**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**50 CFR Parts 223 and 224**

**[Docket No. 151110999–5999–01]**

**RIN 0648–XE314**

## Endangered and Threatened Wildlife; 90-Day Finding on a Petition To List the Oceanic Whitetip Shark as Threatened or Endangered Under the Endangered Species Act

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** 90-day petition finding, request for information, and initiation of status review.

**SUMMARY:** We, NMFS, announce the 90-day finding on a petition to list the oceanic whitetip shark (*Carcharhinus longimanus*) range-wide, or in the alternative, as one or more distinct population segments (DPSs) identified by the petitioners as endangered or threatened under the U.S. Endangered Species Act (ESA). We find that the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted for the species worldwide. Accordingly, we will initiate a status review of oceanic whitetip shark range-wide at this time. To ensure that the status review is comprehensive, we are soliciting scientific and commercial information regarding this species.

**DATES:** Information and comments on the subject action must be received by March 14, 2016.

**ADDRESSES:** You may submit comments, information, or data, by including ''NOAA–NMFS–2015–0152'' by either of the following methods:

- *Federal eRulemaking Portal*. Go to *www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2015-0152,* click the ''Comment Now'' icon, complete the required fields, and enter or attach your comments.
- *Mail or hand-delivery:* Office of Protected Resources, NMFS, 1315 East-West Highway, Silver Spring, MD 20910.

*Instructions:* NMFS may not consider comments if they are sent by any other method, to any other address or individual, or received after the comment period ends. All comments received are a part of the public record and NMFS will post for public viewing on *http://www.regulations.gov* without change. All personal identifying information (*e.g.,* name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter ''N/A'' in the required fields if you wish to remain anonymous).

**FOR FURTHER INFORMATION CONTACT:** Chelsey Young, NMFS, Office of Protected Resources (301) 427–8491.

**SUPPLEMENTARY INFORMATION:**

### Background

On September 21, 2015, we received a petition from Defenders of Wildlife requesting that we list the oceanic whitetip shark (*Carcharhinus longimanus*) as endangered or threatened under the ESA, or, in the alternative, to list one or more distinct population segments (DPSs), should we find they exist, as threatened or endangered under the ESA. Defenders of Wildlife also requested that critical habitat be designated for this species in U.S. waters concurrent with final ESA listing. The petition states that the oceanic whitetip shark merits listing as an endangered or threatened species under the ESA because of the following: (1) The species faces impacts from various chemical pollutants within its habitat; (2) the species faces threats from historical and continued fishing for commercial purposes; (3) diseases, such as highly pathogenic bacteria, may be impacting the species in conjunction with pollutants; (4) regulations are inadequate to protect the oceanic whitetip shark; (5) life history characteristics and limited ability to recover from fishing pressure make the species particularly vulnerable to overexploitation.

#### *ESA Statutory Provisions and Policy Considerations*

Section 4(b)(3)(A) of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*), requires, to the maximum extent practicable, that within 90 days of receipt of a petition to list a species as threatened or endangered, the Secretary of Commerce make a finding on whether that petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted, and promptly publish the finding in the **Federal Register** (16 U.S.C. 1533(b)(3)(A)). When we find that substantial scientific or commercial information in a petition and in our files indicates the petitioned action may be warranted (a ''positive 90-day finding''), we are required to promptly commence a review of the status of the species concerned, which includes conducting a comprehensive review of the best available scientific and commercial information. Within 12 months of receiving the petition, we must conclude the review with a finding as to whether, in fact, the petitioned action is warranted. Because the finding at the 12-month stage is based on a significantly more thorough review of the available information, a ''may be warranted'' finding at the 90-day stage does not prejudge the outcome of the status review.

Under the ESA, a listing determination may address a ''species,'' which is defined to also include subspecies and, for any vertebrate species, any DPS that interbreeds when mature (16 U.S.C. 1532(16)). A joint NMFS-U.S. Fish and Wildlife Service (USFWS) policy clarifies the agencies' interpretation of the phrase ''distinct population segment'' for the purposes of listing, delisting, and reclassifying a species under the ESA (''DPS Policy''; 61 FR 4722; February 7, 1996). A species, subspecies, or DPS is ''endangered'' if it is in danger of extinction throughout all or a significant portion of its range, and ''threatened'' if it is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (ESA sections 3(6) and 3(20), respectively; 16 U.S.C. 1532(6) and (20)). Pursuant to the ESA and our implementing regulations, the determination of whether a species is threatened or endangered shall be based on any one or a combination of the following five section 4(a)(1) factors: The present or threatened destruction, modification, or curtailment of habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; inadequacy of existing regulatory mechanisms; and any other natural or manmade factors affecting the species' existence (16 U.S.C. 1533(a)(1), 50 CFR 424.11(c)).

ESA-implementing regulations issued jointly by NMFS and USFWS (50 CFR 424.14(b)) define ''substantial information'' in the context of reviewing a petition to list, delist, or reclassify a species as the amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted. When evaluating whether substantial information is contained in a petition, we must consider whether the petition: (1) Clearly indicates the administrative measure recommended and gives the scientific and any common name of the species involved; (2) contains detailed narrative justification for the recommended measure, describing, based on available information, past and

present numbers and distribution of the species involved and any threats faced by the species; (3) provides information regarding the status of the species over all or a significant portion of its range; and (4) is accompanied by the appropriate supporting documentation in the form of bibliographic references, reprints of pertinent publications, copies of reports or letters from authorities, and maps (50 CFR 424.14(b)(2)).

At the 90-day stage, we evaluate the petitioner's request based upon the information in the petition including its references, and the information readily available in our files. We do not conduct additional research, and we do not solicit information from parties outside the agency to help us in evaluating the petition. We will accept the petitioner's sources and characterizations of the information presented, if they appear to be based on accepted scientific principles, unless we have specific information in our files that indicates the petition's information is incorrect, unreliable, obsolete, or otherwise irrelevant to the requested action. Information that is susceptible to more than one interpretation or that is contradicted by other available information will not be dismissed at the 90-day finding stage, so long as it is reliable and a reasonable person would conclude that it supports the petitioner's assertions. Conclusive information indicating the species may meet the ESA's requirements for listing is not required to make a positive 90-day finding. We will not conclude that a lack of specific information alone negates a positive 90-day finding, if a reasonable person would conclude that the unknown information itself suggests an extinction risk of concern for the species at issue.

To make a 90-day finding on a petition to list a species, we evaluate whether the petition presents substantial scientific or commercial information indicating the subject species may be either threatened or endangered, as defined by the ESA. First, we evaluate whether the information presented in the petition, along with the information readily available in our files, indicates that the petitioned entity constitutes a ''species'' eligible for listing under the ESA. Next, we evaluate whether the information indicates that the species at issue faces extinction risk that is cause for concern; this may be indicated in information expressly discussing the species' status and trends, or in information describing impacts and threats to the species. We evaluate any information on specific demographic factors pertinent to evaluating extinction risk for the species at issue (*e.g.,* population abundance and trends, productivity, spatial structure, age structure, sex ratio, diversity, current and historical range, habitat integrity or fragmentation), and the potential contribution of identified demographic risks to extinction risk for the species. We then evaluate the potential links between these demographic risks and the causative impacts and threats identified in ESA section 4(a)(1).

Information presented on impacts or threats should be specific to the species and should reasonably suggest that one or more of these factors may be operative threats that act or have acted on the species to the point that it may warrant protection under the ESA. Broad statements about generalized threats to the species, or identification of factors that could negatively impact a species, do not constitute substantial information that listing may be warranted. We look for information indicating that not only is the particular species exposed to a factor, but that the species may be responding in a negative fashion; then we assess the potential significance of that negative response.

Many petitions identify risk classifications made by non-governmental organizations, such as the International Union for the Conservation of Nature (IUCN), the American Fisheries Society, or NatureServe, as evidence of extinction risk for a species. Risk classifications by other organizations or made under other Federal or state statutes may be informative, but such classification alone may not provide the rationale for a positive 90-day finding under the ESA. For example, as explained by NatureServe, their assessments of a species' conservation status do ''not constitute a recommendation by NatureServe for listing under the U.S. Endangered Species Act'' because NatureServe assessments ''have different criteria, evidence requirements, purposes and taxonomic coverage than government lists of endangered and threatened species, and therefore these two types of lists should not be expected to coincide'' (*http://www.natureserve.org/prodServices/statusAssessment.jsp*). Thus, when a petition cites such classifications, we will evaluate the source of information that the classification is based upon in light of the standards on extinction risk and impacts or threats discussed above.

**Species Description**

*Distribution*

The oceanic whitetip shark *(Carcharhinus longimanus)* is a large, highly migratory oceanic species of shark, and is one of the most widespread species of shark found throughout the world in epipelagic tropical and subtropical waters between 30 °N. and 35 °S. latitude. In the Western Atlantic, oceanic whitetips occur from Maine to Argentina, including the Caribbean and Gulf of Mexico. In the Central and Eastern Atlantic, the species occurs from Madeira, Portugal south to the Gulf of Guinea, and possibly in the Mediterranean Sea. In the Western Indian Ocean, the species can be found in waters of South Africa, Madagascar, Mozambique, Mauritius and Seychelles, and the Red Sea, and India. Oceanic whitetips are also found throughout the Western and Central Pacific, including China (including Taiwan Island), the Philippines, New Caledonia, Australia (southern Australian coast), Hawaiian Islands south to Samoa Islands, Tahiti and Tuamotu Archipelago and west to Galapagos Islands. Finally, in the Eastern Pacific, the species can be found from southern California to Peru, including the Gulf of California and Clipperton Island (Compagno, 1984).

*Physical Characteristics*

The oceanic whitetip shark has a stocky build with a large rounded first dorsal fin and very long and wide paddle-like pectoral fins (Compagno, 1984). 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 (Compagno, 1984). 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 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 (Compagno, 1984). The species also exhibits a 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. 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).

*Habitat*

The oceanic whitetip shark is found in a diverse spectrum of locations: It is a surface-dwelling and predominantly oceanic-epipelagic shark, but occasionally coastal, tropical and warm temperate shark, usually found far offshore in the open sea. It has a clear preference for open ocean waters and its abundance increases away from continental and insular shelves (Backus *et al.,* 1956; Strasburg, 1958; Compagno, 1984). This species sometimes occurs in inshore waters as shallow as 37 m, particularly off oceanic islands or in continental areas where the shelf is very narrow, but is generally found in water with the bottom below 184 m, from the surface to at least 152 m deep. It is thought to primarily occupy the upper layer of the water column, tolerating temperatures from 18–28° C but preferring > 20° C. Although one was caught in water of 15° C, the species tends to withdraw from waters that are cooling below this temperature (*e.g.,* the Gulf of Mexico in winter (Compagno, 1984)).

*Feeding Ecology*

Oceanic whitetip sharks are high trophic level predators in open ocean ecosystems feeding mainly on teleosts and cephalopods (Backus, 1954; Bonfil *et al.,* 2008), but studies have also reported that they prey on sea birds, marine mammals, other sharks and rays, molluscs and crustaceans, and even garbage (Compagno, 1984; Cortés, 1999). Based on the species' diet, the oceanic whitetip has a high trophic level, with a score of of 4.2 out of a maximum 5.0 (Cortés, 1999)

*Life History*

The oceanic whitetip has an estimated maximum age of 17 years, although only a maximum age of 13 years has been confirmed (Lessa *et al.,* 1999). In general, this species is said to attain a maximum size of 395.0 cm (Compagno, 1984), with theoretical maximum sizes ranging from 325 to 342 cm total length (TL) (Lessa *et al.,* 1999; Seki *et al.,* 1998, respectively); however, the most common sizes are below 300.0 cm (Compagno, 1984). Age of maturity is slightly different depending on location: In the southwestern Atlantic, age and size 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). In the North Pacific, females become mature at about 168–196 cm TL, and males at 175–189 cm TL, which corresponds to an age of 4 and 5 years, respectively (Seki *et al.,* 1998). In the Indian Ocean, both males and females mature at around 190–200 cm TL (IOTC, 2014). Similar to other carcharhinid species, the oceanic whitetip shark is viviparous with placental embryonic development. The reproductive cycle is thought to be biennial, giving birth on alternate years, after a 10–12 month gestation period. The number of pups in a litter ranges from 1 to 14, with an average of 6, and there is a potential positive correlation between female size and number of pups per litter (Bonfil *et al.,* 2008; Compagno, 1984). Size at birth varies slightly between geographic locations, ranging from 55 to 75 cm TL in the North Pacific, around 65–75 cm TL in the northwestern Atlantic, and 60–65 cm TL off South Africa, with reproductive seasons thought to occur from late spring to summer (Bonfil *et al.,* 2008; Compagno, 1984).

**Analysis of Petition and Information Readily Available in NMFS Files**

Below we evaluate the information provided in the petition and readily available in our files to determine if the petition presents substantial scientific or commercial information indicating that an endangered or threatened listing may be warranted as a result of any of the factors listed under section 4(a)(1) of the ESA. If requested to list a global population or, alternatively, a DPS, we first determine if the petition presents substantial information that the petitioned action is warranted for the global population. If it does, then we make a positive finding on the petition and conduct a review of the species range-wide. If after this review we find that the species does not warrant listing range-wide, then we will consider whether the populations requested by the petition qualify as DPSs and warrant listing. If the petition does not present substantial information that the global population may warrant listing, but it has requested that we list any distinct populations of the species as threatened or endangered, then we consider whether the petition provides substantial information that the requested population(s) may qualify as DPSs under the discreteness and significance criteria of our joint DPS Policy, and if listing any of those DPSs may be warranted. We summarize our analysis and conclusions regarding the information presented by the petitioners and in our files on the specific ESA section 4(a)(1) factors that we find may be affecting the species' risk of global extinction below.

*Oceanic Whitetip Status and Trends*

The petition does not provide a global population abundance estimate for oceanic whitetip sharks, but states that the species was formerly one of the most common sharks in the ocean and has undergone serious declines throughout its global range. The petition asserts that a global decline of oceanic whitetip sharks has been caused mainly by commercial fishing (both direct harvest and bycatch) driven by demands of the shark fin trade. In the Northwest and Central Atlantic, the petition cites population declines of up to 70 percent since the early 1990s, and even more significant historical declines of up to 99 percent in the Gulf of Mexico since the 1950s. In the Southwest and equatorial Atlantic, the petition points to various but limited pieces of information indicating potential population declines and high fishing pressure in this region. In the Western and Central Pacific, the petition provides numerous lines of evidence, including a recent stock assessment report as well as other standardized catch per unit effort (CPUE) data, that oceanic whitetips have suffered significant population declines (> 90 percent in some areas) as well as declines in size and biomass in both the greater Western and Central Pacific as well as Hawaii. In the Eastern Pacific, the petition cites limited information based on nominal CPUE data that indicates an estimated 95 percent decline in bycatch rates of oceanic whitetips in purse seine fisheries. Finally, in the Indian Ocean, the petition notes that while trend information is limited for this region, a limited number of studies as well as some anecdotal information indicate that oceanic whitetip populations may be declining.

The last IUCN assessment of the oceanic whitetip shark was completed in 2006 and several estimates of global and subpopulation trends and status have been made and are described in the following text. In the Northwest Atlantic, declines in relative abundance cited by the petitioner were derived from standardized catch-rate indices estimated from self-reported fisheries logbook data by pelagic commercial longline fishers in Baum *et al.* (2003) and Cortés *et al.* (2007). The logbook data indicated declines of 70 percent from 1992 to 2000 (Baum *et al.,* 2003) and 57 percent from 1992 to 2005 (Cortés *et al.,* 2007). However, standardized catch-rate analysis of data collected by on-board scientific observers that sample the same pelagic longline fishery resulted in a less pronounced decline than the logbook series (9 percent vs. 57 percent) while the nominal observer series showed a 36

percent decline (Cortés *et al.,* 2007). It should be noted that the sample size for oceanic whitetips in the observer analysis was substantially lower than for the other species, and changes in hook depth, which are particularly important in catching oceanic whitetips, were not considered. Thus, these trends should be regarded with caution. Overall, despite the 57 percent decline from the standardized logbook data from 1992–2005, Cortes *et al.* (2007) reports that the latter portion of the time series shows a stable and possibly increasing trend for oceanic whitetips from 2000–2005. In contrast to the 9 percent decline found in the analysis of observer data in Cortes *et al.* (2007), a more recent analysis using observer data between 1996 and 2005 provides additional evidence that the abundance of oceanic whitetips has declined over this time period. The estimated rate of change in oceanic whitetips equated to a 50 percent decline (95 percent CI: 17–70 percent) between1992 and 2005 (Baum and Blanchard, 2010); however, the authors noted that although model estimates suggest significant declines in oceanic whitetip sharks between 1992 and 2005, the high degree of interannual variability in the individual year estimates suggests that the catch rates have not been fully standardized (*i.e.,* covariates that significantly influence catch rates of these species were not included in the models) and limits what can reasonably be inferred about the relative abundance of the species.

In the Gulf of Mexico, the petition cited Baum and Myers (2004), which compared longline CPUE from research surveys from 1954–1957 to observed commercial longline sets from 1995–1999, and determined that the oceanic whitetip had declined by more than 150-fold, or 99.3 percent (95 percent CI: 98.3–99.8 percent) in the Gulf during that time. However, the methods and results of Baum *et al.* (2003) and Baum and Myers (2004) were critiqued by Burgess *et al.* (2005), who agreed that abundance of large pelagic sharks had declined but presented arguments that the population declines were probably less severe than indicated by these. Of particular relevance to oceanic whitetip, Burgess *et al.* (2005) noted that the change from steel to monofilament leaders between the 1950s and 1990s could have reduced the catchability of all large sharks, and the increase in the average depth of sets during the same period could have reduced the catchability of the surface-dwelling oceanic whitetip (FAO 2012). After a re-analysis of the same data and correcting for the aforementioned factors, declines of oceanic whitetip in the Gulf of Mexico were estimated to be 88 percent rather than 99 percent (Driggers *et al.,* 2011).

Thus, abundance trend estimates derived from standardized catch rate indices of the U.S. pelagic longline fishery suggest that oceanic whitetips have likely undergone a decline in abundance in this region. However, the conflicting evidence regarding the magnitude of decline between the fisheries logbook data and observer data cannot be fully resolved at this time. While the logbook dataset is the largest available for the western North Atlantic Ocean, the observer dataset is generally more reliable in terms of consistent identification and reporting, particularly of bycatch species. Data are not available in the petition or in our own files to assess the trend in population abundance in this region since 2006. However, because the logbook data from this region show consistent evidence of a significant and continued decline in oceanic whitetip sharks, we must consider this information in our 90-day determination.

The petition cites several lines of evidence indicating that oceanic whitetips in the Western and Central Pacific have suffered significant population declines throughout the region, including declining trends in standardized CPUE data as well as biomass and size indices. The most reliable evidence likely comes from the first and only stock assessment of oceanic whitetip, in which standardized CPUE series were estimated in the Western and Central Pacific based on observer data held by the Secretariat of the Pacific Community (SPC) and collected over the years from 1995–2009. Based on the data in the oceanic whitetip stock assessment, the median estimate of oceanic whitetip biomass in the Western Central Pacific in 2010 was 7,295 tons, which would be equivalent to a population of roughly 200,000 individuals. This stock assessment report (Rice and Harley, 2012) concluded that the catch, CPUE, and size composition data for oceanic whitetip all show consistent declines from 1995–2009. In addition to the stock assessment report, another study analyzing catch rates from observer data confirmed significant population declines for the oceanic whitetip. Standardized CPUE of longline fleets in the Western and Central Pacific declined significantly for oceanic whitetip sharks in tropical waters by 17 percent per year (CI: 14 percent to 20 percent) from 1996 to 2009, which equates to a total decline in annual values of 90 percent, with low uncertainty in the estimates (Clarke *et al.,* 2012). This study also found a decrease in size of female oceanic whitetips in their core tropical habitat, and that all individuals sampled from purse-seine fisheries since 2000 have been immature. More recently, Rice *et al.* (2015) confirmed that population declines of oceanic whitetips have continued since the stock assessment report was completed in 2009. Specifically, the standardized oceanic whitetip shark trend decreases steadily over 1995–2014, with a large decrease from 2013–2014 in the standardized CPUE, indicating continuing population declines in this region. In fact, the study concluded that if the population of oceanic whitetip shark doubled since the stock assessment, it would still be overfished (Rice *et al.,* 2015).

Separate analyses have also been conducted for Hawaiian pelagic longline fisheries that found similar declines. Brodziak and Walsh (2013) showed a highly significant decreasing trend in standardized CPUE of oceanic whitetip from 1995 to 2010, resulting in a decline in relative abundance on the order of 90 percent. These results were similar to earlier results from Clarke and Walsh (2011) that also found oceanic whitetip CPUE decreased by greater than 90 percent since 1995 in the Hawaii-based pelagic longline fishery. These results suggest that declines of oceanic whitetip populations are not just regional, but rather a Pacific-wide phenomenon.

The petition acknowledged that in the Eastern Pacific, assessments of oceanic whitetip declines are less prevalent, but provided some information that oceanic whitetips have suffered significant population declines as a result of purse-seine fisheries in this region. According to the Inter-American Tropical Tuna Commission (IATTC), unstandardized nominal catch-rate data for the oceanic whitetip shark from purse-seine sets on floating objects, unassociated sets and dolphin sets all show decreasing trends since 1994 (IATTC, 2007). On floating object sets in particular, nominal incidental catch of oceanic whitetip declined by approximately 95 percent (FAO, 2012).

Likewise, in other areas of the world, estimates of oceanic whitetip abundance are limited. In the Indian Ocean, the status and abundance of shark species is poorly known despite a long history of research and more than 60 years of commercial exploitation by large-scale tuna fisheries (Romanov *et al.,* 2010). Available standardized CPUE indices from Japanese and Spanish longline fisheries are limited and indicate conflicting trends, although both datasets indicate overall population

declines ranging from 25–40 percent. Presently, there is no quantitative stock assessment and only limited basic fishery indicators are currently available for oceanic whitetip sharks in the Indian Ocean; therefore, the stock status is uncertain. However, in addition to the limited data available indicating some level of population decline, anecdotal information suggests that oceanic whitetip shark abundance has declined over recent decades and the species has become rare throughout much of the Indian Ocean basin over the last 20 years (IOTC, 2014). With such high pelagic fishing effort in this region, and no indication that fishing pressure will cease in the foreseeable future, the species may continue to experience declines in this portion of its range.

In conclusion, across the species' global range we find evidence suggesting that population abundance of the oceanic whitetip shark is declining or, in the Northwest Atlantic Ocean, potentially stabilized. While data are still limited with respect to population size and trends, we find the petition and our files sufficient in presenting substantial information on oceanic whitetip shark abundance, trends, or status to indicate the petitioned action may be warranted.

**ESA Section 4(a)(1) Factors**

The petition indicated that oceanic whitetip sharks merit listing due to all five ESA section 4(a)(1) factors: Present or threatened destruction, modification, or curtailment of its habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; inadequacy of existing regulatory mechanisms; and other natural or manmade factors affecting its continued existence. We discuss each of these below based on information in the petition, and the information readily available in our files.

*Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

The petition contends that oceanic whitetip sharks are at risk of extinction throughout their range due to pollutants, especially those that are able to bioaccumulate and biomagnify to high concentrations as a result of the species' high trophic position, long life, and large size. Of particular concern to the petitioners are high polychlorinated biphenyl (PCB) and mercury concentrations in oceanic whitetip shark tissues, which can cause a variety of negative physiological impacts. A study cited by the petition that analyzed the pollutant composition of an amalgamated liver oil sample taken from three shark species (including oceanic whitetip, silky (*Carcharhinus falciformis*), and nurse (*Ginglymostoma cirratum*) sharks) looked at dioxins and dioxin-like PCBs in the sample (Cruz-Nuñez *et al.,* 2009). The petition states that the study found very high levels of both of these pollutants in the tested liver oil, and, in comparison to levels found in smooth hammerhead sharks (Storelli *et al.,* 2003), these levels would likely exceed threshold levels of PCBs for some cell- and molecular-level effects seen in aquatic vertebrates. However, the former study (Cruz-Nuñez *et al.,* 2009) was based on an amalgamated liver oil sample taken from an unknown composition of three different shark species, the results of which cannot be solely attributed to the oceanic whitetip. Additionally, of the 33 species for which published data are available, only two have been shown to exhibit PCB concentrations above the threshold for organism-level effects in fish and aquatic mammals (*e.g.,* growth and reproduction, which are impaired at PCB concentrations >50 µg/g;): The Greenland shark (*Somniosus microcephalus*) and bull shark (*Carcharhinus leucas*) (Gelsleichter and Walker, 2010). The petition also states that high concentrations of mercury found in oceanic whitetip sharks can interact with the presence of any PCBs and exacerbate mercury neurotoxicity; however, the petition did not provide any evidence that such impacts are presently affecting oceanic whitetip populations.

Generally, we look for information in the petition and in our files to indicate that not only is the particular species exposed to a factor, but that the species may be responding in a negative fashion. Despite providing evidence that oceanic whitetip sharks accumulate pollutants in their tissues, the petitioners fail to provide evidence that these concentrations of PCBs and mercury are causing detrimental physiological effects to the species or may be contributing significantly to population declines in oceanic whitetip sharks to the point where the species may be at risk of extinction. In addition, we did not find any information in our files to suggest that pollutants are negatively impacting oceanic whitetip shark populations, such that it poses an extinction risk to the species. As such, we conclude that the information presented in the petition, and in our own files, on threats to the habitat of the oceanic whitetip shark does not provide substantial information indicating that listing may be warranted for the species.

*Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

The petition states that the threat of overutilization, as a result of historical and continued catch of the species in both targeted fisheries and, more importantly, incidentally as bycatch, is the primary driver of population declines observed for oceanic whitetip sharks. More specifically, the petition states that because oceanic whitetip fins are highly valued in the international fin market, with values of $45–85 per kilogram and categorized as ''first choice'' in Hong Kong, overutilization driven by the shark fin trade has resulted in population declines of oceanic whitetip. In fact, demand from the international fin market is considered to be the primary force driving retention of bycatch of this species, as the meat is considered to be of low commercial value (Mundy-Taylor and Crooke, 2013). Evidence suggests that the oceanic whitetip shark may account for approximately 2.8 percent [CI: 1.6–2.1 percent] of the fins auctioned in Hong Kong, one of the world's largest fin-trading centers (Clarke, 2006). This translates to approximately 200,000 to 1.3 million oceanic whitetips that may enter the global fin trade each year (Clarke, 2006). Given the ease of morphological identification of oceanic whitetip fins by traders, the best estimate of oceanic whitetip sharks' contribution to the trade is likely more accurate than that for other species because these fins are less likely to be inadvertently sorted into other categories. We found additional evidence in our files that oceanic whitetips are highly utilized in the shark fin trade. In a genetic barcoding study of shark fins from markets in Taiwan, oceanic whitetips were one of 20 species identified and comprised 0.38 percent of collected fin samples. Additionally, oceanic whitetips comprised 1.72 percent of fins genetically tested from markets throughout Indonesia (the largest shark catching country in the world). In another genetic barcoding study of fins from United Arab Emirates, the fourth largest exporter in the world of raw dried shark fins to Hong Kong, the authors found that the oceanic whitetip represented 0.45 percent of the trade from Dubai (Jabado *et al.,* 2015). Overall, the fact that oceanic whitetips are highly valued and preferentially retained for their fins, are possibly targeted in some areas, and comprise a portion of the Hong Kong fin-trading auction suggests that overutilization via the fin trade may be a threat

contributing to the extinction risk of the species.

In addition to the many oceanic whitetips that are retained as bycatch in fisheries throughout its range, the petition contends that many oceanic whitetips incidentally caught as bycatch will die even when they are not retained as a result of post-capture mortality (*i.e.,* mortality that occurs once the species is hooked and hauled in) and post-release mortality (*i.e.,* mortality that occurs after the species is released). Based on the available information in the petition and in our files, we found that oceanic whitetips have relatively high survivorship in comparison to other pelagic shark species when caught on longline gear. For example, in Portuguese longline fisheries targeting swordfish in the Atlantic Ocean, 66 percent of oceanic whitetips were alive at haul-back in comparison to smooth hammerhead or silky sharks, of which only 29 percent and 44 percent, respectively, were alive at haul-back (Coelho *et al.,* 2012). In addition, a large proportion of the oceanic whitetip sharks taken as bycatch in the U.S. Atlantic pelagic longline fishery are alive when brought to the vessel (>75 percent; (Beerkircher *et al.,* 2002) and between 65–88 percent are still alive at haul-back in the Fijian longline fishery (Gilman *et al.,* 2008). However, we do agree with the petition that these numbers do not account for post-release mortality, and although oceanic whitetips have higher survivorship than some other pelagic shark species, these sources of mortality must also be taken into consideration.

In the Northwest and Central Atlantic and Gulf of Mexico, the oceanic whitetip was once described as the most common pelagic shark throughout the warm-temperate and tropical waters of the Atlantic and beyond the continental shelf in the Gulf of Mexico. Historically, oceanic whitetips were caught as bycatch in pelagic longline fisheries targeting tuna and swordfish in this region, with an estimated 8,526 individuals recorded as captured in these fisheries logbooks from 1992 to 2000 (Baum *et al.,* 2003). The petition contends that due to continued exploitation, beginning in the 1950s and 1960s, combined with the species' vulnerability to pelagic longline fisheries, oceanic whitetips have undergone significant population declines in this region. As previously described, estimates of decline vary, and range from up to 70 percent in the Northwest Atlantic and up to 88 percent in the Gulf of Mexico. In order to implement the International Commission for the Conservation of Atlantic Tuna (ICCAT) recommendation 10–07 for the conservation of oceanic whitetip sharks, the species has been prohibited in U.S. Atlantic pelagic longline fisheries since 2011. However, it should be noted that oceanic whitetip sharks are still caught as bycatch in this region despite its prohibited status (NMFS, 2012; 2014), although bycatch numbers have decreased. Since the prohibition was implemented in 2011, estimated commercial landings of oceanic whitetip declined from 1.1 mt in 2011 to only 0.03 mt in 2013 (NMFS 2012; 2014 SAFE Reports). In 2013, NMFS reported a total of 33 oceanic whitetip prohibited interactions, with 88 percent released alive. In addition to population declines, the petition cites information suggesting that oceanic whitetip sharks have experienced decreasing sizes in this region, indicating unsustainable catch. In comparison to surveys conducted in the 1950s, mean weight of oceanic whitetip sharks in the 1990s showed a decline of 35 percent in the Gulf of Mexico (Baum and Myers, 2004). Further, off the Southeastern United States, most of the observed catches of oceanic whitetip from 1992–2000 were below the species' size of maturity. In addition to the recorded commercial utilization of the species, the petition also notes that illegal, unreported and unregulated (IUU) fishing is problematic, particularly in the Gulf of Mexico, where the petition states that Mexican fishermen are illegally catching an estimated 3 to 56 percent of the total U.S. commercial shark quota, and between 6 and 108 percent of the Gulf of Mexico regional commercial quota, which further contributes to overutilization of the species. However, the quotas the petition refers to are actually for large coastal sharks rather than pelagic sharks, and most of the species caught are not oceanic whitetips. Overall, evidence suggests that oceanic whitetip sharks have suffered significant population declines in the Northwest Atlantic and Gulf of Mexico, likely as a result of fishing pressure. Although the magnitude of population declines remains uncertain, we find substantial evidence to suggest that overutilization may be a threat to the species in this region that warrants further exploration to determine whether it contributes significantly to the species' extinction risk.

In the Southwest and equatorial Atlantic, the oceanic whitetip is commonly caught in both longline and purse-seine fisheries. The petition notes that data concerning oceanic whitetip population trends are less abundant in this region, but claims there is significant evidence of decline where the species was formerly abundant. In this region, oceanic whitetips were historically reported as the second-most abundant shark, outnumbered only by blue shark, in research surveys between 1992 and 1997 (FAO 2012). However, more recent observer data from the Uruguayan longline fleet operating in this region reported low CPUE values for oceanic whitetip from 2003 to 2006, with the highest CPUE recorded not exceeding 0.491 individuals/1,000 hooks. In total, only 63 oceanic whitetips were caught on 2,279,169 hooks and most were juveniles (Domingo *et al.,* 2007). Though these data do not indicate whether a decline in the oceanic whitetip population occurred, they clearly show that this species is currently not abundant in this area. Additionally, total landings of oceanic whitetip in the Brazilian tuna longline fishery have shown a continuous decline, decreasing from about 640t in 2000 to 80t in 2005. However, like the previous study, CPUE data are not available for the species; thus, it is impossible to evaluate if such a decline resulted from a lower abundance or from changes in catchability, related, for instance, to targeting strategies (Hazin *et al.,* 2007). However, in another recent study from the South Atlantic, almost 80 percent of the oceanic whitetip sharks caught in the Brazilian longline tuna fleet between 2004 and 2009 were juveniles (Tolotti *et al.,* 2010), which, in combination with significantly low catches and low patchy abundance in areas where the species was formerly abundant, may be indicative of significant fishing pressure leading to population declines. Further, increases in effort of the Spanish longline fleet, as well as the expansion of fishing activities by southern coastal countries, such as Brazil and Uruguay, occurred in the early to mid-1990s (FAO, 2012), which may have contributed to declines in oceanic whitetip abundance. Without any robust standardized fisheries data to account for various factors that may affect the catch rate of oceanic whitetip, the species' abundance and trends in this region are highly uncertain. However, we agree with the petition that the available information indicates that overutilization may be a threat to the species in this region, as evidenced by low catch rates and landings in various fisheries that comport with increases in fishing effort, as well as the prevalence of immature sharks comprising the majority of catches of major pelagic longline fishing fleets in the region.

As in the Atlantic Ocean, the oceanic whitetip was also formerly one of the most abundant sharks throughout the Pacific Ocean. Evidence shows that oceanic whitetips commonly interact with both longline and purse-seine fisheries throughout the Pacific, with at least 20 member nations of the Western and Central Pacific Fisheries Commission recording the species in their fisheries. In the Western and Central Pacific, where sharks represent 25 percent of the longline fishery catch, observer data show that the oceanic whitetip shark is the 5th most common species of shark caught as bycatch out of a total 49 species reported by observers, and represents approximately 3 percent of the total shark catch. Additionally, the oceanic whitetip is the 2nd most common species of shark caught as bycatch in purse-seine fisheries in this region, representing nearly 11 percent of the total shark catch (Molony, 2007). In a recent stock assessment of oceanic whitetip sharks in the Western and Central Pacific, the greatest impact on the species is attributed to bycatch from the longline fishery, with lesser impacts from target longline activities and purse-seining (Rice and Harley, 2012). From 1995 to 2009, rates of fishing mortality consistently increased, driven mainly by the increased effort in the longline fleet over the same time period, and remain substantially above maximum sustainable yield (MSY) (*i.e.,* the point at which there would be an equilibrium) for the species. As a result of this increasing fishing pressure, estimated spawning biomass declined by 86 percent over the time period, which is far below spawning biomass at MSY, indicating that the stock is overfished. Further, estimates of the stock depletion are that the total biomass has been reduced to only 6.6 percent of the theoretical equilibrium virgin biomass. In fact, the stock assessment concluded that fishing mortality on oceanic whitetip sharks in the Western and Central Pacific has increased to levels 6.5 times what is sustainable, thus concluding that overfishing is still occurring. Given that fishing pressure began well before the start of this time series, the authors of the stock assessment noted that it was not assumed that the oceanic whitetip population was at an unfished state of equilibrium at the start of the model (*i.e.,* 1995). Thus, these declines do not reflect total historical population declines for the species in this region prior to the study. Further, this study does not include removals of oceanic whitetips from Indonesia and the Philippines, which are two major shark catching nations in this region.

Although standardized CPUE data for the purse-seine fishery are not available, the oceanic whitetip is one of only two species frequently caught in this fishery and has exhibited declines that resemble those in the longline fishery (Clarke *et al.,* 2012). As a result of the intensive fishing pressure in the Western and Central Pacific, size trends for oceanic whitetip are also declining, which may also be indicative of overutilization of the species, particularly due to the potential correlation between maternal length and litter size. Clarke *et al.* (2012) report the length of female oceanic whitetip sharks from the longline fishery declined in their core tropical habitat. Similarly, while Rice *et al.* (2015) more recently report that trends in oceanic whitetip median length are stable, the majority of sharks observed are immature. Similarly, since 2000, 100 percent of oceanic whitetips sampled in the purse-seine fisheries have been immature (Clarke *et al.,* 2012). Thus, the significant declining trends observed in all available abundance indices (*e.g.,* standardized CPUE, biomass and average size) of oceanic whitetips as a result of fishing mortality in both longline and purse-seine fisheries indicate that overutilization of the species may be occurring in the Western and Central Pacific.

In the Central Pacific, oceanic whitetips are commonly caught as bycatch in Hawaii-based fisheries, and comprise 3 percent of the shark catch (Brodziak and Walsh, 2013). Based on observer data from the Pacific Islands Regional Observer Program (PIROP), oceanic whitetip shark mean annual nominal CPUE decreased significantly from 0.428/1000 hooks in 1995 to 0.036/1000 hooks in 2010. This reflected a significant decrease in nominal CPUE on longline sets with positive catch from 1.690/1000 hooks to 0.773/1000 hooks, and a significant increase in longline sets with zero catches from 74.7 percent in 1995 to 95.3 percent in 2010. When standardized to account for factors such as sea surface temperature, fishery sector, and latitude, oceanic whitetip CPUE declined by more than 90 percent in the Hawaii-based longline fishery since 1995. Brodziak and Walsh (2013) found similar results by using several models in order to make an accurate assessment of the species' CPUE from 1995 to 2010 in the Hawaii-based shallow-set and deep-set longline fisheries. They also found a highly significant decreasing trend in standardized CPUE from 1995 to 2010, resulting in a decline in relative abundance on the order of 90 percent due to increased sets with zero catches as well as decreased CPUE on sets with positive catch. The authors of this study concluded that relative abundance of oceanic whitetip declined within a few years of the expansion of the longline fishery.

In the Eastern Pacific Ocean, oceanic whitetip sharks are most often taken as bycatch by ocean purse-seine fisheries. The oceanic whitetip shark was historically described as the second most common shark caught by the purse-seine fishery in the EPO (Compagno, 1984), and information collected by observers between 1993 and 2004 indicates this is still the case. In a recent effort to evaluate species composition of bycatch in Eastern Pacific purse-seine fisheries, species identification data for the Shark Characteristics Sampling Program showed that between March 2000 and March 2001, the oceanic whitetip comprised 20.8 percent of the total shark bycatch, second only to silky sharks (Román-Verdesoto and Orozco-Zöller, 2005). Since the mid-1980s, the tuna purse-seine fishery in the Pacific has been rapidly expanding (Williams and Terawasi, 2011), and despite the increase in fishery effort (or perhaps as a consequence of this increased fishing pressure), incidental catch of oceanic whitetips declined by more than 95 percent in the Eastern Pacific between 1994 and 2006. However, this decline is based on an unstandardized index using observer data from 100 percent of sets during the relatively short period that fish aggregating devices have been used (FAO, 2012). Overall, we found that apart from blue and silky sharks, there are no stock assessments available for shark species in the Eastern Pacific, and hence the impacts of bycatch on the population are unknown (IATTC, 2014). Nonetheless, a potential decline of this magnitude over a short period of time indicates that overutilization of the oceanic whitetip may be occurring in Eastern Pacific purse-seine fisheries, and warrants further investigation to determine whether it may be contributing significantly to the species' extinction risk.

In the Indian Ocean, oceanic whitetip sharks are targeted by some semi-industrial and artisanal fisheries and are bycatch of industrial fisheries, including gillnet fisheries, pelagic longlines targeting tuna and swordfish and purse-seine fisheries. Countries that fish for various pelagic species of sharks include: Egypt, India, Iran, Oman, Saudi Arabia, Sudan, United Arab Emirates, and Yemen, where the probable or actual status of shark populations is

unknown, and Maldives, Kenya, Mauritius, Seychelles, South Africa, and United Republic of Tanzania, where the actual status of shark populations is presumed to be fully to over-exploited (DeYoung, 2006). While fisheries are directed at other species, oceanic whitetip sharks are commonly caught as bycatch and catch rates are considered high (IOTC, 2014); however, the available information from Indian areas-fleets reports relatively low prevalence of this species among target and/or other bycatch species caught by longliners targeting swordfish or tuna (Ramos-Cartelle *et al.,* 2012). Available fisheries data from Japanese and Spanish longline fishing fleets show conflicting catch trends. Standardized CPUE of the Japanese longline fleet in the Indian Ocean show a gradual decline of almost 40 percent from 2003 to 2009 (Semba and Yokawa, 2011). Standardized CPUE of the Spanish longline fishery from 1998 to 2011 showed large historical fluctuations and a general decreasing trend in 1998–2007, followed by an increase thereafter. Overall, the magnitude of decline in this study was estimated to be about 25–30 percent (Ramos-Cartelle *et al.,* 2012). Nominal catches for oceanic whitetips also declined over this time period, peaking in 1999 with 3,050 mt and steadily declining to 245 mt in 2009. However, catch estimates for oceanic whitetip shark are uncertain, as only five contracting parties (CPCs) have reported detailed data on shark landings (*i.e.,* Australia, EU (Spain, Portugal and United Kingdom), I.R. Iran, South Africa, and Sri Lanka) (IOTC, 2014). In fact, catches of oceanic whitetips in the Indian Ocean are thought to be nearly 20 times higher than the estimates reported in the Indian Ocean Tuna Commission (IOTC) database (Murua *et al.,* 2013). Additionally, oceanic whitetips were found to have relatively high vulnerability to pelagic longline fisheries in the Indian Ocean. In 2012, an Ecological Risk Assessment (ERA) was developed by the IOTC Scientific Committee to quantify which shark species are most at risk from the high levels of pelagic longline fishing pressure. In this ERA, the IOTC Scientific Committee noted that oceanic whitetip received a high vulnerability ranking (No. 5 out of 17) for longline gear because it was estimated as one of the least productive shark species, and was also characterized by a high susceptibility to longline gear (Murua *et al.,* 2012). Oceanic whitetip shark was also estimated as being the most vulnerable shark species to purse-seine gear (Murua *et al.,* 2013). Overall, available standardized CPUE indices from Japanese and Spanish longline fleets indicate conflicting trends, with no quantitative stock assessment and only limited basic fishery indicators currently available for the species. However, there are no CPUE data available from gillnet fisheries, which is responsible for the majority of catches of oceanic whitetips in the Indian Ocean (Murua *et al.,* 2013). Therefore, the IOTC noted in 2014 that the stock status of oceanic whitetip is uncertain. However, the IOTC also reported in 2014 that ''maintaining or increasing effort in this region will probably result in declines in biomass, productivity and CPUE'' for oceanic whitetip sharks (IOTC, 2014). Thus, while catch data are incomplete and cannot be used to estimate abundance levels or determine the magnitude of catches or trends for oceanic whitetips at this time, pelagic fishing effort in this region is high, with no indication that fishing pressure will cease in the foreseeable future. Given the foregoing information, we conclude that overutilization may be a threat to the species in the Indian Ocean and warrants further exploration to determine if it is contributing significantly to the extinction risk of the species.

Overall, there is considerable uncertainty regarding the actual catch levels and trends of oceanic whitetip shark occurring throughout its range; however, it is likely that these rates are significantly under-reported due to a lack of comprehensive observer coverage in areas of its range in which the highest fishing pressure occurs, as well as a tendency for fishers to not record discards in fishery logbooks. Nevertheless, given the prevalence of oceanic whitetip as incidental catch throughout its range and its high value in the shark fin trade, combined with the species' low to moderate productivity (see *Factor E—Other or Natural Manmade Factors*), bycatch-related fishing mortality may be a threat placing the species at an increased risk of extinction. Overall, trends in the Northwest and Central Atlantic Ocean and Gulf of Mexico suggest that the species experienced historical declines from overexploitation, but may be stabilized in recent years, although there is considerable uncertainty regarding these trends. Across the Pacific, numerous lines of evidence suggest that oceanic whitetip sharks are experiencing significant and continued population declines as a result of fishing pressure. Elsewhere across the species' range, information in the petition and in our files suggests that the species may continue to experience declines as a result of overutilization from both direct and indirect fishing pressure. In summary, the petition, references cited, and information in our files comprise substantial information indicating that listing may be warranted because of overutilization for commercial purposes.

*Disease and Predation*

The petition contends that the oceanic whitetip shark is at risk of extinction throughout its range because some oceanic whitetip sharks are infected with a highly pathogenic bacterium, *Vibrio harveyi* (Zhang, *et al.,* 2009), which is known to cause deep dermal lesions, gastro-enteritis, eye lesions, infectious necrotizing enteritis, vasculitis, and skin ulcers in vertebrate marine species (Austin and Zhang, 2006). The petition asserts that since this bacterium is considered to be more serious in immunocompromised hosts (Austin and Zhang, 2006), it may act synergistically with the potential high pollutant loads that oceanic whitetip sharks experience, creating an increased threat to the species. As noted previously, we generally look for information in the petition and in our files to indicate that not only is the particular species exposed to a factor, but that the species may be responding in a negative fashion. However, the petition did not provide, nor could we find in our files, any supporting evidence that this bacterium is contributing to population declines in oceanic whitetip sharks to the point where the species may be at risk of extinction.

*Inadequacy of Existing Regulatory Mechanisms*

The petition asserts that the existing international, regional, and national regulations do not adequately protect the oceanic whitetip shark and have been insufficient in preventing population declines. Additionally, the petition asserts that most existing regulations are inadequate because they limit retention of the oceanic whitetip shark and argues that the focus should be on limiting the catch of oceanic whitetip sharks in order to decrease fishery-related mortality, particularly given what the petition contends are the species' high post-catch mortality rates. Among the regulations that the petition cites as inadequate are shark finning bans and shark finning regulations. Shark finning bans are currently one of the most widely used forms of shark utilization regulations, and the petition notes that 21 countries, the European Union, and 9 Regional Fisheries

Management Organizations (RFMOs) have implemented shark finning bans (CITES, 2013). However, the petition contends that these shark finning bans are often ineffective as enforcement is difficult or lacking, implementation in RFMOs and international agreements is not always binding, and catches often go unreported (CITES, 2013). The petition also states that shark finning regulations tend to have loopholes that can be exploited to allow continued finning. Many shark finning regulations require that both the carcass and the fins be landed, but not necessarily naturally attached. Instead, the regulations impose a fin to carcass ratio weight, which is usually 5 percent (Dulvy *et al.,* 2008). This allows fishermen to preferentially retain the carcasses of valuable species and valuable fins from other species in order to maximize profits (Abercrombie *et al.,* 2005). In 2010, the United States passed the Shark Conservation Act, which except for a limited exception regarding smooth dogfish, requires all sharks to be landed with their fins attached, abolishing the fin to carcass ratio (although this requirement was already implemented in 2008). Additionally, several U.S. states have prohibited the sale or trade of shark fins/products as well, including Hawaii, Oregon, Washington, California, Illinois, Maryland, Delaware, New York and Massachusetts, subsequently decreasing the United States' contribution to the fin trade. For example, after the state of Hawaii prohibited finning in its waters in 2000 and required shark fins to be landed with their corresponding carcasses in the state, shark fin imports from the United States into Hong Kong declined significantly (54 percent decrease, from 374 to 171 tonnes) as Hawaii could no longer be used as a fin trading center for the international fisheries operating and finning in the Central Pacific (Miller *et al.,* 2014). However, in other parts of the species' range, the inadequacy of existing finning bans may be contributing to further declines in the species by allowing the wasteful practice of shark finning at sea to continue.

In the U.S. Atlantic, oceanic whitetip sharks are managed as part of the Pelagic shark complex under the U.S. Highly Migratory Species Fishery Management Plan (HMS FMP). The petition states that while the United States has a patchwork of measures that protect the oceanic whitetip to varying degrees, none of these measures (*i.e.,* catch quotas, species-specific retention bans, and shark-finning bans) are adequate to protect the species. More specifically, the petition asserts that the catch quota for the pelagic complex under the U.S. HMS FMP of 488 mt, in which catches of oceanic whitetip is combined with other species, is inadequate because it is not species-specific, and, as a result, all or none of the 488 tons of sharks from this quota could be oceanic whitetips. The petition also states that the final rule to implement the 2010 International Commission on the Conservation of Atlantic Tunas (ICCAT) recommendations, which prohibits the retention, transshipping, landing, storing, or selling of oceanic whitetip sharks caught in association with fisheries managed by ICCAT, is inadequate because these regulations are limited in scope, such that some commercial and recreational fisheries are still allowed to catch oceanic whitetip sharks. The petition also asserts that these regulations are inadequate because they only apply in the Atlantic and Gulf of Mexico in Federal waters. We disagree with these assertions by the petition. We find that U.S. national fishing regulations include numerous regulatory mechanisms for both sharks in general, and oceanic whitetip specifically, that may help protect the species. Since 2002, well before the prohibition of oceanic whitetips in Atlantic HMS pelagic longline fisheries, total commercial landings of oceanic whitetip have rarely exceeded 1 mt, which represents a minimal portion of the 488 mt quota for the Pelagic complex group. Given that most U.S.-flagged vessels fish at the northernmost part of the range of the oceanic whitetip, the low abundance of this species likely reflects the distribution of the fishery (Beerkircher *et al.,* 2002). Additionally, since the implementation of ICCAT recommendations in 2011, estimated commercial landings of oceanic whitetip declined from 1.1 mt to only 0.03 mt (NMFS, 2012 and 2014 SAFE Reports). Further, oceanic whitetip sharks are not targeted in U.S. recreational fisheries. In fact, estimates of recreationally harvested oceanic whitetips have been zero since 2002. On the other hand, we agree with the petition that these regulations do not necessarily address incidental catch of the species and subsequent mortality that may result. However, in 2013, NMFS reported a total of 33 prohibited interactions with oceanic whitetip, with 88 percent released alive (NMFS, 2014 SAFE Report), which is a relatively high rate of survivorship. Thus, while we find that the petitioners are incorrect in their assertions that regulations pertaining to oceanic whitetip shark in U.S. Atlantic HMS fisheries offer minimal to no protection to the oceanic whitetip, we will evaluate the potential inadequacy of these and the other existing regulations in relation to the threat of overutilization of the species during the status review.

In terms of other national measures, the petition provides a list of countries that have prohibited shark fishing in their respective waters or created shark-specific marine protected areas, but notes that many suffer from enforcement related issues, citing cases of illegal fishing and shark finning. The petition also highlights enforceability issues associated with international agreements, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), regarding oceanic whitetip shark utilization and trade. The oceanic whitetip is listed under Appendix II of CITES, which means commercial trade of the species is regulated, but not prohibited. Based on the information presented in the petition as well as information in our files, we find that oceanic whitetip fins are highly valued and preferred in the shark fin trade, and can be identified in the shark fin market at the species level. While regulations banning the finning of sharks are a common form of shark management, we find that further evaluation of the inadequacy of existing regulatory measures is needed to determine whether this may be a threat contributing to the extinction risk of the species.

*Other Natural or Manmade Factors Affecting Its Existence*

The petition states that oceanic whitetips have an increased susceptibility to extinction because they are a ''K-selected'' or ''K-strategy'' species. In other words, the petition asserts that the biological constraints of the oceanic whitetip shark, such as its low reproduction rate (typically 5–6 pups per litter), coupled with the time required to reach maturity (approximately 4–7 years) and the species' biennial reproductive cycle, contribute to the species' vulnerability to harvesting and its inability to recover rapidly. It is true that the oceanic whitetip shark and pelagic sharks, in general, exhibit relatively slow growth rates and low fecundity; however, oceanic whitetip sharks are considered to be a moderately productive species relative to other pelagic sharks. Smith *et al.* (1998) investigated the intrinsic rebound potential of Pacific sharks and found oceanic whitetips have a moderate rebound potential, because of

their relatively fast growth and early maturation. Cortés (2008) calculated population growth rates (λ) of 1.069 $year^{-1}$ and a generation time of 11.1 years, which were considered intermediary when compared with seven other pelagic species. However, estimates of the species' growth rate (von Bertalanffy, k = 0.10 $year^{-1}$ in the North Pacific (Seki *et al.,* 1998) and between 0.08–0.09 $year^{-1}$ in the Western Atlantic (Lessa *et al.,* 1999)) indicate that oceanic whitetips are slow growing species. Additionally, the species' intrinsic rate of increase ($r$ = 0.121 $year^{-1}$; Cortés *et al.,* 2012) indicates that populations are vulnerable to depletion and will be slow to recover from over-exploitation based on FAO's low-productivity category (<0.14 $year^{-1}$). Finally, an ERA conducted to inform the ICCAT categorized the relative risk of overexploitation of the 11 major species of pelagic sharks, including the oceanic whitetip (Cortés *et al.,* 2010). The study derived an overall vulnerability ranking for each of the 11 species, which was defined as ''a measure of the extent to which the impact of a fishery [Atlantic longline] on a species will exceed its biological ability to renew itself.'' This robust assessment found that oceanic whitetips ranked the 5th most vulnerable out of 11 pelagic shark species (Cortés *et al.,* 2010). More recently, in an ERA that expands upon the 2010 results, oceanic whitetip ranked 6th out of 20 pelagic shark species in terms of its susceptibility to pelagic longline gear, which places the oceanic whitetip at a relatively high risk of overexploitation to the combined pelagic longline fisheries in the Atlantic Ocean. Likewise, in an ERA in the Indian Ocean, oceanic whitetip ranked the 5th most vulnerable species of pelagic shark caught in fisheries managed by the IOTC (Murua *et al.,* 2012). In summary, the petition, references cited, and information in our files comprises substantial information indicating that the species may be impacted by ''other natural or manmade factors,'' including the life history trait of slow productivity, such that further exploration is warranted to determine if it is contributing significantly to the species' risk of extinction.

*Summary of Section 4(a)(1) Factors*

We conclude that the petition does not present substantial scientific or commercial information indicating that the ESA section (4)(a)(1) threats of ''present or threatened destruction, modification, or curtailment of its habitat or range,'' or ''disease or predation'' may be causing or contributing to an increased risk of extinction for the global population of the oceanic whitetip shark. However, we conclude that the petition and information in our files do present substantial scientific or commercial information indicating that the section 4(a)(1) factor ''overutilization for commercial, recreational, scientific, or educational purposes'' as well as ''inadequacy of existing regulatory mechanisms'' and ''other manmade or natural factors'' may be causing or contributing to an increased risk of extinction for the species.

**Petition Finding**

Based on the above information and the criteria specified in 50 CFR 424.14(b)(2), we find that the petition and information readily available in our files present substantial scientific and commercial information indicating that the petitioned action of listing the oceanic whitetip shark worldwide as threatened or endangered may be warranted. Therefore, in accordance with section 4(b)(3)(A) of the ESA and NMFS' implementing regulations (50 CFR 424.14(b)(3)), we will commence a status review of the species. During the status review, we will determine whether the species is in danger of extinction (endangered) or likely to become so within the foreseeable future (threatened) throughout all or a significant portion of its range. We now initiate this review, and thus, we consider the oceanic whitetip shark to be a candidate species (69 FR 19975; April 15, 2004). Within 12 months of the receipt of the petition (September 21, 2016), we will make a finding as to whether listing the species as endangered or threatened is warranted as required by section 4(b)(3)(B) of the ESA. If listing the species is found to be warranted, we will publish a proposed rule and solicit public comments before developing and publishing a final rule.

**Information Solicited**

To ensure that the status review is based on the best available scientific and commercial data, we are soliciting information relevant to whether the oceanic whitetip shark is endangered or threatened. Specifically, we are soliciting information in the following areas: (1) Historical and current distribution and abundance of this species throughout its range; (2) historical and current population trends; (3) life history in marine environments, including identified nursery grounds; (4) historical and current data on oceanic whitetip shark bycatch and retention in industrial, commercial, artisanal, and recreational fisheries worldwide; (5) historical and current data on oceanic whitetip shark discards in global fisheries; (6) data on the trade of oceanic whitetip shark products, including fins, jaws, meat, and teeth; (7) any current or planned activities that may adversely impact the species; (8) ongoing or planned efforts to protect and restore the species and its habitats; (9) population structure information, such as genetics data; and (10) management, regulatory, and enforcement information. We request that all information be accompanied by: (1) Supporting documentation such as maps, bibliographic references, or reprints of pertinent publications; and (2) the submitter's name, address, and any association, institution, or business that the person represents.

**References Cited**

A complete list of references is available upon request to the Office of Protected Resources (see **ADDRESSES**).

**Authority**

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: January 7, 2016.

**Samuel D. Rauch, III,**

*Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.*

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