Atlantic DPS	Total	30
	Lethal	9
Green sea turtle South Atlantic DPS	Total	2
	Lethal	1
Loggerhead sea turtle NWA DPS	Total	27
	Lethal	7
Kemp’s ridley sea turtle	Total	8
	Lethal	2
Hawksbill sea turtle	Total	1

	Lethal	1
Leatherback sea turtle	Total	1
	Lethal	1
Smalltooth sawfish	Total	1
	Lethal	0
Atlantic sturgeon GM DPS	Total	2 (12)
	Lethal	0
Atlantic sturgeon NYB DPS	Total	4 (12)
	Lethal	0
Atlantic sturgeon CB DPS	Total	3 (12)
	Lethal	0
Atlantic sturgeon Carolina DPS	Total	4 (12)
	Lethal	0
Atlantic sturgeon SA DPS	Total	10 (12)
	Lethal	0
Oceanic whitetip shark	Total	11
	Lethal	3
Giant manta ray	Total	714
	Lethal	63

24. Amend Section 6, Cumulative Effects, to include oceanic whitetip shark and giant manta rays by replacing the existing Cumulative Effects section with the following:

Cumulative effects include the effects of future state, tribal, local, or private actions reasonably certain to occur within the action area considered in this Opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

Cumulative effects from unrelated, non-federal actions occurring in the action area may affect sea turtles, smalltooth sawfish, Atlantic sturgeon, oceanic whitetip sharks, and giant manta rays. Stranding data indicate sea turtles in the action area die of various natural causes, including cold stunning and hurricanes, as well as human activities, such as incidental capture in state fisheries, ingestion of and/or entanglement in debris, ship strikes, and degradation of nesting habitat. The cause of death of most sea turtles recovered by the STSSN is unknown.

The fisheries described as occurring within the action area (Sections 3 and 4) are expected to continue as described into the foreseeable future, concurrent with the proposed action. The past and present impacts of these activities have been discussed in Section 4 of this Opinion. NMFS is not aware of any proposed or anticipated changes in these fisheries that would substantially change the impacts each fishery has on sea turtles, smalltooth sawfish, and Atlantic sturgeon, oceanic whitetip sharks, and giant manta rays covered by this Opinion.

In addition to fisheries, NMFS is not aware of any proposed or anticipated changes in other human-related actions (e.g., poaching, habitat degradation, or activities that affect water quality and quantity such as farming) or natural conditions (e.g., over-abundance of land or sea predators, changes in oceanic conditions) that would substantially change the impacts that each threat has on the sea turtles, smalltooth sawfish, and Atlantic sturgeon, oceanic whitetip sharks, and giant manta rays covered by this Opinion. NMFS will continue to work with states to develop ESA Section 6 agreements and with researchers in Section 10 permits to enhance programs to quantify and mitigate these takes. Therefore, NMFS expects that the levels of take of sea turtles, smalltooth sawfish, Atlantic sturgeon, oceanic whitetip sharks, and giant manta rays described for each of the fisheries and non-fisheries will continue at similar levels into the foreseeable future.

25. Amend Section 7, *Jeopardy Analyses*, to include a jeopardy analysis for both the oceanic whitetip shark and giant manta ray by inserting new sections 7.8 and 7.9 after the existing section 7.7 as follows:

7.8 Oceanic Whitetip Shark

The oceanic whitetip shark occurs throughout the action area and is likely to be adversely affected by the proposed action; therefore, a jeopardy analysis must determine whether the proposed action will appreciably reduce the likelihood of survival and recovery of this species. The proposed action may result in 11 oceanic whitetip shark takes over 3-year periods. We estimate that a total of 3 of those interactions may be lethal, including post-release mortalities.

The nonlethal capture of oceanic whitetip sharks is not expected to have any measurable impact on the reproduction, numbers, or distribution of this species. The individuals are expected to fully recover such that no reductions in reproduction or numbers of this species are anticipated. Since these captures may occur anywhere in the action area and would be released within the general area where caught, no change in the distribution of this species is anticipated.

There is currently no accurate population estimate for oceanic whitetip sharks. Oceanic whitetip sharks are wide-ranging and can be found worldwide, with no present indication of a range contraction. While a global population size estimate or trend for the oceanic whitetip shark is currently unavailable, numerous sources of information, including the results of a recent stock assessment and several other abundance indices are available to infer and assess current regional abundance trends of the species. Relative abundance of oceanic whitetip sharks may have stabilized in the North Atlantic since 2000 and in the Gulf of Mexico and the Caribbean since the late 1990s at a significantly diminished abundance (Cortés et al. 2007; Young et al. 2016). It is important to note that the subject fishery is not a new impact to the species in those areas.

The loss of 3 oceanic whitetip sharks over 3-year periods could result in the loss of reproduction value as compared to the reproductive value in the absence of the proposed action, if females are taken. While we have no reason to believe the proposed action will disproportionately affect females or adults, the loss of an adult female oceanic whitetip shark could preclude the production of future progeny. The death of a female eliminates an individual's contribution to future generations, and the proposed action would result in a reduction in future oceanic whitetip shark reproduction. Likewise, the loss of those individuals would represent a reduction in numbers compared to the number of oceanic whitetip sharks that would have been present in the absence of the proposed action assuming all other variables remained the same. However, we believe that the loss in numbers and reproduction are likely small relative to the species size and reproductive potential. Additionally, the populations within the action area considered in this Opinion are thought to have stabilized since 2000 or earlier, during which time the impacts from the CMP fishery had been occurring. Thus, there is no basis to believe that the loss of 3 individuals over 3-year periods will reduce the distribution of the species. The species is widespread and wide-ranging, and the takes occur throughout the action area, not in any one area of its distribution. Therefore, we conclude that the proposed action is not expected to have a population-level impact on the reproduction, numbers, or distribution of oceanic whitetip shark and we believe the proposed action is not likely to appreciably reduce the likelihood of survival of the oceanic whitetip shark in the wild.

The following analysis considers the effects of expected take on the likelihood of recovery in the wild. Since oceanic whitetip sharks were recently listed, a recovery plan is not yet available. Recovery is the process by which the ecosystems of oceanic whitetip sharks are restored and the threats to the species are removed. Restoring ecosystems and eliminating threats will support self-populating and self-regulating populations so they can become persistent members of the native biological communities (USFWS and NMFS 1998). Thus, the first step in recovering a species is to reduce identified threats. By alleviating threats lasting recovery can be achieved. The Final Listing Rule (83 FR 4153, January 30, 2018) noted potential threats to the oceanic whitetip shark. In the Northwest Atlantic, the oceanic whitetip is caught incidentally as bycatch by a number of fisheries. Oceanic whitetip sharks are also a preferred species for their large, morphologically distinct fins, as they obtain a high price in the Asian fin market, and thus they are valuable as catch for the international shark fin trade. Oceanic whitetip sharks possess life history characteristics that increase their vulnerability to harvest, including slow growth, relatively late age of maturity, and low fecundity. The species' low genetic diversity in concert with steep global abundance declines and ongoing threats of overutilization may pose a viable risk to the species in the foreseeable future.

The final rule also noted that the potential stabilization of oceanic whitetip sharks in the proposed action area occurred concomitantly with the first FMP for Sharks in the Northwest Atlantic Ocean and Gulf of Mexico. Oceanic whitetips sharks are managed directly under the pelagic shark group, and the FMP for Sharks in the Northwest Atlantic Ocean and Gulf of Mexico includes regulations on trip limits and quotas. This indicates the potential efficiency of these management measures for reducing the threat of overutilization of the oceanic whitetip shark population in this region. Thus, management actions implemented as part of FMPs have helped to reduce the threat relative to past practices. The proposed action will also not impede the process of restoring the ecosystems that affect oceanic whitetip sharks.

While there is no recovery plan at this time, NMFS has developed a recovery outline to provide a preliminary strategy for recovery and conservation of the oceanic whitetip shark (https://www.fisheries.noaa.gov/resource/document/oceanic-whitetip-shark-recovery-outline). The recovery outline guides initial recovery actions while ensuring that future recovery options are not precluded due to a lack of interim planning. As such, this outline is meant to serve as an interim guidance document to direct recovery efforts, including recovery planning, for the oceanic whitetip shark until a full recovery plan is developed and approved. It presents a preliminary strategy for recovery of the species, as well as recommended high priority actions to stabilize and recover the species. In advance of an approved recovery plan, the initial focus of the interim recovery program will be two-fold: 1) to stabilize population trends through reduction of threats, such that the species is no longer declining throughout a majority of its range and 2) to gather additional information through research and monitoring on the species' current distribution and abundance; reproductive periodicity and seasonality; location of breeding and nursery grounds; and mortality rates in commercial fisheries (including at-vessel and post-release mortality). Because the oceanic whitetip shark largely occurs in waters outside of U.S. jurisdiction, international coordination will be critical to ensuring recovery of the species. Therefore, to be effective, recovery actions would need to be undertaken throughout the species' range, both domestically and internationally.

As detailed previously, the proposed action is not expected to have a population-level impact on oceanic whitetip sharks and thus would not impede the first goal of the recovery outline. The recovery outline lists maintaining existing U.S. laws and regulations that protect sharks and prohibit retention of oceanic whitetip sharks as part of the recovery strategy, and the proposed action continues all current regulations. The second goal, to gather additional information, would not be impeded by the proposed action, and could benefit from observer information on interactions. For all of these reasons, we believe the proposed action is not likely to impede the recovery of, and will not result in an appreciable reduction in, the likelihood of recovery of the oceanic whitetip shark in the wild.

Conclusion
The effects from proposed action are not expected to cause an appreciable reduction in the likelihood of either the survival or recovery of oceanic whitetip sharks in the wild. Therefore, the proposed action is not likely to jeopardize the continued existence of the species.

7.9 Giant Manta Ray

The giant manta ray occurs throughout the action area and is likely to be adversely affected by the proposed action; therefore, a jeopardy analysis must determine whether the proposed action will appreciably reduce the likelihood of survival and recovery of this species.

The proposed action may result in 714 total giant manta ray takes over 3-year periods, with 63 mortalities in the same time frame. In order to examine the potential impacts of this take, NMFS conducted a preliminary Population Viability Analysis (PVA) applying numbers (NMFS 2023) from the hook and line portion of the CMP fishery (which accounts for over 95% of the fishery's mortalities). There are a great number of uncertainties in the available data incorporated into the analysis (population size, mortality estimates), thus NMFS cautiously considered its conclusions. Based on the estimated mortalities, under the current level of authorized take, the population of giant manta increased from 5% to 35% over 50 years. NMFS assumed the worst case scenario, which would be a 5% increase in mortality, and believes that the population will at the very least, not decrease as a result of the proposed action, and will more likely still have a slight upward trajectory. The nonlethal capture of giant manta rays is not expected to have any measurable impact on the reproduction, numbers, or distribution of this species. The individuals are expected to recover from being captured such that no reductions in reproduction or numbers of this species are anticipated. Since these captures may occur throughout the action area and captured individuals would be released within the general area where caught, no change in the distribution of this species is anticipated.

Giant manta rays can be found worldwide. The best available data indicate that the species has suffered population declines of significant magnitude (up to 95 percent in some places) in the Indo-Pacific and Eastern Pacific portion of its range. NMFS notes that these declines are largely based on trends in landings and market data, diver sightings, and anecdotal observations. The species extirpation is not considered likely in the Atlantic; however, if the species was hypothetically extirpated within the Indo-Pacific and eastern Pacific portion of the range, only the potentially small and fragmented Atlantic populations would remain. The demographic risks associated with small and fragmented populations discussed in the proposed rule, such as demographic stochasticity, dispensation, and inability to adapt to environmental changes, would become significantly greater threats to the species as a whole, and coupled with the species' inherent vulnerability to depletion, indicate that even low levels of mortality would portend drastic declines in the population. However, these other populations have not been extirpated.

The loss of 63 giant manta rays over 3-year periods could result in the loss of reproduction value as compared to the reproductive value in the absence of the proposed action, if females are taken. While we have no reason to believe the proposed action will disproportionately affect females or adults, the loss of adult female animals could preclude the production of future progeny. The death of a female eliminates an individual's contribution to future generations, and the proposed action would result in a reduction in future reproduction. Likewise, the loss of those individuals would represent a reduction in numbers compared to the number of giant manta rays that would have been present in the absence of the proposed action assuming all other variables remained the same. However, we believe that the loss in numbers and reproduction are likely small relative to the species size and reproductive potential, as the PVA appears to confirm. Additionally, the populations within the action area considered in this Opinion are thought to have stabilized since 2000 or earlier, during which time the impacts from the CMP fishery had been occurring. Thus, this supports our belief that the loss of 63 individuals over 3-year periods will not reduce the distribution of the species. The species is widespread and wide-ranging, and the takes occur throughout the action area, not in any one area of its distribution. Therefore, we conclude that the proposed action is not expected to have a population-level impact on the reproduction, numbers, or distribution of the giant manta ray and we believe the proposed action is not likely to appreciably reduce the likelihood of survival of the species in the wild.

Since giant manta rays were recently listed, a recovery plan is not yet available. However, recovery is the process by which the ecosystems of giant manta rays are restored and the threats to the species are removed. Restoring ecosystems and eliminating threats will support self-populating and self-regulating populations so they can become persistent members of the native biological communities (USFWS and NMFS 1998). Thus, the first step in recovering a species is to reduce identified threats. By alleviating threats lasting recovery can be achieved. The Final Listing Rule (83 FR 2916, January 22, 2018) noted that overall, the current management measures that are in place for fishermen under U.S. jurisdiction appear to directly and indirectly contribute to the infrequency of interactions between U.S. fishing activities and the threatened giant manta ray. As such, NMFS does not believe these activities are contributing significantly to the identified threats of overutilization and inadequate regulatory measures and did not find that developing regulations under section 4(d) to prohibit some or all of these activities is necessary and advisable for the conservation of the species (considering the U.S. interaction with the species is negligible and its moderate risk of extinction is primarily a result of threats from foreign fishing activities). Because the major threat currently contributing to the species' decline is overutilization in waters outside of U.S. jurisdiction, any conservation actions for the giant manta ray that would bring it to the point that the measures of the ESA are no longer necessary will ultimately need to be implemented by foreign nations. The proposed action will not impede the process of restoring the ecosystems that affect giant manta rays nor pose a significant threat to that process.

While there is no recovery plan available yet, NMFS has developed a Giant Manta Ray Recovery Outline (https://www.fisheries.noaa.gov/resource/document/giant-manta-ray-recovery-outline). The recovery outline "is meant to serve as an interim guidance document to direct recovery efforts, including recovery planning, for the giant manta ray until a full recovery plan is developed and approved." It presents a preliminary strategy for recovery of the species, as well as recommended high priority actions to stabilize and recover the species. The interim recovery strategy focuses on (1) stabilizing population trends through a reduction of threats, so the species is no longer declining and (2) gathering additional information on the species' current distribution and abundance, movement and habitat use of adult and juveniles, mortality rates in commercial fisheries (including at-vessel and post-release mortality), and other potential threats that may contribute to the species' decline. As discussed above, NMFS does not believe that U.S. fisheries are contributing significantly to the identified threats. Therefore, the proposed action is not expected to impede the stabilization of population trends for the species. Thus, we believe the proposed action is not likely to impede the recovery of, and will not result in an appreciable reduction in, the likelihood of recovery of the giant manta ray recovery in the wild.

Conclusion
The effects from the proposed action are not expected to cause an appreciable reduction in the likelihood of either the survival or recovery of giant manta rays in the wild. Therefore, the proposed action is not likely to jeopardize the continued existence of the species.

26. Amend Section 8, *Conclusion*, to include the oceanic whitetip shark and giant manta ray by replacing the existing Conclusion section with the following:

We have analyzed the best available data, the current status of the species, the environmental baseline, the effects of the proposed action, and cumulative effects to determine whether the proposed action is likely to jeopardize the continued existence of any listed species. It is our Opinion that the proposed action is not likely to jeopardize the continued existence of loggerhead (the NWA DPS) or the green (North Atlantic DPS or South Atlantic DPS), Kemp's ridley, hawksbill, or leatherback sea turtles, Atlantic sturgeon (GM, NYB, CB, Carolina, or SA DPSs), smalltooth sawfish (U.S. DPS), oceanic whitetip sharks, or giant manta rays.

27. Amend Section 9, Incidental Take Statement by replacing the existing introductory paragraphs with the following:

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 and the terms and conditions of the incidental take statement (ITS) of the Opinion. Incidental take statements serve a number of functions. In addition to providing an exemption from the prohibition on take in Section 9, an ITS identifies reasonable and prudent measures necessary or appropriate to minimize the impact of all incidental take on the species and monitors the action's effects on the species to assist in determining whether consultation should be reinitiated.

The take of oceanic white tip shark and giant manta ray by the proposed action is not prohibited, as NMFS has not promulgated Section 4(d) rules for these threatened species. However, a circuit court case held that non-prohibited incidental take must be included in the Incidental Take Statement.[6] Providing an exemption from Section 9 liability is not the only important purpose of specifying take in an Incidental Take Statement. Specifying incidental take ensures we have a metric against which we can measure whether or not reinitiation of consultation is required. It also ensures that we identify Reasonable and Prudent Measures we believe are necessary or appropriate to minimize the impact of such incidental take.

Therefore, this Opinion establishes an ITS with RPMs and terms and conditions for incidental take coverage in the federal CMP fisheries for sea turtle, smalltooth sawfish, and Atlantic sturgeon, oceanic whitetip shark and giant manta ray takes throughout the action area.

28. Amend Section 9.1, Anticipated Amount or Extent of Incidental Take, to include oceanic whitetip shark and giant manta rays by replacing the existing first paragraph of the Anticipated Amount or Extent of Incidental Take section with the following, and replacing the existing Table 23 with the following table:

Based on the above information and analyses, we believe that the operations of the federal CMP fisheries will adversely affect green (North Atlantic and South Atlantic DPSs), loggerhead (the NWA DPS), Kemp's ridley, hawksbill, and leatherback sea turtles, as well as Atlantic sturgeon (GM, NYB, CB, Carolina, or SA DPSs), smalltooth sawfish (U.S. DPS), oceanic whitetip sharks and giant manta rays. These effects will result from capture in federal CMP hook and line and gill net fisheries. NMFS anticipates the following incidental takes may occur in the future as a

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[6] *Center for Biological Diversity v. Salazar*, 695 F.3d 893 (9th Cir. 2012). Though the *Salazar* case is not a binding precedent for this action, which occurs outside of the Ninth Circuit, we find the reasoning persuasive and are following the case out of an abundance of caution and in anticipation that the ruling will be more broadly followed in future cases.

result of the operations of the federal CMP fisheries. We anticipate these takes will occur over consecutive 3-calendar-year periods (i.e., 2022-2024; 2023-2025; 2024-2027). Table 23 reports these takes. However, as previously stated, the triennial takes are set as 3-year running sums (total for any consecutive 3-year period) and not for static 3-year periods (i.e., 2022-2024, 2023-2025, 2025-2027, and so on, as opposed to 2022- 2024, 2024-2026, 2027-2029). This approach will allow us to reduce the likelihood of requiring reinitiation unnecessarily because of inherent variability in take levels, but still allow for an accurate assessment of how the proposed actions are performing versus our expectations.

Summary of Anticipated 3-Year Take and Mortality Estimates*

Species	Take	Total
Green sea turtle North Atlantic DPS	Total	30
	Lethal	9
Green sea turtle South Atlantic DPS	Total	2
	Lethal	1
Loggerhead sea turtle NWA DPS	Total	27
	Lethal	7
Kemp’s ridley sea turtle	Total	8
	Lethal	2
Hawksbill sea turtle	Total	1
	Lethal	1
Leatherback sea turtle	Total	1
	Lethal	1
Smalltooth sawfish	Total	1
	Lethal	0
Atlantic sturgeon GM DPS	Total	2 (12)
	Lethal	0
Atlantic sturgeon NYB DPS	Total	4 (12)
	Lethal	0
Atlantic sturgeon CB DPS	Total	3 (12)
	Lethal	0
Atlantic sturgeon Carolina DPS	Total	4 (12)
	Lethal	0
Atlantic sturgeon SA DPS	Total	10 (12)
	Lethal	0
Oceanic whitetip shark	Total	11
	Lethal	3
Giant manta ray	Total	714
	Lethal	63

*post-release mortality is expected but will not be observed; lethal take is tracked by estimated total captures. Total takes will be estimated annually based on observed takes recorded in the fisheries and applying effort information.

29. Amend section 9.1, *Anticipated Amount or Extent of Incidental Take*, by inserting the following new paragraphs before Section 9.2:

Oceanic Whitetip Shark Captures and Mortalities Subject to Consultation
Our best estimate is that during consecutive 3-year periods there will be 11 captures with 3 mortalities for oceanic whitetip sharks associated with the federal CMP fisheries. We will not consider the take estimates exceeded if no more than the aforementioned lethal or nonlethal take occurs for this species.

Giant Manta Ray Captures and Mortalities Subject to Consultation
Our best estimate is that during consecutive 3-year periods there will be 714 captures with 63 mortalities of giant manta rays associated with the federal CMP fisheries. We will not consider the take estimates exceeded if no more than the aforementioned lethal or nonlethal take occurs for this species.

30. Amend Section 9.2, Effect of the Take, to include both the oceanic whitetip shark and giant manta ray by replacing the existing paragraph with the following:

NMFS has determined that the level of anticipated take associated with the proposed action and specified in Section 9.1 is not likely to jeopardize the continued existence of the North Atlantic DPS of green, South Atlantic DPS of green, hawksbill, Kemp's ridley, leatherback, or the NWA DPS of loggerhead sea turtles, as well as Atlantic sturgeon (any DPS), smalltooth sawfish (U.S. DPS), oceanic whitetip sharks, or giant manta rays.

31. Amend Section 9.3, Reasonable and Prudent Measures (RPMs), to include RPMs for the oceanic whitetip shark and giant manta ray by replacing the existing Section with the following:

Section 7(b)(4) of the ESA requires NMFS to issue to any federal agency whose proposed action is found to comply with Section 7(a)(2) of the ESA, but may incidentally take individuals of listed species, a statement specifying the impact of that taking. The incidental take statement must specify the Reasonable and Prudent Measures necessary to minimize the impacts of the incidental taking from the proposed action on the species, and Terms and Conditions to implement those measures. Per Section 7(o)(2), any incidental taking that complies with the specified terms and conditions is not considered to be a prohibited taking of the species concerned.

The Reasonable and Prudent Measures and terms and conditions are required to document the incidental take by the proposed action and to minimize the impact of that take on ESA-listed species (50 CFR 402.14(i)(1)(ii) and (iv)). These measures and terms and conditions must be implemented by NMFS, for the protection of Section 7(o)(2) to apply.

NMFS has determined that the following Reasonable and Prudent Measures are necessary and appropriate to minimize impacts of incidental take of sea turtles, Atlantic sturgeon, smalltooth sawfish, oceanic whitetip shark, and giant manta ray. The following Reasonable and Prudent Measures and associated terms and conditions are established to implement these measures, and to document incidental takes. Only incidental takes that occur while these measures are in full implementation are not considered to be a prohibited taking of the species. These restrictions remain valid until reinitiation and conclusion of any subsequent Section 7 consultation.

1) NMFS must ensure that any caught sea turtle, sturgeon, smalltooth sawfish, oceanic whitetip shark, or giant manta ray is handled in such a way as to minimize stress to the animal and increase its survival rate. Most, if not all, sea turtles and ESA-listed fish released after entanglement or forced submergence events have experienced some degree of physiological injury. The ultimate severity of these events is dependent not only upon actual interaction (i.e., physical trauma from entanglement/forced submergence), but also on the amount of gear remaining on the animal at the time of release. The manner of handling an animal also greatly affects its chance of recovery. Therefore, the experience, ability, and willingness of fishermen to remove gear are crucial to the survival of sea turtles, smalltooth sawfish, Atlantic sturgeon, oceanic whitetip sharks, and giant manta rays following release. NMFS shall ensure that fishermen receive relevant outreach materials describing how captured sea turtles and ESA-listed fish should be handled to minimize adverse effects from incidental take and reduce mortality.

2) NMFS must ensure that monitoring and reporting of any sea turtles, sturgeon, smalltooth sawfish, oceanic whitetip shark, or giant manta ray encountered: (1) detects any adverse effects resulting from the federal CMP fisheries; (2) assesses the actual level of incidental take in comparison with the anticipated incidental take documented in this Opinion; (3) detects when the level of anticipated take is exceeded; and (4) collects improved data from individual encounters.

32. Amend Section 9.4, *Terms and Conditions*, by replacing the existing Section with the following:

In order to be exempt from the prohibitions of Section 9 of the ESA, NMFS must comply with the following terms and conditions.

The following terms and conditions implement RPM No. 1:

1) NMFS Sustainable Fisheries Division must work with the SERO Permits Division and distribute information to permit holders specifying handling and/or resuscitation and release procedures/requirements fishers must undertake for any caught sea turtles, sturgeon, smalltooth sawfish, oceanic whitetip shark, or giant manta ray. The Sustainable Fisheries Division must work with the Permits Division and maintain information on sea turtle release handling and resuscitation requirements and guidelines, and ESA listed fish reporting, and handling and release guidelines, on NOAA’s website so that it is accessible to all fishermen. The Sustainable Fisheries Division shall annually coordinate with PRD and the SEFSC to check for any updates to the guidance that may need to be distributed and added to the website.

2) NMFS Sustainable Fisheries Division must help ensure fishers (e.g., via outreach and education efforts) and observers handle sea turtles, Atlantic and Gulf sturgeon, oceanic whitetip shark, giant manta ray, and smalltooth sawfish in a manner that prevents injury and helps ensure survivability upon release. Any captured sea turtle in a comatose or lethargic state must be retained on board, handled, resuscitated, and released according to our established procedures, as

deemed practicable and in consideration of best practices for safe vessel and fishing operations. Likewise, captured sturgeon, giant manta ray, oceanic whitetip shark, and smalltooth sawfish must be released in a manner that avoids further injury, to the maximum extent practicable. Proper handling of any protected species incidentally caught during fishery operations is essential to increase the likelihood of its survival.

The following terms and conditions implement RPM No. 2:

1) NMFS must maintain its current Supplementary Discard Data Program (SDDP) and improve future endangered species data potentially reported under the SDDP by distributing educational outreach materials regarding the specific information to be reported and species identification to CMP gill net vessels selected to participate in this program prior to each reporting period.

2) NMFS must use available observer data and any other appropriate data sources to update the 3-year take average as new data becomes available.

3) NMFS must continue to observe the gill net component of the CMP fisheries indirectly via the Atlantic Shark observer program in the CMP commercial gill net sector.

Sea turtles: Observers must record information as specified on the SEFSC sea turtle life history form for any sea turtle captured.

Smalltooth sawfish: For any smalltooth sawfish captured, observers must record the date, time, location (latitude/longitude), water depth, estimated total length, estimated length of saw, tag ID(s) if present, gear, target species, tackle (hook brand, type, size, etc.), where hooked and/or entangled, and bait type.

Atlantic sturgeon: For any Atlantic sturgeon captured, observers must record the date, time, location (latitude/longitude), water depth, estimated total length, tag ID(s) if present, gear, target species, tackle (hook brand, type, size, etc.), where hooked and/or entangled, and bait type. Photographs must be taken whenever feasible to confirm species identity and release condition.

Giant manta ray: Any giant manta ray captured must be kept in the water, observers must record the date, time, location (latitude/longitude), water depth, visually estimate and record disc-width (wingspan), gear, target species, tackle (hook brand, type, size, etc.), where hooked and/or entangled. Photographs must be taken whenever feasible to confirm species identity and release condition.

If feasible, observers should also tag any sea turtles, sturgeon, or smalltooth sawfish caught and collect tissue samples for genetic analysis. This Opinion serves as the permitting authority for such tagging and tissue samples (without the need for an additional Section 10 permit). NMFS must ensure that any observers employed are equipped with the tools, supplies, training, and instructions to collect and store tissue samples. Samples collected must be analyzed to determine the genetic identity of individual sea turtles, sturgeon, or smalltooth sawfish caught in the fisheries.

Carcass Retrieval, Preservation, and Transportation: All dead sea turtles, sturgeon, and smalltooth sawfish, oceanic whitetip sharks and giant manta rays must not be returned to the water.

Sea turtles: All dead carcasses of sea turtles must be placed on ice and transferred to the local STSSN coordinator.

Atlantic and Gulf Sturgeon: All dead observed sturgeon must be reported to : nmfs.ser.esa.consultations@noaa.gov. The subject line of the email should include the SERO number associated with this Opinion and carcasses must be preserved (iced or refrigerated) until sampling and disposal procedures are discussed with NMFS.

Smalltooth sawfish, Oceanic white tip sharks, and giant manta ray: All dead carcasses must be preserved (i.e., placed on iced or refrigerated) and transferred to SEFSC (Dr. John Carlson).

4) SERO Sustainable Fisheries Division must collaborate with SEFSC to monitor stranding data for records showing signs of being attributed to the CMP fishery. The Sustainable Fisheries Division, in coordination with the SEFSC, must (1) collect and monitor observer and other reports having sea turtle, giant manta ray, and oceanic whitetip shark interactions, (2) submit annual reports detailing interactions with these species and the CMP fishery to SERO PRD, (3) expand and continue supporting research to better estimate giant manta ray and oceanic whitetip shark mortality, including dead-on-retrieval and post-release mortality, in the CMP fishery.

5) SERO Sustainable Fisheries Division must collaborate with SEFSC to help implement a system that records interaction numbers for any giant manta rays that could have been taken in the "manta family" category (i.e., to properly differentiate between giant manta ray takes and other species that have been lumped/recorded currently into one general category).

6) NMFS Sustainable Fisheries Division must work with the U.S. Coast Guard and to ensure at-sea enforcement of regulations during the run-around king mackerel fishery in the GOM.

7) SERO Sustainable Fisheries Division must collaborate with the SEFSC to submit an annual report due September each year to SERO PRD that includes the following information:
a) detailed information on any take reported or observed
b) total reported gill net effort (yards fished x soak time [days]) by fishers selected for the SDDP
c) total reported gill net effort data from the SEFSC Coastal Fisheries Logbook Program (CFLP)
d) observer coverage level obtained in the CMP gill net fisheries
e) total observed effort
f) observed CPUEs for species observed taken
g) total take estimates for each species taken in the fisheries

8) Information Required for Species Interactions:

i) *Sea Turtle Reports*: must include all information specified on the SEFSC sea turtle life history form for any sea turtle captured.

ii) *Smalltooth Sawfish Reports*: must include a length measurement or estimate, time and location (i.e., lat./long. and approximate water depth) of capture, circumstances of capture (e.g., position

of sawfish in the trawl net), and status (i.e., condition, sex, alive, injured) upon return to the water must be reported to the extent possible.
iii) *Atlantic Sturgeon Reports*: must include a total length measurement or estimate, weight measurement or estimate, sex (if discernible), time and location (i.e., lat./long. and approximate water depth) of capture, information whether the fish was tagged and if so what type of tag was used, and status (i.e., dead, alive, injured) upon return to the water should be reported.
iv) *Shark Reports*: for oceanic whitetip sharks, observers must include a length measurement or estimate, weight measurement or estimate, sex (if discernible), time and location (i.e., lat./long. and approximate water depth) of capture, information on whether the shark was tagged, and if so what type of tag was used, and status (i.e., dead, alive, injured) upon return to the water should be reported.
v) *Giant Manta Reports*: must include a disk width (DW) measurement or estimate (i.e., DW is a straight line measurement from wing tip to wing tip), time and location (i.e., lat./long. and approximate water depth) of capture, and status (i.e., alive, injured) upon return to the water should be reported.

9) Information Required on Fishery Operations: type of gear used (e.g., sink, run-around gillnet, hook and line), set date, net/line length (ft), net/line depth (ft), minimum stretched mesh size (in), soak time (hrs), trip length, number of sets per trip, whether tie-downs were used, and length of tie-down if used, number of lines per set, number of hooks fished per set, hook type (e.g., size of circle and any offset), and bait used.

10) Reports must also estimate the total rolling three year take (including dead-on-retrieval and post-release mortality) in fisheries subject to this consultation based on availability of effort data and reported and observed takes. If the estimated take and/or mortality of sea turtles, smalltooth sawfish, Atlantic sturgeon, oceanic whitetip sharks, or giant manta rays, is higher than anticipated in this Opinion, the report should include an analysis of the possible reasons for the higher than expected level of take and whether this higher level of take is expected to occur again.

11) All required reports must be forwarded to the NMFS Assistant Regional Administrator for Protected Resources, Southeast Regional Office, Protected Resources Division, 263 13th Avenue South, St. Petersburg, Florida 33701-5505; transmittal by email is acceptable.

33. Amend Section 10, *Conservation Recommendations*, to include both the oceanic whitetip shark and giant manta ray by inserting the following numbered paragraphs at the end of the existing Section:

5) NMFS should review best methods for handling, gear removal, and safe release of giant manta ray and oceanic whitetip shark in the CMP fishery to update them as necessary.

6) NMFS should conduct research on gear modifications to increase survivorship of oceanic whitetip shark when caught in the CMP fishery.

7) NMFS should survey CMP fishermen regarding their experience and recommendations regarding the effectiveness of safe release techniques.

8) NMFS should conduct and/or fund research that will improve understanding of giant manta ray and oceanic whitetip shark reproductive periodicity and seasonality to inform future management measures for minimizing impacts to the species during key life history functions.

9) Evaluate post-release mortality in the CMP fishery using pop-off satellite tags (Francis and Jones, 2016) or using blood chemistry analyses (Hutchinson et al. 2015).

10) Improve understanding of associated mortality rates in the CMP fishery (including at-vessel and post-release mortality), including effects of various factors such as gear type, temperature, temporal and spatial fishing effort, etc., for informing future fisheries management strategies to reduce fisheries interactions and associated mortality.

11) Investigate best methods for safe release of giant manta rays caught in the CMP fishery. Improve data collection in observer programs. Observer programs in commercial fisheries should strive to collect observable covariates (e.g., set/tow/haul times, time on deck, and behavior after release) and survivorship data. Fishery-wide data on these covariates, will allow managers to estimate the total impact of a given fishery on a population.

34. Amend Literature Cited by inserting the following additional references:

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