

and development, contaminants, and commercial fisheries; and (4) inadequacy of existing regulatory mechanisms for addressing greenhouse gas emissions, climate change, ocean acidification, and the Pebble Project. CBD concludes that the combination of being a small, isolated population with the identified threats qualifies the seals in Iliamna Lake for listing as a threatened or endangered species under the ESA.

Petition Finding

We have reviewed the petition, the literature cited in the petition, and other literature and information available in our files; we identified numerous factual errors, misquoted and incomplete references, and unsupported conclusions within the petition. Our review indicates that there is uncertainty and conflicting information specific to the harbor seals in Iliamna Lake. The seals inhabiting Iliamna Lake are not well studied, but there is some evidence that at least a small number of seals remain in the lake year-round. Currently, there is uncertainty and conflicting information about whether Pacific harbor seals migrate between Iliamna Lake and Bristol Bay. If there is no migration, and these seals are distinct from those in Bristol Bay, then they may face potentially serious threats including low abundance, the Pebble Project and climate change. Given this uncertainty, and considering the requirements of 50 CFR 424.14(b) and standards for addressing petitions at the 90-day stage, we find that the information presented in the petition and information readily available in our files would lead a reasonable person to believe that the petitioned action may be warranted. Therefore, we are making a positive 90-day finding and will promptly commence a status review of Iliamna Lake seals.

Request for Information

As a result of the finding, we will commence a status review of Pacific harbor seals in Iliamna Lake to determine: (1) If the Pacific harbor seals in Iliamna Lake constitute a DPS under the ESA, and if so, (2) the risk of extinction to this DPS. Based on the results of the status review, we will then determine whether listing the Pacific harbor seals of Iliamna Lake as threatened or endangered under the ESA is warranted. We intend that any final action resulting from this status review be as accurate as possible. Therefore, we are opening a 60-day public comment period to solicit comments and information from the public, government agencies, the

scientific community, industry, Alaska Native tribes and organizations, and any other interested parties on the status of the Pacific harbor seals in Iliamna Lake, including:

(1) Information on taxonomy, abundance, reproductive success, age structure, distribution and population connectivity, habitat selection, food habits, population density and trends, and habitat trends;

(2) Information on the effects of potential threats, including the Pebble Project and climate change, on the distribution and abundance of seals in Iliamna Lake and their principal prey over the short- and long-term;

(3) Information on the effects of other potential threats, including disease and predation, contaminants, fishing, hunting, industrial activities, or other known or potential threats;

(4) Information on management or conservation programs for harbor seals in Iliamna Lake, including mitigation measures associated with private, tribal or governmental conservation programs which benefit harbor seals in Iliamna Lake;

(5) Information on the effects of research on the harbor seals in Iliamna Lake; and

(6) Information relevant to whether harbor seals in Iliamna Lake may qualify as a DPS.

We request that all data and information be accompanied by supporting documentation such as maps, bibliographic references, or reprints of pertinent publications. Please send any comments to the ADDRESSES listed above. We will base our findings on a review of best available scientific and commercial information available, including all information received during the public comment period.

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

Dated: May 13, 2013.

Alan D. Risenhoover,

Director, Office of Sustainable Fisheries, performing the functions and duties of the Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

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DEPARTMENT OF COMMERCE

National Ocean and Atmospheric Administration

50 CFR Parts 223 and 224

[Docket No. 130214141-3141-01]

RIN 0648-XC515

Endangered and Threatened Wildlife; 90-Day Finding on Petitions To List the Dusky 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 a 90-day finding on petitions to list the dusky shark (*Carcharhinus obscurus*) range-wide or, in the alternative, the Northwest Atlantic and Gulf of Mexico population of the dusky shark as a threatened or endangered distinct population segment (DPS) under the Endangered Species Act (ESA), and to designate critical habitat concurrently with the listing. We find that the petitions present substantial scientific or commercial information indicating that the petitioned action may be warranted for the Northwest Atlantic and Gulf of Mexico population of dusky shark; we find that the petitions fail to present substantial scientific or commercial information indicating that the petitioned action may be warranted for the dusky shark range-wide. Therefore, we will conduct a status review of the Northwest Atlantic and Gulf of Mexico population of dusky shark to determine if the petitioned action is warranted. To ensure that the status review is comprehensive, we are soliciting scientific and commercial information pertaining to this petitioned species from any interested party.

DATES: Information and comments on the subject action must be received by July 16, 2013.

ADDRESSES: You may submit comments, information, or data on this document, identified by the code NOAA-NMFS-2013-0045, by any of the following methods:

- **Electronic Submissions:** Submit all electronic comments via the Federal eRulemaking Portal. Go to www.regulations.gov/#/docketDetail;D=NOAA-NMFS-2013-0045, click the "Comment Now!" icon,

complete the required fields, and enter or attach your comments.

- **Mail:** Submit written comments to Office of Protected Resources, NMFS, 1315 East-West Highway, Silver Spring, MD 20910.

- **Fax:** 301-713-4060, Attn: Maggie Miller.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on 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), although submitting comments anonymously will prevent NMFS from contacting you if NMFS has difficulty retrieving your submission. Attachments to electronic comments will be accepted in Microsoft Word, Excel, or Adobe PDF file formats only.

FOR FURTHER INFORMATION CONTACT: Maggie Miller, NMFS, Office of Protected Resources, (301) 427-8403.

SUPPLEMENTARY INFORMATION:

Background

On November 14, 2012, we received a petition from WildEarth Guardians (WEG) to list the dusky shark (*Carcharhinus obscurus*) as threatened or endangered under the ESA throughout its entire range, or, as an alternative, to list the Northwest Atlantic/Gulf of Mexico DPS as threatened or endangered. The petitioners also requested that critical habitat be designated for the dusky shark under the ESA. On February 1, 2013, we received a petition from Natural Resources Defense Council (NRDC) to list the northwest Atlantic DPS of dusky shark as threatened, or, as an alternative, to list the dusky shark range-wide as threatened, and a request that critical habitat be designated. The joint USFWS/NMFS petition management handbook states that if we receive two equivalent petitions for the same species and a 90-day finding has not yet been made on the earlier petition, then the later petition will be combined with the earlier petition and a combined 90-day finding will be prepared. Given that, this 90-day finding will address both the WEG and NRDC petitions for dusky shark. Copies

of the petitions are available upon request (see **ADDRESSES**, above).

ESA Statutory, Regulatory, and Policy Provisions and Evaluation Framework

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 to promptly publish such finding in the **Federal Register** (16 U.S.C. 1533(b)(3)(A)). When it is found that substantial scientific or commercial information in a petition 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, during which we will conduct a comprehensive review of the best available scientific and commercial information. In such cases, we conclude the review with a finding as to whether, in fact, the petitioned action is warranted within 12 months of receipt of the petition. Because the finding at the 12-month stage is based on a more thorough review of the available information, as compared to the narrow scope of review at the 90-day stage, a "may be warranted" finding does not prejudice 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) (jointly, "the Services") policy clarifies the agencies' interpretation of the phrase "distinct population segment" for the purposes of listing, delisting, and reclassifying a vertebrate species under the ESA (61 FR 4722; February 7, 1996) ("DPS Policy"). A species 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, we determine whether species are threatened or endangered based on any one or a combination of the following five section 4(a)(1) factors: (1) The present or threatened destruction, modification, or curtailment of habitat

or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; and (5) any other natural or manmade factors affecting the species' existence (16 U.S.C. 1533(a)(1), 50 CFR 424.11(c)). In evaluating whether a population constitutes a significant portion of the species' range, we consider the portion of the range to be significant if its contribution to the overall viability of the species is so important that, without it, the species may be in danger of extinction. These considerations are consistent with interpretations and principles in the NMFS and USFWS Draft Policy on Interpretation of the Phrase "Significant Portion of Its Range" in the Endangered Species Act's Definitions of "Endangered Species" and "Threatened Species," which we consider as nonbinding guidance in making listing determinations until a final policy is published. In the draft policy, the Services explain that this definition of "significant" for the purpose of analyzing whether a population constitutes a significant portion of a species range differs from the definition of "significant" defined in the Services' DPS Policy and used for DPS analysis (76 FR 76987; December 9, 2011).

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. In evaluating whether substantial information is contained in a petition, the Secretary 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)).

Judicial decisions have clarified the appropriate scope and limitations of the Services' review of petitions at the 90-

day finding stage, in making a determination that a petitioned action “may be” warranted. As a general matter, these decisions hold that a petition need not establish a “strong likelihood” or a “high probability” that a species is either threatened or endangered to support a positive 90-day finding.

We evaluate the petitioners’ 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 petitioners’ sources and characterizations of the information presented if they appear to be based on accepted scientific principles, unless we have specific information that indicates that 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 petitioners’ assertions. In other words, conclusive information indicating that 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 that the subject species may be either threatened or endangered, as defined by the ESA. First, if the petition requests listing of a subspecies or a DPS, 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, pursuant to the DPS Policy. Next, we evaluate whether the information indicates that the species faces an extinction risk that is cause for concern throughout all or a significant portion of its range; 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 (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 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 indicating 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 on 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 the 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.

Distribution and Life History of the Dusky Shark

The dusky shark is part of the Carcharhinidae family. It is a coastal-

pelagic species that inhabits warm temperate and tropical waters (FAO, 2012). It has a global but patchy distribution, with its range-wide occurrence poorly known. In the Northwest Atlantic, dusky sharks can be found from southern Massachusetts and Georges Bank to Florida, the Bahamas, Cuba, and the northern Gulf of Mexico (NMFS, 2011a). Dusky shark distribution off Central America is not well known (NMFS, 2011a). In the Eastern Pacific, the species is thought to occur off the coast of southern California to the Gulf of California, Revillagigedo Islands, and possibly Chile (NOAA, 1998; Musick *et al.*, 2007). The species can also be found off the coasts of Australia, Nicaragua, and southern Brazil (NMFS, 2011a). According to Dudley *et al.* (2005), the shark’s distribution in the western Indian Ocean extends from the Red Sea to the southern tip of Africa and off the coast of Madagascar. The species is also thought to be found in the Mediterranean Sea, and off the coasts and continental shelves of Japan, China, Vietnam, New Caledonia, and North Africa, possibly around oceanic islands off western Africa (Musick *et al.*, 2007; NMFS, 2011a).

The dusky shark is a highly migratory species that occurs in both inshore (surf zone) and offshore waters, from the surface to depths as deep as 1,883 feet (574 m) (NOAA, 1998; Hoffmayer *et al.*, 2010; NMFS, 2011a). The shark avoids areas of lower salinity and is rarely found in estuarine environments (NOAA, 1998; SEDAR, 2011). Along the U.S. coasts, the dusky shark undertakes long temperature-related migrations, moving north in the summer as waters warm and retreating south in the fall as water temperatures drop (NMFS, 2011a). Seasonal migrations have also been documented off South Africa (NOAA, 1998). In western Australia, both adolescents and adults move inshore during the summer and fall, with neonates occupying separate inshore areas (NOAA, 1998).

The general life history pattern of the dusky shark is that of a long lived (oldest known female shark aged at 39 years), slow growing, and late maturing species (SEDAR, 2011). The dusky shark is a large, fairly slender shark, with an average total length (TL) of around 11.8 feet (360 cm) and weight of 400 pounds (180 kg) (NMFS, 2011a). Northwest Atlantic and Gulf of Mexico dusky males attain sexual maturity at around 280 cm TL, or 19 years, and females reach sexual maturity at 284 cm TL, or 21 years (NOAA, 1998; NMFS, 2011a). Similar maturity sizes have been observed for dusky sharks from South

Africa and Australia (NOAA, 1998). The dusky shark is viviparous (i.e., gives birth to live young), with a gestation period of around 18 months and a triennial reproductive cycle (SEDAR, 2011). Litter sizes range between 3 and 14 pups (NMFS, 2011a; SEDAR, 2011) with the pupping months for the Northwest Atlantic and Gulf of Mexico dusky population occurring from May to June. Young are born at sizes of 33 to 39 inches (85–100 cm) (NMFS, 2011a).

The shark has a rounded snout that is shorter than or equal to the width of its mouth and a low ridge along its back between its dorsal fins (NMFS, 2011a). The dorsal fin originates over or near the free rear tips of moderately large pectoral fins, and the second dorsal fin has a free tip length that is usually not more than twice its fin height (NMFS, 2011a; FLMNH, undated). The dusky shark is colored bronzy gray to blue gray above and white ventrally, and is also known as the bronze whaler or black whaler (NMFS, 2011a). It is a high trophic level predator (Cortés, 1999) with a diet that includes a wide variety of bony and cartilaginous fishes and squid (NOAA, 1998). In the Indian Ocean, young dusky sharks have been observed feeding in large aggregations (NOAA, 1998).

With respect to ESA listing actions, we added the dusky shark to our candidate species list in 1997 (62 FR 37560; July 14, 1997), but subsequently transferred the Northwest Atlantic and Gulf of Mexico population to our Species of Concern List in 2004 (69 FR 19975; April 15, 2004). There is no mandatory Federal protection for candidate species or species of concern, but voluntary protection is urged.

Analysis of Petition and Information Readily Available in NMFS Files

We evaluated the information provided in the petitions and readily available in our files to determine if the petitions presented substantial scientific or commercial information indicating that the petitioned actions may be warranted. The petitions contain information on the species, including the taxonomy, species description, geographic distribution, habitat, some population status and trends, and factors contributing to the species' decline. According to the WEG petition, at least four of the five causal factors in section 4(a)(1) of the ESA are adversely affecting the continued existence of the dusky shark, specifically: (A) Present and threatened destruction, modification, and curtailment of habitat and range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (D) inadequacy of

existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence. The focus of the NRDC petition is mainly on the northwest Atlantic population and identified the threats of: (B) overutilization for commercial, recreational, scientific, or educational purposes; (D) inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence. In the following sections, we use the information presented in the petitions and in our files to determine whether the petitioned action may be warranted. We consider both the information presented for the global population of dusky sharks (as provided primarily in the WEG petition) as well as the information presented for the Northwest Atlantic and Gulf of Mexico population (provided in both petitions) on the specific ESA section 4(a)(1) factors affecting the species' risk of extinction. We provide separate analyses and conclusions regarding the information presented by the petitioners and in our files for the global and for the Northwest Atlantic and Gulf of Mexico populations since we were petitioned to list either the global population (range-wide) or the Northwest Atlantic and Gulf of Mexico population.

Qualification of Northwest Atlantic and Gulf of Mexico Population as a DPS

Both petitions assert that the Northwest Atlantic and Gulf of Mexico population (henceforth referred to as "NW Atlantic population") of dusky shark qualifies as a DPS because it is both a discrete and significant population segment of the species as defined in the DPS Policy. The NRDC petition states that the NW Atlantic population is discrete based on both genetic and spatial separation from other populations of dusky sharks. Genetic analyses indicate that the NW Atlantic population of dusky sharks is genetically differentiated from other populations of dusky sharks (Benavides *et al.*, 2011; Gray *et al.*, 2012). Results from both nuclear microsatellite DNA and mitochondrial control region analyses showed significant genetic differentiation between the western North Atlantic, South African, and Australian dusky shark populations, with a low frequency of migration between these populations (Benavides *et al.*, 2011; Gray *et al.*, 2012). Analysis of mitochondrial control regions also indicate that dusky sharks off the U.S. East Coast and in the Gulf of Mexico are not genetically distinct (Benavides *et al.*, 2011), with tagging data that show a high frequency of movements between

these two basins (SEDAR, 2011). Furthermore, Benavides *et al.* (2011) provides preliminary evidence of population structure between the NW Atlantic population and the dusky sharks in the Southwest Atlantic (off Brazil), suggesting that the NW Atlantic population, if it were depleted, would not likely be replenished by immigrant females from the Southwest Atlantic population.

In addition to genetic separation, the NRDC contends that the NW Atlantic population is geographically separated from other populations. NRDC indicates that the NW Atlantic population primarily inhabits U.S. waters, and as such is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the ESA.

Both petitions make the case that the NW Atlantic population is significant to the taxon. As described above, the NW Atlantic population appears to be genetically distinct and geographically separate from other dusky shark populations, with evidence of little mixing between neighboring populations (Benavides *et al.*, 2011; Gray *et al.*, 2012). Thus, the petitions reason that loss of this population would result in a significant gap in the range of the species because it is unlikely to be repopulated by sharks from other populations.

Overall, based on the above analysis, we conclude that the information in the two petitions and in our files suggests that the NW Atlantic population of dusky shark may qualify as a DPS under the discreteness and significance criteria of the DPS Policy. We will explore this designation further and conduct a formal DPS analysis during the status review.

Qualification of the Northwest Atlantic and Gulf of Mexico as a Significant Portion of the Range (SPOIR)

The NRDC petition specifically requests that we list the dusky shark as threatened because the species is likely to become endangered in a significant portion of its range (specifically throughout the habitat of the Northwest Atlantic, including the Gulf of Mexico). The WEG petition makes a similar statement: "The Gulf of Mexico comprises a significant portion of the dusky shark's range" and focuses part of its threats analysis on this portion. However, we conclude that neither petition presented substantial information, nor is there information in our files, to indicate that the Northwest

Atlantic and Gulf of Mexico is a significant portion of the dusky shark's range. In making this assessment we considered a portion of the range to be significant if its contribution to the overall viability of the dusky shark was so important that, without it, the dusky shark would be in danger of extinction. These considerations are consistent with interpretations and principles in the NMFS and USFWS Draft Policy on Interpretation of the Phrase "Significant Portion of Its Range" in the Endangered Species Act's Definitions of "Endangered Species" and "Threatened Species," which we consider as nonbinding guidance in making listing determinations until a final policy is published (76 FR 76987; December 9, 2011).

As requested by the NRDC, we considered whether the loss of the northwest Atlantic portion would be expected to increase the entire species' vulnerability to extinction to the point where the global population of dusky sharks would be in danger of extinction. However, neither petition provides substantial evidence that the global population may be at risk of extinction from the loss of the Northwest Atlantic portion, nor do we have information that would support this in our files. The WEG petition presents information on threats to the global population, whereas the NRDC petition does not; however, neither petition presents information about the dependence of the global population on the Northwest Atlantic portion for survival. Therefore, we conclude that the petitions do not provide substantial evidence that the Northwest Atlantic may qualify as a significant portion of the dusky shark's range or that listing of the global population of shark may be warranted because the population is threatened or endangered in a significant portion of its range.

Our analysis below considers the application of the ESA section 4(a)(1) factors to the Northwest Atlantic population in determining whether the WEG and NRDC petitions present substantial information indicating that listing the Northwest Atlantic population may be warranted. In addition, we consider the application of the ESA section 4(a)(1) factors to the global population in determining whether the WEG petition presents substantial information indicating that listing the global population may be warranted.

Factor A: Present and Threatened Destruction, Modification, or Curtailment of Habitat or Range

NW Atlantic Population Analysis

The WEG petition identifies the 2010 Deepwater Horizon oil spill as an event that has degraded the marine environment used by the NW Atlantic population of dusky sharks, but does not provide any information on how the effects of the spill contribute to the extinction risk of the species. It cites a National Geographic Daily News article (Handwerk, 2010) that discusses the potential negative impacts of the spill on whale sharks, a large, filter-feeding species. When feeding, the whale shark swims with its mouth open, filtering over 100,000 gallons of water an hour, capturing prey and passing the water through its gills (Handwerk, 2010). Due to this type of feeding behavior, scientists believe that the oil from the spill may have had lethal impacts to the whale sharks (Handwerk, 2010). Specifically, the article mentions sightings of whale sharks that were unable to avoid the oil slick, and suggests that the oil may have clogged the sharks' gills, suffocating them, or contaminated their prey; however, there have been no reports of dead whale sharks (Handwerk, 2010). The article does not mention the dusky shark or its exposure to the oil. The dusky shark is not a filter-feeder, and thus the effects of the oil spill on the whale shark do not provide information on the effects of the spill on the dusky shark. In addition, the WEG petition does not provide any information on how the oil has affected the dusky sharks' extinction risk, but mentions that researchers are currently studying the fatal and non-fatal impacts of the oil spill on the species. The petition does note that apex predators can bioaccumulate toxic chemicals that they ingest from their prey, but does not provide information on the amount of toxic substances from prey that the global population or the NW Atlantic population is absorbing, or how much this threat is a cause for concern in relation to extinction risk.

The WEG petition notes that the oil "has degraded sea grass habitat south of Chandeleur Island a known nursery for a number of shark species" but does not identify if this location is a known nursery ground for the dusky shark. Neither the reference (CBD, undated) nor information in our files (NMFS, 2009) indicates that this is a nursery area for dusky sharks.

Global Population Analysis

In terms of other threats to the habitat of the global population of dusky

sharks, the WEG petition cites a general statement about the rate of development in the United States and abroad, and the resultant destructive impact on coastal habitat (Camhi *et al.*, 1998), but does not provide any details on how this development is destroying specific dusky shark habitat or contributing to its extinction risk. Broad statements about generalized threats to the species do not constitute substantial information indicating that listing under the ESA may be warranted.

Factor A Conclusion

We conclude that the information presented in the WEG petition on threats from the modification of habitat does not provide substantial information indicating that listing is warranted for the global population or NW Atlantic population. However, we acknowledge that although there is no specific information at this time on the effects of the oil spill on the NW Atlantic population, the petition did reference a study (Hueter and Gelsleichter, 2010) that is currently looking at the sub-lethal impacts of oil exposure, with dusky sharks listed as a target species. We may re-examine this factor as new information becomes available. The NRDC petition did not identify habitat modification or destruction as a threat to the NW Atlantic population.

Factor B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

NW Atlantic Population Analysis

The WEG petition presents information on threats from commercial and recreational overexploitation for the global population and the NW Atlantic population separately. However, in discussing the "domestic" commercial and recreational exploitation of the global population, the petition focuses entirely on information concerning the NW Atlantic population. In this section, the petition states "The dusky shark is subject to overfishing domestically . . . throughout its range, including in the NWA/GOM [NW Atlantic] and Pacific" and references the latest Southeast Data, Assessment, and Review (SEDAR) stock assessment report for the dusky shark (henceforth referred to as "SEDAR 21") (SEDAR, 2011). However, this statement is incorrect, as SEDAR 21 did not examine the status of the entire dusky shark population or the Pacific population of dusky sharks, only the Northwest Atlantic and Gulf of Mexico stock.

Information from the petitions suggests that the primary threat to the

NW Atlantic population is from fishing pressure by commercial and recreational fisheries. Dusky sharks off the U.S. East Coast have been a prohibited species in U.S. Atlantic Highly Migratory Species (HMS) fisheries since 2000 (NMFS, 1999), meaning that neither U.S. commercial nor recreational fishers are allowed to legally land this species. However, according to the results from SEDAR 21, the stock is still overfished with overfishing occurring. This suggests that the species continues to be caught as bycatch in pelagic and bottom longline fisheries and/or is misidentified by recreational and commercial fishers and seafood dealers, with other sharks recorded as dusky shark in landings, log books and dealer reports (Cortés *et al.*, 2006; NMFS, 2012a). Historically, the fishing mortality of this population was estimated to be low from 1960 through the early 1980s, but was thought to have increased to unsustainably high levels in the 1990s, before declining following the prohibition of dusky landings in 2000 (SEDAR, 2011). In the 2006 stock assessment for the Northwest Atlantic and Gulf of Mexico dusky shark population, it was estimated that the stock (in 2004) had suffered significant declines from its virgin population size (in 1960) (Cortés *et al.*, 2006). Three forms of Bayesian surplus production models predicted depletions of over 80 percent, an age-structured production model estimated a decline of 62–80 percent, and a catch-free age-structure production model estimated a decrease in the spawning stock biomass (SSB) of 92–93 percent (Cortés *et al.*, 2006; SEDAR, 2011). The stock assessment also found statistically significant decreasing trends in the average weight of the catch, suggesting that the majority of dusky sharks being caught were immature and that the stock was heavily exploited (Cortés *et al.*, 2006). Given the historically heavy fishing on this population, and its low productivity and hence high vulnerability to exploitation, the stock assessment projected that the Northwest Atlantic and Gulf of Mexico population required 100 to 400 years to rebuild (Cortés *et al.*, 2006; SEDAR, 2011). Based on these results, NMFS declared the dusky shark stock in the Northwest Atlantic and Gulf of Mexico to be overfished with overfishing occurring (71 FR 65087; November 7, 2006) and established a rebuilding plan in July 2008. In 2011, the status of the Northwest Atlantic and Gulf of Mexico stock was re-evaluated through the SEDAR process (76 FR 62331; October 7, 2011), with results that indicate this dusky shark

population is still overfished and continues to experience overfishing, even though harvest of the species is prohibited (SEDAR, 2011).

The NRDC petition contends that although SEDAR 21 determined that the stock is experiencing overfishing, the current fishing mortality (F) values calculated by SEDAR 21 are underestimations and therefore “the percent reduction needed to end overfishing (a 36 percent reduction) as well as rebuild the fishery (62 percent) are underestimated.” SEDAR 21 selected a range of 44.2–65 percent as the discard mortality for dusky sharks caught by bottom longline (BLL) gear (SEDAR, 2011). The petition states that these estimates “represent average values across age classes and are substantially lower than capture mortality rates of juvenile dusky sharks, a major source of bycatch” and references Morgan and Burgess (2007) and Romine *et al.* (2009). These two papers present at-vessel mortality rates for different age groups of dusky sharks on BLL gear. Morgan and Burgess (2007) estimated an 87.7 percent mortality rate for young dusky sharks (0–100 cm fork length, FL) and an 82.4 percent mortality rate for juveniles (101–231 cm FL). Romine *et al.* (2009) estimated mortality rates that ranged between 69 and 79 percent for dusky sharks < 230 cm FL. These higher rates may suggest that juveniles are more susceptible to at-vessel mortality on BLL gear than previously assumed, with subsequent discards perhaps underestimated in SEDAR 21.

Furthermore, the NRDC petition references the SEDAR 21 results that show additional declines (relative to the virgin (1960) population) in biomass and SSB between the 2006 and 2011 assessments (SEDAR, 2011). SEDAR 21 suggested that the declines in SSB can be attributed to decreasing numbers of older, heavier, sharks, but is partially compensated for by increases in pup survival (i.e., density dependent recruitment) as the abundance of dusky sharks (in numbers) has increased from 2004 to 2009 (SEDAR, 2011). However, the petition contends that the “significant impacts of continuing fishing pressures—and fishing-related mortality—on juvenile dusky sharks” and their late age at sexual maturity (hence, the long time needed to survive before reproducing) makes this scenario unlikely unless current fishing mortality is reduced.

The NRDC petition also provides information on bycatch of NW Atlantic dusky sharks in U.S. commercial fisheries, and references NMFS U.S. National Bycatch Report for data in

2005 and 2006 (NMFS, 2011). The report estimates that 2,739 sharks were caught as bycatch on reef fish handline and BLL gear, and 570,896 live pounds (lbs) (258,954 kg) in the shark BLL fishery, but notes that the shark BLL estimates are currently being reviewed. In addition, the petition states that the recreational fishery has accounted for around 47 percent of the total catch of dusky sharks (from 2001–2009) even though harvest of this species has been prohibited since 2001. Although total catch has decreased substantially since before the ban (by around 85 percent), dusky sharks are still being caught in both the recreational and commercial fisheries, and under the current fishing mortality rate, the stock has only an 11 percent probability of recovery by 2480 (400 years) (SEDAR, 2011; NMFS, 2012a).

The fishery management terms “overfishing” and “overfished,” and targets such as “rebuilding” and “recovery,” are defined under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and are based on different criteria than threatened or endangered statuses under the ESA. As such, they do not necessarily indicate that a species may warrant listing under the ESA because they do not necessarily have any relationship to a species’ extinction risk. Overutilization under the ESA means that a species has been or is being harvested at levels that pose a risk of extinction. In other words, the species is being harvested faster than it can replace itself. Since 1960 (assumed pre-fishing levels), the dusky shark biomass and SSB have declined by approximately 80 and 85 percent, respectively, and, as the petition notes, dusky sharks are inherently vulnerable to overexploitation due to their life history characteristics, with a “very low natural intrinsic rate of population increase, one of the lowest intrinsic rebound potentials and lowest productivities of all sharks.” Given this biological vulnerability (Cortés *et al.*, 2012), the significant population decline, and the fact that this population is still experiencing fishing pressure from both commercial and recreational fishers with no change in its status despite fishing prohibitions, overutilization by commercial and/or recreational fisheries may present a threat that warrants further exploration to see if it is contributing to the Northwest Atlantic population’s risk of extinction that is cause for concern.

Factor B Conclusion for NW Atlantic Population

We conclude that the information presented in the petitions and information from our files indicates that the petitioned action to list the NW Atlantic population may be warranted due to threats from overutilization by commercial and/or recreational fisheries.

Global Population Analysis

In terms of threats of overexploitation on the global population, the petitions reference the international shark fin trade as contributing to the decline of the dusky shark. The WEG petition cites Musick *et al.* (2007) when it states that the dusky shark represents at least 1.2–1.7 percent of the fins auctioned in Hong Kong, the world's largest fin trading center. However, in the original study that produced those estimates (Clarke *et al.*, 2006a), the authors noted that the dusky shark had the “least reliable results” (referring to the above percentage proportions in the Hong Kong fin market) because the genetic primer used to identify shark fin species did not differentiate between dusky and Galapagos sharks (Clarke *et al.*, 2006a). Thus, the authors caution that the percentage estimates of 1.2 to 1.7 “most likely overestimates this species’ proportion in the trade” (Clarke *et al.*, 2006a). In addition, the WEG petition incorrectly cites Musick *et al.* (2007) claiming that “between 144,000 and 767,000 dusky sharks are represented in the shark fin trade each year or, in biomass, 6,000 to 30,000 million tons.” The biomass numbers are in metric tons, not million tons (i.e., 6,000 mt to 30,000 mt) (Musick *et al.* 2007; Clarke *et al.*, 2006b); however, the petitions do not provide substantial evidence to indicate how these numbers relate to the global population size or data to indicate that the global population is in decline.

Because dusky sharks have large fins with high fin needle content (a gelatinous product used to make shark fin soup), they fetch a high commercial price in the Asian shark fin trade (Clarke *et al.*, 2006a) and thus are more likely to be kept when incidentally caught (Musick *et al.*, 2007). Again, the petitions do not provide information on how the abundance and biomass of dusky sharks that are removed for the shark fin trade compare to global population numbers or biomass of dusky sharks, or how it subsequently translates to extinction risk. The WEG petition asserts that “studies suggest the dusky shark globally suffered a 64–92 percent decline in virgin biomass by 2004” but references SEDAR 21, which

only calculated declines for the Northwest Atlantic and Gulf of Mexico population, not the global population (SEDAR, 2011). The petition provides no information regarding the notion that equivalent declines are found elsewhere throughout the dusky shark range.

For information on dusky shark abundance elsewhere in the world (i.e., not the NW Atlantic population), the WEG petition acknowledges that there are little available data. It provides information on fisheries that may land dusky sharks and the types of fishing gear used, but does not provide information on the status of these populations or any past or present numbers of the species in these areas. The WEG petition notes that in the Southwest Atlantic there are “little population data” but that the shark is taken both directly and indirectly by pelagic longline (PLL) and artisanal fisheries operating in these waters. However, the petition does not provide any data, such as catch or landings data, to show how these fisheries are threats to the dusky shark global population or how they contribute to its extinction risk, nor do we have that information in our files. The WEG petition states that in the Mediterranean, again, that there are “little data available on population trends” with the IUCN deeming the population “data deficient.” Although the petition states that “Nevertheless, there are numerous accounts of dusky sharks taken as both target and bycatch along the North African and Sicilian coasts . . . unsustainably,” the reference the WEG uses to support this statement actually states that the species is not frequently caught in this area (“caught sporadically in . . . fisheries, principally off North Africa and rather less frequently by [other fisheries] in the Sicilian Channel . . . and rarely observed on fishmarkets in the Mediterranean”) (Musick *et al.*, 2007). Neither the petition, nor its reference, provides any information on catch numbers or evidence that take of dusky sharks is unsustainable or cause for concern.

For the population found off the Australian coast, the WEG petition states that “Fisheries in Australian . . . waters have historically exploited dusky shark recreationally and continue to do so” and mentions the use of demersal gillnets to target neonates and dusky sharks less than 3 years of age, capturing “18–28 percent of the population in its first year.” The reference for these statements is Musick *et al.* (2007) which provides information from a stock assessment (Simpfendorfer, 1999) and also cites McAuley *et al.* (2005) as a second assessment of the dusky shark

population found off southwestern Australia. We could not verify the publication title of the McAuley *et al.* (2005) citation because the bibliography for the Musick *et al.* (2007) publication was not included by the petitioner, nor is this full reference included in the bibliography for the Musick *et al.* (2009) publication (which appears to be an updated version of the Musick *et al.* (2007) publication). We consider the second assessment for the dusky shark population found off southwestern Australia to be the McAuley *et al.* (2007) publication, which was also cited by the petitioner. It should also be noted that the fishery described by Musick *et al.* (2007) as using demersal gillnets is a commercial fishery, not a recreational fishery.

According to the stock assessments, neonate and juvenile *C. obscurus* have been the primary targets of the demersal gillnet fishery operating off southwestern Australia since the 1970s (Simpfendorfer, 1999; McAuley *et al.*, 2007). Due to the selectivity of the gillnet mesh sizes used in the fishery, very few dusky sharks older than 4 years are caught (Simpfendorfer, 1999), but these older individuals are also largely immune to exploitation because their distribution tends to be outside of the fishery’s operational area (McAuley *et al.*, 2007). Historically, catches of dusky sharks in this fishery grew from under 100 mt per year in the late 1970s to just under 600 mt in 1998/1999 before fishery management restrictions reduced and stabilized the catch at around 300 mt per year (McAuley *et al.*, 2007).

Both assessments used demographic models to estimate the impacts of fishing mortality on the shark stock, and specifically examined the 1994 and 1995 cohorts. According to the Simpfendorfer (1999) assessment, the rates of fishing mortality experienced by the 1994 and 1995 cohorts were sustainable. In fact, Simpfendorfer (1999) estimated that up to 4.3 percent of each class could be sustainably harvested each year, or, in presenting a scenario of unequal exploitation distribution, estimated that up to 64.6 percent of the youngest age-class could be removed without decreasing the population, as long as no other age-class was harvested. McAuley *et al.* (2007) presented an update to this assessment using revised biological parameters and age-specific rates of fishing mortality. Results from McAuley *et al.* (2007) confirm the sustainability of the rates of fishing mortality experienced by the 1994 and 1995 dusky shark cohorts, but suggest that the 4.3 percent exploitation may be overly optimistic for older dusky

sharks. Instead, the assessment found that exploitation above 1 percent per year on dusky sharks older than 10 years had a 55 percent probability of resulting in a decline in the stock (McAuley *et al.*, 2007). As such, the authors attribute the declining trend in catch rates in the target demersal gillnet fishery to the unquantified, yet probable, harvest of older sharks outside of the fishery, resulting in fewer breeders and thus fewer recruits to the population.

However, in 2006, the Western Australian Government implemented a number of fishery management restrictions for its commercial fisheries, with the purpose of reducing mortality, particularly of dusky and sandbar sharks, and achieving dusky shark target biomass levels of 40 percent of the virgin biomass by 2040 (Musick *et al.*, 2007; Musick *et al.*, 2009). One of these measures involved setting a maximum size limit for dusky sharks (Musick *et al.*, 2007; Musick *et al.*, 2009), thereby protecting the stock breeding biomass from being harvested by fisheries outside of the demersal gillnet fishery. According to the reference cited by the petitioner, "These management measures should arrest further declines" and encourages continued monitoring of the stock (Musick *et al.*, 2007). Thus, given the results of the stock assessments that show sustainable fishing mortality on the heavily targeted dusky neonates, and current regulations that arrest the harvest of the more sensitive older shark population, we do not find evidence that suggests overutilization of the dusky shark population off western Australia is a threat to the existence of the global dusky shark population.

In the Indian Ocean, the WEG petition states that the dusky shark is mainly taken as bycatch in PLL tuna fisheries gear, but also by small commercial fisheries and recreational long-line and gillnet fishing. It also states that beach meshing is used to catch juveniles and adolescents. It does not provide details on any past or present numbers in this region; however, it references a study by Dudley *et al.* (2005), which analyzed catch rate and size frequency of dusky sharks caught in protective beach nets off the coast of South Africa. The results from this study showed no significant linear trend in catch rate over the period of 1978 to 1999 (Dudley *et al.*, 2005). The authors of the study also mentioned that group catches of dusky sharks usually coincided with the annual "sardine run," with size and catch distribution influenced by the attempts to remove the nets before the influx of sardine shoals (Dudley *et al.*, 2005;

Musick *et al.*, 2007). In a follow-up study that looked at more recent years of catch per unit effort (CPUE) information (extending the dataset from 1978 to 2003), the authors came to the same conclusion: the dusky shark did not show any indications of population decline, the CPUE trend was stable (Dudley and Simpfendorfer, 2006).

In terms of other types of indirect catch of the global population of dusky sharks, the WEG petition makes generalized statements about sharks comprising a high percentage of non-target bycatch in commercial fisheries targeting swordfish and tuna in the Southwest Atlantic. However, the petition does not provide this percentage, nor does it or the reference used as support (Mandelman *et al.*, 2008), provide information on how much of this bycatch in the Southwest Atlantic can be attributed to dusky sharks. In fact, the reference only examines historical catches of the Northwest Atlantic and Gulf of Mexico dusky shark population, excluding catch records from the Caribbean and areas farther south (Mandelman *et al.*, 2008). The WEG petition then proceeds to list countries that operate PLL vessels in the South Atlantic and mentions different types of fisheries operating in the Mediterranean and Indian Ocean that may also catch dusky sharks as bycatch. However, it fails to provide any information on the actual catch numbers, catch or population trends, past or present numbers of dusky sharks in this region, or information on how these fisheries contribute to the extinction risk of the global population of dusky sharks. The WEG petition also provides a figure of the distribution of hooks deployed by all International Commission for the Conservation of Atlantic Tunas (ICCAT) parties from 2000–2006 but does not explain the relevance of the figure in relation to dusky shark catches or overutilization of the global dusky shark population.

For recreational catch, the WEG petition follows the same pattern of describing the type of fishing gear used to catch dusky sharks. However, it fails to provide substantial information on numbers, population trends, or support for how recreational fisheries may be contributing to the extinction risk of the global dusky shark population.

Factor B Conclusion for Global Population

Broad statements about generalized threats to the species, or identification of factors that could negatively impact a species, such as being a target of fisheries or caught on specific fishing gear, do not constitute substantial

information indicating that listing may be warranted. With the exception of the NW Atlantic, the petitioners do not provide information on catch rates, landings, population trends, abundance numbers, or other information indicating that the global dusky shark may be responding in a negative fashion to fisheries or specific fishing gear. Because the petitioners have failed to provide substantial information that the NW Atlantic population constitutes a significant portion of the global population's range, we conclude that the information presented in the petitions on threats from overutilization does not provide substantial information indicating that listing may be warranted for the global population.

Factor D: Inadequacy of Existing Regulatory Mechanisms

NW Atlantic Population Analysis

The petitions assert that the inadequacy of existing Federal, state, or international regulatory mechanisms require that the dusky shark be listed under the ESA. As noted above, the dusky sharks off the U.S. East Coast were classified as a prohibited species in the 1999 NMFS Fishery Management Plan (FMP) for Atlantic Tunas, Swordfish and Sharks (NMFS, 1999). In 2003, Amendment 1 to this FMP established a Mid-Atlantic shark closure in part to protect dusky sharks (NMFS, 2003). Beginning in January 2005, NMFS closed this Mid-Atlantic area to bottom longline fishing from January 1 through July 31 of every year, partially due to reports of high catches and mortality rates of dusky sharks on bottom longline gear in this area (NMFS, 2012a). After the 2006 stock assessment found the Northwest Atlantic and Gulf of Mexico dusky shark population to be overfished with overfishing occurring (Cortés *et al.*, 2006), we established a rebuilding plan for this stock in July 2008, with Amendment 2 to the Consolidated Atlantic HMS FMP (NMFS, 2007). This amendment focused on minimizing the bycatch of dusky sharks by: reducing the overall retention limits of non-sandbar large coastal shark species, no longer allowing the species to be collected under display permits, and prohibiting similar-looking species from being retained by the recreational fishery. Although SEDAR 21 still determined the dusky shark stock to be overfished and experiencing overfishing in 2011, it concluded that the prohibition on dusky shark catch in 2000 has been an effective management tool in decreasing fishing mortality rates (F). Specifically, SEDAR 21 estimated that F has decreased by 11 percent from

2000 ($F = 0.385$) to 2009 ($F = 0.056$). However, even with this decrease in F , SEDAR 21 calculated that the stock has only an 11 percent probability of rebuilding by 2408 (400 years). This does not necessarily imply that the stock will go extinct. Dusky sharks do have inherently low population growth rates with no fishing pressure, and there is evidence that the species is still being caught by both commercial and recreational fisheries (NMFS, 2011b; NMFS, 2012a; NMFS 2012b). Despite the fact that existing regulations have prohibited harvest of this species, these factors may be cause for concern in regard to its extinction risk.

As required under the MSA, we must implement additional conservation and management measures to rebuild the overfished dusky shark stock, and, as such, have proposed management measures that are expected to have a 70 percent probability of rebuilding the stock by 2099 (November 26, 2012; 77 FR 70552). The comment period for these proposed measures ended on February 12, 2013, and, after reviewing the comments, we announced that we would reconsider the proposed measures in a separate future action. We felt this was necessary to explore different approaches for ending overfishing and rebuilding dusky sharks, and fully consider and address public comments. Thus, because management measures are still in the process of being determined, we cannot comment on their likelihood of being effective in minimizing the species' extinction risk at this time.

Factor D Conclusion for NW Atlantic Population

Therefore, we conclude that the petitions, and information from our files, indicate that the petitioned action may be warranted for the NW Atlantic population as current regulatory mechanisms may not be adequate to protect the NW Atlantic population from extinction risk.

Global Population Analysis

For international regulations, the WEG petition mentions some of the international conservation agreements and plans to protect sharks, such as the Food and Agriculture Organization of the United Nations (FAO) International Plan of Action for the Conservation and Management of Sharks, but states that these measures are only voluntary. The petition presents no information regarding compliance with the voluntary measures or the impact of any non-compliance on the global dusky shark population. The WEG petition also mentions that "individual countries

such as Australia have made minor adjustments to their dusky shark quotas in the wake of depletion, but there is no evidence that these management measures have staved off decline of individual populations" and cites Musick *et al.* (2007) and NMFS's 2010 Shark Finning Report to Congress (NMFS, 2010). As mentioned previously, Musick *et al.* (2007) references an assessment of the dusky shark population off southwestern Australia that found the stock was more susceptible to overfishing than previously thought; however, the authors also note that since 2006, the Western Australian Government has implemented additional management measures in all commercial fisheries, such as maximum size limits to protect older dusky sharks, which "should arrest further declines" of the dusky shark population (Musick *et al.*, 2007). The NMFS 2010 Shark Finning Report to Congress concluded that "great strides continue to be made in shark conservation, data gathering, management, research, and education on a national and global scale that will contribute to sustainable management of sharks" (NMFS, 2010). Although perhaps more regulations are needed for the conservation of all shark species in general, the WEG petition does not provide substantial evidence to support the assertion that current regulatory mechanisms are insufficient to prevent the endangerment or extinction of the global dusky shark population.

The WEG petition notes that finning regulations are "generally inadequate" for protecting the global dusky shark population because they may still be caught either directly or indirectly. It acknowledges that finning "contributes to a very high mortality rate for this species" and stresses that finning is "now a major factor in the commercial exploitation of sharks worldwide," suggesting it is a threat to the global population of dusky sharks. Finning regulations are a common form of shark management regulation and have been adopted by far more countries and regional fishery management organizations than the petition lists (see HSI, 2012). In addition, a number of countries have also enacted complete shark fishing bans, with the Bahamas, Marshall Islands, Honduras, Sabah (Malaysia), and Tokelau (an island territory of New Zealand) adding to the list in 2011, and the Cook Islands in 2012. Shark sanctuaries can also be found in the Eastern Tropical Pacific Seascape (which encompasses around 2,000,000 km² and includes the Galapagos, Cocos, and Malpelo Islands),

in waters off the Maldives, Mauritania, Palau, and French Polynesia. Countries that prohibit the sale or trade of shark fins or products include the Bahamas, CNMI, American Samoa, Cook Islands, Egypt, French Polynesia, Guam, Republic of Marshall Islands, and Sabah. Additionally, many cities in Canada also prohibit the sale or trade of shark fins/products; thus, providing further international protection for the global dusky shark population. The WEG petition also mentions that lack of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) protections (specifically an Appendix II listing) and international reporting requirements makes ESA-listing more urgent and "exacerbates the paucity of international regulation of by-catch." Although a CITES Appendix II listing or international reporting requirements would provide better data on the global catch and trade of dusky sharks, the lack of listing or requirements would not suggest that current regulatory mechanisms are inadequate to protect the global dusky shark population from extinction.

Factor D Conclusion for Global Population

Other than the information presented for the NW Atlantic population, neither the information in the petitions, nor information in our files, suggest that the global dusky shark population is at risk of extinction from the inadequacy of existing regulatory mechanisms. Because the petitions do not present substantial evidence that the NW Atlantic population constitutes a significant portion of the dusky shark's range, we conclude that the petitions do not present substantial information on threats from the inadequacy of existing regulatory mechanisms that would indicate that listing may be warranted for the global population.

Factor E: Other Natural or Manmade Factors

NW Atlantic Population Analysis

The petitions contend that "biological vulnerability" in the form of slow growth rates, late maturity, and shorter reproductive cycles make the species particularly vulnerable to overfishing and slow to recover. In an ecological risk assessment, Cortés *et al.* (2012) assessed 20 shark stocks caught in association with Atlantic PLL fisheries and estimated their productivity values and susceptibility to the fishery. The authors then considered those values to come up with an overall vulnerability ranking, which was defined as "a measure of the extent to which the

impact of a fishery [Atlantic PLL] on a species will exceed its biological ability to renew itself" (Cortés *et al.*, 2012). Out of the 20 assessed shark stocks, the Northwest Atlantic dusky shark population ranked 6th in lowest median productivity value ($r = 0.043$) but 17th in susceptibility to the Atlantic PLL fishery (indicating low susceptibility) (Cortés *et al.*, 2012). However, depending on the method used to calculate the vulnerability ranking, dusky sharks ranged from being at a low (17th) to high (6th) risk from Atlantic PLL fisheries (vulnerability rankings = 6th, 12th, and 17th) (Cortés *et al.*, 2012). On bottom longline fisheries, information in the petition and in our files shows that the species suffers high mortality from incidental capture (Morgan and Burgess, 2007; Romine *et al.* 2009).

Factor E Conclusion for NW Atlantic Population

We conclude that the information in the petition and in our files suggests that biological vulnerability of the species may be a threat to the NW Atlantic population as this population is already severely depleted and still experiencing levels of fishing pressure that may be of concern. Thus, its high observed at-vessel fishing mortality and low productivity may hinder the success of ongoing and future recovery efforts.

Global Population Analysis

In addition to biological vulnerability, the WEG petition asserts that natal homing, geographic preferences, and misidentification of fins makes the dusky shark particularly vulnerable to overfishing, and that pollution may lead to a population collapse, but does not provide specific or substantial information on the current or likely future effects of these factors on the extinction risk of the global dusky shark population.

Factor E Conclusion for Global Population

Other than the information presented in the petition and in our files regarding Factor E with respect to the NW Atlantic population, the petition provides only broad general assertions regarding the impact of other natural or manmade factors to the global population. Because the information in the petitions in combination with the information in our files do not present substantial information indicating that the NW Atlantic population constitutes a significant portion of the species' range, we conclude that the information presented in the petitions and in our

files is insufficient to indicate that there has been or may be any negative effect on the global dusky shark's ability to recover due to pollution impacts, misidentification rates, global warming, or other biological or ecological vulnerability factors.

Summary of Section 4(a)(1) Factors

We conclude that the petitions do not present substantial scientific or commercial information indicating that any of the section 4(a)(1) factors may be causing or contributing to an increased risk of extinction for the global population of dusky sharks. However, we also conclude that the petitions present substantial scientific or commercial information indicating that a combination of three of the section 4(a)(1) factors: overutilization for commercial, recreational, scientific, or educational purposes; inadequate existing regulatory mechanisms; and other natural or manmade factors may be causing or contributing to an increased risk of extinction for the NW Atlantic population of dusky sharks.

Petition Finding

Global Population

After reviewing the information contained in the petition, as well as information readily available in our files, and based on the above analysis, we conclude that the petitions do not present substantial scientific or commercial information indicating that the petitioned action may be warranted for the global population.

NW Atlantic Population

We conclude that the petitions present substantial scientific information indicating the petitioned action of listing the NW Atlantic population of dusky sharks as threatened or endangered may be warranted. Therefore, in accordance with section 4(b)(3)(B) of the ESA and NMFS' implementing regulations (50 CFR 424.14(b)(2)), we will commence a status review of the NW Atlantic population. During the status review, we will determine whether the population identified by the petitioners meets the DPS policy's criteria, and if so, whether the population 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, the NW Atlantic dusky shark is considered to be a candidate species (69 FR 19975; April 15, 2004). Within 12 months of the receipt of the petition (November 14, 2012), 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 NW Atlantic population of dusky sharks is a DPS and whether it is threatened or endangered. Specifically, we are soliciting information, including unpublished information, in the following areas: (1) The discreteness, as defined in the DPS Policy, of the NW Atlantic population; (2) the significance, as defined in the DPS Policy, of the NW Atlantic population; (3) historical and current distribution and abundance of this population throughout its range; (4) historical and current population trends; (5) life history in NW Atlantic and Gulf of Mexico waters; (6) at-vessel and post-release mortality rates of dusky sharks on different types of fishing gears; (7) historical and current data on dusky shark bycatch and retention in commercial and recreational fisheries in the NW Atlantic and Gulf of Mexico waters; (8) historical and current data on dusky shark discards in commercial and recreational fisheries in the NW Atlantic and Gulf of Mexico waters; (9) data on the trade of NW Atlantic dusky shark products, including fins, jaws, and teeth; (10) any current or planned activities that may adversely impact the species; (11) ongoing or planned efforts to protect and restore the population and its habitat; (12) population structure information, such as genetics data; and (13) 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 from NMFS Protected Resources Headquarters Office (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: May 13, 2013.

Alan D. Risenhoover,

*Director, Office of Sustainable Fisheries,
performing the functions and duties of the
Deputy Assistant Administrator for
Regulatory Programs, National Marine
Fisheries Service.*

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