

## **2.4 PROTECTED SPECIES**

This section of the report summarizes information on protected species interactions in fisheries managed under the Hawai`i FEP. Protected species covered in this report include sea turtles, seabirds, marine mammals, sharks, and corals. Most of these species are protected under the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and/or the Migratory Bird Treaty Act (MBTA). A list of protected species found in or near Hawai`i waters and a list of critical habitat designations in the Pacific Ocean are included in Appendix B.

### **2.4.1 Indicators for Monitoring Protected Species Interactions**

This report monitors the status of protected species interactions in the Hawai`i FEP fisheries using proxy indicators such as fishing effort and changes in gear types, as these fisheries do not have observer coverage. Creel surveys and logbook programs are not expected to provide reliable data about protected species interactions. Discussion of protected species interactions is focused on fishing operations in federal waters and associated transit through state waters.

#### **2.4.1.1 FEP Conservation Measures**

No specific regulations are in place to mitigate protected species interactions in the bottomfish, precious coral, coral reef ecosystem and crustacean fisheries currently active and managed under this FEP. Destructive gear such as bottom trawls, bottom gillnets, explosives and poisons are prohibited under this FEP, and these prohibitions benefit protected species by preventing potential interactions with non-selective fishing gear.

The original crustacean Fishery Management Plan (FMP) and subsequent amendments included measures to minimize potential impacts of the Northwestern Hawaiian Islands (NWHI) component of the spiny lobster fishery to Hawaiian monk seals, such as specification of trap gear design and prohibition of nets. The Bottomfish and Seamount Groundfish FMP began requiring protected species workshops for the NWHI bottomfish fishery participants in 1988. These fisheries are no longer active due to the issuance of Executive Orders 13178 and 13196 and the subsequent Presidential Proclamations 8031 and 8112, which closed the fisheries within 50 nm around the NWHI.

#### **2.4.1.2 ESA Consultations**

Hawai`i FEP fisheries are covered under the following consultations under section 7 of the ESA, through which NMFS has determined that these fisheries are not likely to jeopardize or adversely affect any ESA-listed species or critical habitat in the Hawai`i Archipelago (Table 1).

**Table 1. Summary of ESA consultations for Hawaii FEP Fisheries**

<b>Fishery</b>	<b>Consultation Date</b>	<b>Consultation Type<sup>a</sup></b>	<b>Outcome<sup>b</sup></b>	<b>Species</b>
Bottomfish	3/18/2008	BiOp	LAA, non-jeopardy	Green sea turtle
			NLAA	Loggerhead sea turtle, leatherback sea turtle, olive ridley sea turtle, hawksbill sea turtle, humpback whale, blue whale, fin whale, northern right whale, sei whale, sperm whale, Hawaiian monk seal
	8/7/2013	BiOp modification	NLAA	False killer whale (MHI insular DPS)
	Initiated 2/1/2019	<i>Consultation ongoing</i>		Oceanic whitetip shark, giant manta ray, MHI false killer whale critical habitat
Coral Reef Ecosystem	5/22/2002	LOC (USFWS)	NLAA	Green, hawksbill, leatherback, loggerhead and olive ridley turtles, Newell's shearwater, short-tailed albatross, Laysan duck, Laysan finch, Nihoa finch, Nihoa millerbird, Micronesian megapode, 6 terrestrial plants
	12/5/2013	LOC	NLAA	Loggerhead sea turtle (North Pacific DPS), leatherback sea turtle, olive ridley sea turtle, green sea turtle, hawksbill sea turtle, humpback whale, blue whale, fin whale, North Pacific right whale, sei whale, sperm whale, Hawaiian monk seal, false killer whale (MHI insular DPS)
	9/18/2018	No effect memo	No effect	Oceanic whitetip shark, giant manta ray
Coral Reef Ecosystem (Kona Kampachi Special Coral Reef Ecosystem Fishing Permit only)	9/19/2013	LOC (USFWS)	NLAA	Short-tailed albatross, Hawaiian petrel, Newell's shearwater
	9/25/2013	LOC	NLAA	Loggerhead sea turtle (North Pacific DPS), leatherback sea turtle, olive ridley sea turtle, green sea turtle, hawksbill sea turtle, humpback whale, blue whale, fin whale, North Pacific right whale, sei whale, sperm whale, Hawaiian monk seal, false killer whale (MHI insular DPS)

Fishery	Consultation Date	Consultation Type <sup>a</sup>	Outcome <sup>b</sup>	Species
Crustacean	12/5/2013	LOC	NLAA	Loggerhead sea turtle (North Pacific DPS), leatherback sea turtle, olive ridley sea turtle, green sea turtle, hawksbill sea turtle, humpback whale, blue whale, fin whale, North Pacific right whale, sei whale, sperm whale, Hawaiian monk seal, false killer whale (MHI insular DPS)
	9/18/2018	No effect memo	No effect	Oceanic whitetip shark, giant manta ray, MHI false killer whale critical habitat
Precious Coral	12/5/2013	LOC	NLAA	Loggerhead sea turtle (North Pacific DPS), leatherback sea turtle, olive ridley sea turtle, green sea turtle, hawksbill sea turtle, humpback whale, blue whale, fin whale, North Pacific right whale, sei whale, sperm whale, Hawaiian monk seal, false killer whale (MHI insular DPS)
	9/18/2018	No effect memo	No effect	Oceanic whitetip shark, giant manta ray, MHI false killer whale critical habitat
All Fisheries	3/1/2016	LOC	NLAA	Hawaiian monk seal critical habitat

<sup>a</sup> BiOp = Biological Opinion; LOC = Letter of Concurrence.

<sup>b</sup> LAA = likely to adversely affect; NLAA = not likely to adversely affect.

#### 2.4.1.2.1 Bottomfish Fishery

In a March 18, 2008 Biological Opinion (BiOp) covering MHI bottomfish fishery, NMFS determined that the MHI bottomfish fishery is likely to adversely affect but not likely to jeopardize the green sea turtle and included an incidental take statement (ITS) of two animals killed per year from collisions with bottomfish vessels. In the 2008 BiOp, NMFS also concluded that the fishery is not likely to adversely affect any four other sea turtle species (loggerhead, leatherback, olive ridley, and hawksbill turtles) and seven marine mammal species (humpback, blue, fin, Northern right whale, sei and sperm whales, and the Hawaiian monk seal).

In 2013, NMFS re-initiated consultation under ESA in response to listing of the MHI insular false killer whale distinct population segment (DPS) under the ESA. In a modification to the 2008 BiOp dated August 7, 2013, NMFS determined that commercial and non-commercial bottomfish fisheries in the MHI are not likely to adversely affect MHI insular false killer whale because of the spatial separation between the species and bottomfishing activities, the low likelihood of collisions, and the lack of observed or reported fishery interactions were among other reasons. NMFS also concluded that all previous determinations in the 2008 BiOp for other ESA-listed species and critical habitat remained valid.

In August 2015, NMFS revised the Hawaiian monk seal critical habitat in the NWHI and designated new critical habitat in the MHI. In an informal consultation completed on March 1, 2016, NMFS concluded that the Hawai'i bottomfish fishery is not likely to adversely affect monk seal critical habitat.

On February 1, 2019, NMFS reinitiated consultation for the MHI bottomfish fisheries due to ESA listing of the oceanic whitetip shark and giant manta ray, and designation of main Hawaiian Islands insular false killer whale critical habitat. Also, on February 1, 2019, NMFS determined that the conduct of the Hawaii bottomfish fisheries during the period of consultation will not violate ESA Section 7(a)(2) and 7(d).

#### **2.4.1.2.2 Crustacean Fishery**

In an informal consultation completed on December 5, 2013, NMFS concluded that the Hawai'i crustacean fisheries are not likely to affect five sea turtle species (North Pacific loggerhead DPS, leatherback, olive ridley, green, and hawksbill turtles) and eight marine mammal species (humpback, blue, fin, North Pacific right whale, sei, and sperm whales, MHI insular false killer whale DPS and the Hawaiian monk seal). In an informal consultation completed on March 1, 2016, NMFS concluded that the Hawai'i crustacean fishery is not likely to adversely affect monk seal critical habitat.

On September 18, 2018, NMFS concluded the Hawai'i crustacean fishery will have no effect on the oceanic whitetip shark, giant manta ray, and MHI false killer whale critical habitat.

#### **2.4.1.2.3 Coral Reef Ecosystem Fishery**

On May 22, 2002, the USFWS concurred with the determination of NMFS that the activities conducted under the Coral Reef Ecosystems FMP are not likely to adversely affect ESA-listed species under USFWS's exclusive jurisdiction (i.e., seabirds) and ESA-listed species shared with NMFS (i.e., sea turtles).

In an informal consultation completed on December 5, 2013, NMFS concluded that the Hawai'i coral reef ecosystem fisheries are not likely to affect five sea turtle species (North Pacific loggerhead DPS, leatherback, olive ridley, green, and hawksbill turtles) and eight marine mammal species (humpback, blue, fin, Northern right, sei, and sperm whales, MHI insular DPS false killer whales and the Hawaiian monk seal). In an informal consultation completed on March 1, 2016, NMFS concluded that the Hawai'i coral reef ecosystem fishery is not likely to adversely affect monk seal critical habitat.

On September 18, 2018, NMFS concluded the Hawai'i coral reef ecosystem fishery will have no effect on the oceanic whitetip shark and giant manta ray.

#### **2.4.1.2.4 Precious Coral Fishery**

In an informal consultation completed on December 5, 2013, NMFS concluded that the Hawai'i precious coral fisheries are not likely to affect five sea turtle species (North Pacific loggerhead DPS, leatherback, olive ridley, green, and hawksbill turtles) and eight marine mammal species (humpback, blue, fin, North Pacific right, sei, and sperm whales, MHI insular false killer whale DPS and the Hawaiian monk seal). In an informal consultation completed on March 1, 2016, NMFS concluded that the Hawai'i precious coral fishery is not likely to adversely affect monk seal critical habitat.

On September 18, 2018, NMFS concluded the Hawai'i precious coral fishery will have no effect on the oceanic whitetip shark, giant manta ray, and MHI false killer whale critical habitat.

### **2.4.1.3 Non-ESA Marine Mammals**

The MMPA requires NMFS to annually publish a List of Fisheries (LOF) that classifies commercial fisheries in one of three categories based on the level of mortality and serious injury of marine mammals associated with that fishery. According to the 2021 LOF (86 FR 3028, January 14, 2021), the bottomfish (HI bottomfish handline), precious coral (HI black coral diving), coral fish (HI spearfishing), and crustacean (HI crab trap, lobster trap, shrimp trap, crab net, Kona crab loop net, lobster diving) fisheries are classified as Category III fisheries (i.e. a remote likelihood of or no known incidental mortality and serious injury of marine mammals).

## **2.4.2 Status of Protected Species Interactions in the Hawaii FEP Fisheries**

### **2.4.2.1 Bottomfish Fishery**

#### **2.4.2.1.1 Sea Turtle, Marine Mammal, and Seabird Interactions**

Fisheries operating under the Hawai'i FEP currently do not have federal observers on board. The NWHI component of the bottomfish fishery had observer coverage from 1990 to 1993 and 2003 to 2005. The NWHI observer program reported several interactions with non-ESA-listed seabirds during that time, and no interactions with marine mammals or sea turtles (Nitta, 1999; WPRFMC, 2017).

To date, there have been no reported interactions between MHI bottomfish fisheries and ESA-listed species of sea turtles, marine mammals, and seabirds. Furthermore, the commercial and non-commercial bottomfish fisheries in the MHI are not known to have the potential for a large and adverse effect on non-ESA-listed marine mammals. Although these species of marine mammals occur in the Exclusive Economic Zone (EEZ) waters where the fisheries operate and depredation of bait or catch by dolphins (primarily bottlenose dolphins) occurs (Kobayashi and Kawamoto, 1995), there have been no observed or reported takes of marine mammals by the bottomfish fishery.

The 2008 BiOp included an ITS of two green turtle mortalities per year from collisions with bottomfish vessels. There have not been any reported or observed collisions of bottomfish vessels with green turtles, and data are not available to attribute stranded turtle mortality to collisions with bottomfish vessels. However, the BiOp analysis to determine the estimated level of take from vessel collisions was based on an estimated 71,800 bottomfish fishing trips per year. The total annual number of commercial and non-commercial bottomfishing trips since 2008 has been less than 3,500 per year. Therefore, the potential for collisions with bottomfish vessels is substantially lower than was estimated in the 2008 BiOp.

Based on fishing effort and other characteristics described in Chapter 1 of this report, no notable changes have been observed in the fishery. There is no other information to indicate that impacts to sea turtle, marine mammal, and seabird species from this fishery have changed in recent years.

#### **2.4.2.1.2 Elasmobranch Interactions**

As described in Section 2.4.1.2, ESA consultation for newly listed elasmobranch species is ongoing. Available information on elasmobranch interactions in the MHI bottomfish fishery is included here, based on the Biological Evaluation (BE) initiating ESA Section 7 consultation for the fishery (NMFS, 2019).

A Federal observer program monitored the Northwestern Hawaiian Islands (NWHI) bottomfish fishery from October 2003 to April 2006. Observer data from that period reported five interactions with oceanic whitetip sharks. However, a recent review of these data by the NMFS Observer Program indicated that species identification for these records is uncertain and some or all of these interactions could have been whitetip reef sharks (NMFS, 2019). Additionally, the characteristics of the NWHI bottomfish fishery, which ceased operations in 2011 pursuant to the presidential proclamation establishing the Papahānaumokuākea Marine National Monument, differ from the MHI bottomfish fishery that operates today. The NWHI bottomfish fishery was comprised of larger vessels than those in the MHI due to the distance to the fishing grounds, and was conducted solely by commercial fishermen using heavier gear than those used in the MHI.

Cooperative research fishing surveys conducted by Kendall Enterprise Incorporated and Pacific Islands Fisheries Group as part of the MHI Bottomfish Fishery-Independent Survey contract local Deep-7 commercial fishermen to collect data using a standardized traditional fishing method (Kendall, 2014). In the 2016 to 2017 surveys comprising 814 fishing samples (each sample being 30 minutes in duration) and 2,545 records of fish catch, three whitetip reef sharks and no oceanic whitetip sharks were recorded (PIFSC unpublished data, cited in NMFS, 2019).

In addition to the bottomfish surveys, PIFSC researchers have conducted limited bottomfish fishing in the Pacific Islands region for life history research and fishery-independent survey purposes. Each research cruise may land a maximum of 1,200 kg of bottomfish. There have been seven such cruises in the Main Hawaiian Islands since 2007. However, there are no records of researchers catching oceanic whitetip sharks while conducting these activities (NMFS, 2019).

The Hawaii Department of Aquatic Resources (DAR) CML reports has a single code for “whitetip sharks”, and thus interactions with “whitetip sharks” could be either oceanic whitetip sharks or whitetip reef sharks. In the Hawaii commercial catch database, bottomfish fishermen recorded 23 sharks under the “whitetip sharks” reporting code between 2000 and 2017. Based on the area fished, the catch composition associated with the captured sharks, and the size of the shark, DAR ascertained that eight were likely oceanic whitetip sharks, of which four occurred in the NWHI (NMFS, 2019).

Notwithstanding the sparsity of data and potential for species misidentification in self-reported data, available information indicates that oceanic whitetip shark captures in the MHI bottomfish fishery are rare. Sharks generally do not experience barotrauma when brought up from depth, and fishermen in Hawaii bottomfish fisheries tend to release hooked sharks alive by cutting their hook leaders (WPFMC and NMFS, 2007). However, quantitative estimates of post-release mortality are not available.

There are no records of giant manta ray incidental captures or entanglements in the Federally managed bottomfish fisheries in Hawaii.

#### **2.4.2.2 Crustacean, Coral Reef, and Precious Coral Fisheries**

There are no observer data available for the crustacean, coral reef, or precious coral fisheries operating under the Hawai`i FEP. However, based on current ESA consultations, these fisheries are not expected to interact with any ESA-listed species in federal waters around the Hawai`i Archipelago. NMFS has also concluded that the Hawai`i crustacean, coral reef, and precious coral commercial fisheries will not affect marine mammals in any manner not considered or authorized under the MMPA.

In 1986, one Hawaiian monk seal died as a result of entanglement with a bridle rope from a lobster trap. There have been no other reports of protected species interactions with any of these fisheries since then (WPRFMC, 2009; WPRFMC, 2017).

Based on fishing effort and other characteristics described in Chapter 1 of this report, no notable changes have been observed in these fisheries. There is no other information to indicate that impacts to protected species from this fishery have changed in recent years.

### 2.4.3 Identification of Emerging Issues

Table 2 summarizes current candidate ESA species, recent listing status, and post-listing activity (critical habitat designation and recovery plan development). Impacts from FEP-managed fisheries on any new listings and critical habitat designations will be considered in future versions of this report.

**Table 2. Status of candidate ESA species, recent ESA listing processes, and post-listing activities**

Species		Listing Process			Post-Listing Activity	
Common Name	Scientific Name	90-Day Finding	12-Month Finding / Proposed Rule	Final Rule	Critical Habitat	Recovery Plan
Oceanic Whitetip Shark	<i>Carcharhinus longimanus</i>	Positive (81 FR 1376, 1/12/2016)	Positive, threatened (81 FR 96304, 12/29/2016)	Listed as threatened (83 FR 4153, 1/30/18)	Designation not prudent; no areas within US jurisdiction that meet definition of critical habitat (85 FR 12898, 3/5/2020)	In development; recovery planning workshops convened in 2019.
Giant Manta Ray	<i>Manta birostris</i>	Positive (81 FR 8874, 2/23/2016)	Positive, threatened (82 FR 3694, 1/12/2017)	Listed as threatened (83 FR 2916, 1/22/18)	Designation not prudent; no areas within US jurisdiction that meet definition of critical habitat (84 FR 66652, 12/5/2019)	Recovery outline published 12/4/19 to serve as interim guidance until full recovery plan is developed; recovery planning workshop planned for 2021.

Species		Listing Process			Post-Listing Activity	
Common Name	Scientific Name	90-Day Finding	12-Month Finding / Proposed Rule	Final Rule	Critical Habitat	Recovery Plan
False Killer Whale (MHI Insular DPS)	<i>Pseudorca crassidens</i>	Positive (75 FR 316, 1/5/2010)	Positive, endangered (75 FR 70169, 11/17/2010)	Listed as endangered (77 FR 70915, 11/28/2012)	Designated in waters from the 45 m depth contour to the 3,200 m depth contour around the MHI from Niihau east to Hawaii (83 FR 35062, 07/24/2018)	Draft recovery plan published 10/16/2020 (85 FR 65791), comment period closed 12/15/2020, final plan anticipated in 2021.
Green Sea Turtle	<i>Chelonia mydas</i>	Positive (77 FR 45571, 8/1/2012)	Identification of 11 DPSs, endangered and threatened (80 FR 15271, 3/23/2015)	11 DPSs listed as endangered and threatened (81 FR 20057, 4/6/2016)	In development, proposal expected TBA	TBA
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Positive 90-day finding on a petition to identify the Northwest Atlantic leatherback turtle as a DPS (82 FR 57565, 12/06/2017)	7 populations qualify as DPS, but DPS listing not warranted due to all populations meeting existing endangered classification ; no changes proposed to existing global listing (85 FR 48332, 8/10/20)	N/A	N/A	N/A
Cauliflower Coral	<i>Pocillopora meandrina</i>	Positive (83 FR 47592, 9/20/2018)	Not warranted (85 FR 40480, 7/6/20)	N/A	N/A	N/A



Species		Listing Process			Post-Listing Activity	
Common Name	Scientific Name	90-Day Finding	12-Month Finding / Proposed Rule	Final Rule	Critical Habitat	Recovery Plan
Giant Clams	<i>Hippopus hippopus</i> , <i>H. porcellanus</i> , <i>Tridacna costata</i> , <i>T. derasa</i> , <i>T. gigas</i> , <i>T. Squamosa</i> , and <i>T. tevoroa</i>	Positive (82 FR 28946, 06/26/2017)	TBA (status review ongoing)	TBA	N/A	N/A

#### 2.4.4 Identification of Research, Data, and Assessment Needs

[THIS SECTION MAY BE UPDATED FOLLOWING THE PLAN TEAM MEETING]

The following research, data, and assessment needs for insular fisheries were identified by the Council's Plan Team:

- Improve species identification of commercial and non-commercial fisheries data (e.g., outreach, use FAO species codes) to improve understanding of potential protected species impacts.
- Define and evaluate innovative approaches to derive robust estimates of protected species interactions in insular fisheries.
- Conduct genetic and telemetry research to improve understanding of population structure and movement patterns for listed elasmobranchs.