of intent to participate. The required contents of the notice of intent to participate are set forth at 19 CFR 351.218(d)(1)(ii). In accordance with the Department's regulations, if we do not receive a notice of intent to participate from at least one domestic interested party by the 15-day deadline, the Department will automatically revoke the order without further review.[6]

If we receive an order-specific notice of intent to participate from a domestic interested party, the Department's regulations provide that *all parties* wishing to participate in a Sunset Review must file complete substantive responses not later than 30 days after the date of publication in the **Federal Register** of this notice of initiation. The required contents of a substantive response, on an order-specific basis, are set forth at 19 CFR 351.218(d)(3). Note that certain information requirements differ for respondent and domestic parties. Also, note that the Department's information requirements are distinct from the Commission's information requirements. Consult the Department's regulations for information regarding the Department's conduct of Sunset Reviews. Consult the Department's regulations at 19 CFR part 351 for definitions of terms and for other general information concerning antidumping and countervailing duty proceedings at the Department.

This notice of initiation is being published in accordance with section 751(c) of the Act and 19 CFR 351.218(c).

Dated: July 28, 2016.

Christian Marsh,

Deputy Assistant Secretary for Antidumping and Countervailing Duty Operations.

[FR Doc. 2016–18297 Filed 7–29–16; 8:45 am]

BILLING CODE 3510–DS–P

[6] *See* 19 CFR 351.218(d)(1)(iii).

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Submission for OMB Review; Comment Request

The Department of Commerce will submit to the Office of Management and Budget (OMB) for clearance the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

Agency: National Oceanic and Atmospheric Administration (NOAA).

Title: Pacific Coast Groundfish Fishery Rationalization Social Study.

OMB Control Number: 0648–0606.

Form Number(s): None.

Type of Request: Regular (request for extension of a currently approved information collection).

Number of Respondents: 460.

Average Hours per Response: 30 minutes.

Burden Hours: 143.

Needs and Uses: This request is for revision and extension of a currently approved information collection. The revision consists of minor changes to the information collection tool.

Historically, changes in fisheries management regulations have been shown to result in impacts to individuals within the fishery. An understanding of social impacts in fisheries—achieved through the collection of data on fishing communities, as well as on individuals who fish—is a requirement under several federal laws. Laws such as the National Environmental Protection Act and the Magnuson Stevens Fishery Conservation Act (as amended 2007) describe such requirements. The collection of this data not only helps to inform legal requirements for the existing management actions, but will inform future management actions requiring equivalent information.

Literature indicates fisheries rationalization programs have an impact on those individuals participating in the affected fishery. The Pacific Fisheries Management Council implemented a rationalization program for the Pacific Coast Groundfish limited entry trawl fishery in January 2011. This research aims to continue to study the individuals in the affected fishery over the long term. Data collection will shift from a timing related to changes in the catch share program design elements to a five-year cycle. In addition, the study will compare results to previous data collection efforts in 2010, 2012, and 2015/2016. The data collected will provide updated and more comprehensive descriptions of the industry as well as allow for analysis of changes the rationalization program may create in the fishery. The measurement of these changes will lead to a greater understanding of the social impacts the management measure may have on the individuals in the fishery. To achieve these goals, it is critical to continue data collection for comparison to previously collected data and establish a time-series which will identify changes over the long term. Analysis can also be correlated with any regulatory adjustments due to the upcoming five-year review of the program. This study will continue data collection efforts to achieve the stated objectives.

Affected Public: Business or other for-profit organizations; not-for-profit institutions; individuals or households.

Frequency: Intermittently (every 2–3 years).

Respondent's Obligation: Voluntary.

This information collection request may be viewed at reginfo.gov. Follow the instructions to view Department of Commerce collections currently under review by OMB.

Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *OIRA_Submission@omb.eop.gov* or fax to (202) 395–5806.

Dated: July 26, 2016.

Sarah Brabson,

NOAA PRA Clearance Officer.

[FR Doc. 2016–18076 Filed 7–29–16; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 150122069–6596–02]

RIN 0648–XD740

Endangered and Threatened Wildlife and Plants; Notice of 12-Month Finding on Petitions To List Porbeagle Shark as Threatened or Endangered Under the Endangered Species Act (ESA)

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

ACTION: Notice; 12-month finding and availability of status review document.

SUMMARY: We, the National Marine Fisheries Service, have completed a comprehensive status review under the Endangered Species Act (ESA) for porbeagle shark (*Lamna nasus*) in response to petitions to list this species. Based on the best scientific and commercial information available, including the status review report (Curtis *et al.,* 2016), and taking into account ongoing efforts to protect these species, we have determined that porbeagle sharks do not warrant listing at this time. This review identified two Distinct Population Segments (DPS)—North Atlantic and Southern Hemisphere—of porbeagle sharks. We conclude that neither is currently in danger of extinction throughout all or a significant portion of its range or likely to become so in the foreseeable future. We also conclude that the species itself is not currently in danger of extinction throughout all or a significant portion of

its range or likely to become so in the foreseeable future.

DATES: This finding was made on August 1, 2016.

ADDRESSES: The status review document for porbeagle sharks is available electronically at: *http://www.nmfs.noaa.gov/pr/species/notwarranted.htm.* You may also receive a copy by submitting a request to the Protected Resources Division, NMFS GARFO, 55 Great Republic Drive, Gloucester, MA 01930, Attention: Porbeagle Shark 12-month Finding.

FOR FURTHER INFORMATION CONTACT: Julie Crocker, NMFS Greater Atlantic Regional Fisheries Office, 978–282–8480 or Marta Nammack, NMFS Office of Protected Resources, 301–427–8469.

SUPPLEMENTARY INFORMATION:

Background

We, the National Marine Fisheries Service (NMFS), received a petition, dated January 20, 2010, from Wild Earth Guardians (WEG) requesting that we list porbeagle sharks throughout their entire range, or as Northwest Atlantic, Northeast Atlantic, and Mediterranean DPSs under the ESA. WEG also requested that we designate critical habitat for the species. We also received a petition, dated January 21, 2010, from the Humane Society of the United States (HSUS) requesting we list a Northwest Atlantic DPS of porbeagle shark as endangered. In response to these petitions, we published a ''negative'' 90-finding on July 12, 2010, in which we concluded that the petitions did not present substantial scientific and commercial information indicating that listing under the ESA may be warranted.

In August 2011, the petitioners filed complaints in the U.S. District Court for the District of Columbia challenging our denial of the petitions. On November 14, 2014, the court published a Memorandum Opinion granting the plaintiffs' requests for summary judgment in part, denying our request for summary judgment, and vacating the 2010 90-day finding for porbeagle sharks. The court ordered us to prepare a new 90-day finding. The court entered final judgment on December 12, 2014 (remand). The new 90-day finding, which published on March 27, 2015 (80 FR 16356), was based primarily on information that had become available since 2010, including a new Canadian assessment of the Northwest Atlantic stock and new information in recent proceedings from the International Convention for the Conservation of Atlantic Tunas (ICCAT), regulatory documents, published literature, and **Federal Register** notices as well as the information contained in the original petitions. We accepted the 2010 petitions and initiated a review of the status of the species consistent with the ESA mandate that listing determinations should be made on the basis of the best scientific and commercial information available. Under the ESA, if a petition is found to present substantial scientific or commercial information that the petitioned action may be warranted, a status review shall be promptly commenced (16 U.S.C. 1533(b)(3)(A)).

As described in the 90-day finding (80 FR 16356, March 27, 2015), new assessments, management actions, and other information became available subsequent to the 2010 90-day finding. This information indicated that the petitioned actions may be warranted and a review of the status of the species was initiated. The standard for making a positive 90-day finding (*e.g.,* that a petitioned action ''may be warranted'') is low, and if there is information that can be interpreted in more than one way, then a status review may be conducted in order to delve into the available information more thoroughly. We performed that more detailed review and determined that the best available scientific and commercial information taken together does not support a listing. This included an in-depth review of the available literature, including the new assessments described in the 90-day finding and additional reports on porbeagle sharks in the Southern Hemisphere. This review informed an Extinction Risk Assessment (ERA), which was conducted by a team with expertise in shark biology and ecology, stock assessment, population dynamics, and highly migratory species management. The status review and the ERA were independently peer reviewed by external experts, and other published and unpublished information was used to make this 12-month determination.

Listing Species Under the Endangered Species Act

We are responsible for determining whether the porbeagle shark is threatened or endangered under the ESA (16 U.S.C. 1531 *et seq.*). To make this determination, we first consider whether a group of organisms constitutes a ''species'' under Section 3 of the ESA, then whether the status of the species qualifies it for listing as either threatened or endangered. Section 3 of the ESA defines species to include ''any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.'' A DPS is a vertebrate population or group of populations that is discrete from other populations in the species and significant in relation to the entire species. On February 7, 1996, NMFS and the U.S. Fish and Wildlife Service (USFWS; together, the Services) adopted a policy describing what constitutes a DPS of a taxonomic species (61 FR 4722). Under the joint DPS policy, we consider the following when identifying a DPS: (1) The discreteness of the population segment in relation to the remainder of the species or subspecies to which it belongs; and (2) the significance of the population segment to the species or subspecies to which it belongs.

Section 3 of the ESA further defines an endangered species as ''any species which is in danger of extinction throughout all or a significant portion of its range'' and a threatened species as one ''which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' Thus, we interpret an ''endangered species'' to be one that is presently in danger of extinction. A ''threatened species,'' on the other hand, is not presently in danger of extinction, but is likely to become so in the foreseeable future (that is, at a later time). In other words, the primary statutory difference between a threatened and endangered species is the timing of when a species may be in danger of extinction, either presently (endangered) or in the foreseeable future (threatened). Section 4 of the ESA also requires us to determine whether any species is endangered or threatened as a result of any of the following five factors: The present or threatened destruction, modification, or curtailment of its habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; the inadequacy of existing regulatory mechanisms; or other natural or manmade factors affecting its continued existence 16 U.S.C. 1533(a)(1)(A)–(E)). Section 4(b)(1)(A) of the ESA requires us to make listing determinations based solely on the best scientific and commercial data available after conducting a review of the status of the species and after taking into account efforts being made by any state or foreign nation or political subdivision thereof to protect the species. In evaluating the efficacy of existing domestic protective efforts, we rely on the Services' joint *Policy on Evaluation of Conservation Efforts When Making Listing Decisions* (''PECE''; 68 FR 15100; March 28, 2003) for any conservation efforts that have not been implemented or have been implemented but not yet demonstrated effectiveness.

Status Review

The status review report for porbeagle sharks is composed of two components: (1) A scientific literature review and analysis of the five ESA Section 4(a)(1) factors and (2) an assessment of the extinction risk. A biologist in NMFS' Greater Atlantic Region's Sustainable Fisheries Division with expertise in shark ecology was appointed to complete the first component, undertaking a scientific review of the life history and ecology, distribution and abundance, and an analysis of the ESA Section 4(a)(1) factors. An Extinction Risk Analysis (ERA) team was convened to conduct the extinction risk analysis using the information in the scientific review as a basis. The ERA team was comprised of a fishery management specialist from NMFS' Highly Migratory Species Management Division, two research fishery biologists from NMFS' Northeast and Southeast Fisheries Science Centers, and the Sustainable Fisheries Division biologist who did the scientific literature review and analysis of Section 4(a)(1) factors. The ERA team had group expertise in shark biology and ecology, population dynamics, highly migratory species management, and stock assessment science. The ERA team also reviewed the information in the scientific literature review. The status review report for porbeagle sharks (Curtis *et al.,* 2016) compiles the best available information on the status of the species as required by the ESA, provides an evaluation of the discreteness and significance of populations in terms of the DPS policy, and assesses the current and future extinction risk, focusing primarily on threats related to the five statutory factors set forth above. This report presents the ERA team's professional judgment of the extinction risk facing porbeagle sharks but makes no recommendation as to the listing status of the species. The status review report is available electronically at the Web site listed above.

The status review report was subjected to independent peer review as required by the Office of Management and Budget Final Information Quality Bulletin for Peer Review (M–05–03; December 16, 2004). The status review report was peer reviewed by four independent specialists selected from government, academic, and scientific communities, with expertise in shark biology, conservation and management, and specific knowledge of porbeagle sharks. The peer reviewers were asked to evaluate the adequacy, quality, and completeness of the data considered and whether uncertainties in these data were identified and characterized in the status review as well as to evaluate the findings made in the ''Assessment of Extinction Risk'' section of the report. They were also asked to specifically identify any information missing or lacking justification, or whether information was applied incorrectly in reaching conclusions. All peer reviewer comments were addressed prior to finalizing the status review report. Comments received are posted online.

We subsequently reviewed the status review report, cited references, and peer review comments, and concluded that the status review report, upon which this listing determination is based, provides the best available scientific and commercial information on porbeagle sharks. Much of the information discussed below on porbeagle shark biology, genetic diversity, distribution, abundance, threats, and extinction risk is attributable to the status review report. However, we have independently applied the statutory provisions of the ESA, including evaluation of the factors set forth in Section 4(a)(1)(A)–(E); our regulations regarding listing determinations; and, our DPS and Significant Portion of its Range (SPR) policies in making the listing determination.

Taxonomy

Porbeagle sharks belong to the family Lamnidae, genus *Lamna,* and species *nasus.* The petitioned subject is a valid species as defined under the ESA.

Distribution and Habitat Use

Porbeagle sharks are found in both the Northern and Southern Hemispheres. They are commonly found in waters over the continental shelf, shelf edges, and in open ocean waters. In the Northern Hemisphere, they are found in the North Atlantic Ocean in pelagic and coastal waters in and adjacent to the Northeast coast of the United States, Newfoundland Banks, Iceland, Barents, Baltic, and North Seas, the coast of Western Europe down to the Northwest African coast, and the Mediterranean Sea. They are absent from waters of the North Pacific. In the Southern Hemisphere, they are distributed in a continuous band around the globe in temperate waters of the Southern Atlantic, Southern Indian, and Southern Pacific Oceans. Like other lamnid sharks, the porbeagle shark is endothermic (warm-blooded). There is no evidence suggesting that the range of the species has contracted.

It prefers cold, temperate waters and does not occur in equatorial waters. Generally, porbeagle sharks prefer waters less than 18 °C (64 °F) but have been documented in waters ranging from 1–26 °C (34–79 °F) (Compagno, 2002; Francis *et al.,* 2008; Skomal *et al.,* 2009). Porbeagle sharks are highly mobile and capable of making long-distance migrations, though individuals often remain within a smaller range.

The porbeagle shark is found from surface and inshore waters (less than 1 m (3 ft)) to deep (>1,000 m (>3,281 ft)) depths, with variations in depth distribution depending on the season and region (Compagno 2001; Pade *et al.,* 2009; Saunders *et al.,* 2009; Skomal *et al.,* 2009; Campana *et al.,* 2010a; Francis *et al.,* 2015). In the Northwest Atlantic, tagged sharks moved from the surface to 1300 m (4265 ft) with no difference in depths used during the day or night. Seasonal differences in depth distribution were observed (Campana *et al.,* 2010a). Mature female sharks tagged in the Northwest Atlantic moved to the Sargasso Sea, suggesting a pupping area (Campana *et al.,* 2010a). Two relatively small tagging studies were conducted in the Northeast Atlantic. In these studies, porbeagle sharks ranged from the surface to 500–700 m (1640–2297 ft) depth, and differences in vertical distribution during day and night were observed (Pade *et al.,* 2009; Saunders *et al.,* 2009). In a study in the Southern Hemisphere, Francis *et al.* (2015) evaluated the vertical movements of 10 porbeagle sharks. All of the sharks in the study dived to depths of at least 600 m (1969 ft), with a maximum recorded depth of 1024 m (3360 ft) and vertical movements were observed.

The porbeagle shark is a habitat generalist and not substantially dependent on any particular habitat type. Its use of habitat is influenced by temperature and prey distribution, but the shark has broad temperature tolerances and an opportunistic diet (Curtis *et al.,* 2016). The porbeagle shark is an opportunistic feeder, taking advantage of available prey (Joyce *et al.,* 2002; Campana and Joyce 2004). The diet is characterized by a diverse range of pelagic, epipelagic, and benthic species, depending on what is available (Joyce *et al.,* 2002). Prey species include teleosts (a large and diverse group of bony fish), including lancetfish, flounders, lumpfish, and Atlantic cod, and cephalopods, including squid (Joyce *et al.,* 2002). In the Gulf of Maine, porbeagle sharks predominately feed on mackerel, herring, and other small fishes, other species of sharks, and squids (Collette and Klein-MacPhee, 2002).

Life History

The porbeagle shark is an aplacental, viviparous species with oophagy. This means embryos develop inside eggs that are retained in the mother's body until the young are born live. There is no placental connection, and the eggs are consumed in utero during gestation and development (Jensen *et al.,* 2002). Size at birth is approximately 58–67 cm (22.8–26.4 inches) (Francis *et al.,* 2008; Forselledo, 2012). Porbeagle sharks have low productivity, an 8–9 month gestation period (Jensen *et al.,* 2002; Francis *et al.,* 2008), and an average litter size of four pups (Jensen *et al.,* 2002; Francis *et al.,* 2008). Ages of sexual maturity are approximately 8 years for males and 13 years for females in the Northwest Atlantic (Jensen *et al.,* 2002; Natanson *et al.,* 2002; CITES, 2013) and 8–11 years for males and 15–18 years for females in New Zealand (Francis *et al.,* 2008; CITES, 2013). The maximum age of porbeagle sharks is estimated at 46 years in an unfished population, but may exceed 65 years in the Southern Hemisphere (Natanson *et al.,* 2002; ICCAT, 2009; CITES, 2013).

In a comparison of life history characteristics of 38 shark species, the population growth rate of porbeagle sharks in the Northwest Atlantic was in the lower-third of the species examined. The reported population growth rate was 1.022 (values less than 1 indicate negative population growth rates) with a mean generation time of approximately 18 years (Cortes, 2002). Juvenile survival rates were among the highest of the shark species analyzed, resulting in high overall natural survival rates (84–90 percent). A recent assessment (Cortes *et al.,* 2015) conducted by ICCAT found that the population growth rate for porbeagle sharks in the Atlantic ranked 13th highest out of 20 stocks and the generation time was on the order of 20 years. The generation time in the Southern Hemisphere is longer due to slower growth rates and greater estimated longevity. In sum, porbeagle sharks are a slow maturing, relatively long lived species with a relatively low population growth rate.

Population Structure

Stocks are often used to define populations for fisheries management purposes. These stock management units are not equivalent to DPSs unless they also meet the criteria for identifying a DPS. As described in the report for the 2009 porbeagle stock assessment meeting (International Council for the Exploration of the Sea (ICES)/ICCAT, 2009), four stocks have been identified in the Atlantic Ocean. These include two in the Northern Hemisphere—the Northwest and Northeast Atlantic stocks—and two in the Southern Hemisphere—the Southwest and Southeast Atlantic stocks. There may also be an Indo-Pacific stock in the Southern Hemisphere, but the stock boundaries remain unclear. The Northwest Atlantic stock includes porbeagle sharks from the waters on and adjacent to the continental shelf of North America, and the Northeast stock includes porbeagle sharks from the waters in and adjacent to the Barents Sea south to Northwest Africa, including the Mediterranean Sea. In defining stocks, a range of information is considered, including fisheries, biological, distribution, genetic, and tagging information. While these stocks do not necessarily equate to DPSs, they are useful delineations for discussing the population abundance and trends as this is how data for this species are frequently collected and reported.

Tagging and genetic data help define stock structure. Tagging studies may use conventional or electronic tags to collect data on an animal's movements. Conventional tags have a unique number and contact information printed on them. When an animal with a tag is captured, scientists can use the tag number to identify the location and date of release as well as any other information recorded when the animal was tagged. This information, along with information recorded when the animal is recaptured, can be used to identify information such as how long the shark was at large, distance between release and recapture locations, and how much the animal grew during that time. There are several limitations to interpreting conventional tagging data. First, it relies on recapturing the animal and reporting that capture to researchers. In studies of porbeagle sharks, the recapture and reporting rate is approximately 10 percent of tags deployed (Kohler *et al.,* 2002; Curtis *et al.,* 2016), meaning that for every 100 porbeagle sharks tagged, only 10 are recaptured and reported back to researchers. Second, with a conventional tag the researcher only knows the location where the animal was tagged and released and where it was recaptured. The animal's movement between these two locations is unknown. For example, if an animal was tagged/released and later recaptured within a few kilometers, we would not know if the animal had stayed in that small area for the entire time or if it had traveled thousands of kilometers and returned back to the area. Other tags such as pop-up satellite archival tags (*e.g.,* PSATs) are attached to the animal and store information including location, light level, depth, and temperature throughout the tag's deployment period (typically up to 1 year). The tag then detaches from the animal, floats to the ocean surface, and transmits all of the stored data to a satellite; those data are used to reconstruct the movements of the animal during deployment. This provides more insight into the animal's movements as it collects data on a more continuous (daily) basis. These satellite tags allow for collection of movement information even if the animal is not recaptured.

Tagging data indicate that porbeagle shark movements across the North Atlantic are limited (that is, a limited number of porbeagle sharks move across the Atlantic), but do occur (ICES/ICCAT, 2009). One porbeagle shark tagged in the Northeast Atlantic was recaptured off Newfoundland, Canada; this means that trans-Atlantic movements occur at least occasionally (ICES, 2007). The greatest distance documented between conventional tag release and recapture location is 4,260 km. The time between tagged/released and recapture has been as long as 16.8 years (N. Kohler, NMFS, unpublished data as reported in Curtis *et al.,* 2016).

Several recent studies have used PSATs to track porbeagle sharks in the Northwest and Northeast Atlantic and the Southwest Pacific (Pade *et al.,* 2008; ICCAT, 2009; Skomal *et al.,* 2009; Campana *et al.,* 2010a; Saunders *et al.,* 2011; Bendall *et al.,* 2013; Francis *et al.,* 2015). The maximum displacement by a porbeagle recorded with a satellite tag (4,400 km) was similar to that documented with conventional tags. However, most animals showed relatively restricted movements and fidelity to the site where they were tagged, at least within the tracking duration (<1 year). This means that while some porbeagle sharks make long distance migrations, most animals did not. While the data are limited, a few animals have traveled great distances showing the biological potential for the species to move between areas. Individuals often remain within the range of a particular stock, but these data indicate that porbeagle sharks do occasionally move between stock areas.

Mature female porbeagle sharks appear to make the largest movements in the Northwest Atlantic. Several sharks tagged off Canada swam southward to the subtropical Sargasso Sea and northern Caribbean region, presumably to pup (Campana *et al.,* 2010a). Males and immature sharks have also made significant movements (Saunders *et al.,* 2011; Francis *et al.,* 2015; J. Sulikowski (unpublished data) as cited in Curtis *et al.,* 2016). Saunders *et al.* (2011) report that a small male migrated greater than 2,400 km. In a study in the Southern Hemisphere, porbeagle sharks made movements of hundreds to thousands of kilometers. In this study, an immature male shark had the maximum estimated track length (Francis *et al.,* 2015).

Genetic data can also help define population structure. Though the available data from tags indicate little exchange between the Northwest and Northeast Atlantic stocks (likely due to the low overall sample size), genetic analysis shows these stocks mix (Pade *et al.,* 2006; Testerman *et al.,* 2007; ICES/ICCAT, 2009; Kitamura and Matsunaga, 2010). Mitochondrial DNA (mtDNA) studies indicate that there is no differentiation between the stocks within the North Atlantic (Pade *et al.,* 2006; Testerman *et al.,* 2007). These studies documented that dominant haplotypes were present in samples from both sides of the Atlantic, indicating that there is gene flow that is not being identified clearly through the tagging studies. Kitamura and Matsunaga (2010) also found no indication of multiple populations in the North Atlantic based on genetic studies. Similarly, genetic studies in the Southern Hemisphere indicate that porbeagle sharks in that region are not significantly differentiated (Testerman *et al.,* 2007; Kitamura and Matsunaga, 2010). Genetic analyses also suggest no separation between the southeastern Indian Ocean and the southwestern Indian Ocean, indicating that the distribution across the Indian Ocean is continuous (Semba *et al.,* 2013).

There are several genetic studies that show marked differences between the Northern and Southern Hemispheres, supporting the conclusions that these populations do not mix (Pade *et al.,* 2006; Testerman *et al.,* 2007; ICES/ICCAT, 2009; Kitamura and Matsunaga, 2010). It is likely that the porbeagle shark's preference for colder temperatures limits movement between the hemispheres (Curtis *et al.,* 2016). If populations are markedly separated and adapted to the environment, the differences that occur are shown as they begin to diverge genetically. Within the North Atlantic, the data show that they are not genetically distinct, that mixing is occurring, and that they are not markedly separated. Similarly, the studies within the Southern Hemisphere also indicate that these populations are not genetically distinct. However, the populations in the Northern Hemisphere are markedly separated from those in the Southern Hemisphere.

Abundance and Trends

As described above, porbeagle sharks are managed for fisheries purposes by stock unit. Therefore, much of the data on the abundance of populations is by stock. In the North Atlantic, porbeagle sharks have declined from 1960s population levels due to overharvesting. However, the populations are currently stable or increasing and are on a trajectory to recovery (Curtis *et al.,* 2016), meaning that the population in the North Atlantic is growing. The North Atlantic stocks of porbeagle sharks are considered overfished. In overfished stocks, the biomass is well below the biomass at maximum sustainable yield (B_{MSY}), which is the abundance level that can support the largest, long-term average catch that can be taken under existing conditions, and is considered the biomass target for fisheries management. Generally, a stock is first considered overfished once estimates of biomass are lower than a specific target level. For many fish species that target level is one-half B_{MSY}. However, generally for sharks, because their natural mortality is so low, the target level can be greater than one-half B_{MSY} (*e.g.,* 0.75 B_{MSY}). In other words, the specific target at which we would consider a shark species to be overfished is species-specific and depends on that species' level of natural mortality. Once declared overfished, a species continues to be considered overfished until biomass returns to a different target level. Generally, that level is B_{MSY}.

While porbeagle sharks in the North Atlantic are overfished, overfishing is not occurring. (SCRS, 2014; Curtis *et al.,* 2016). Overfishing is a level or rate of fishing mortality that jeopardizes the long-term capacity of the stock to produce MSY on a continuing basis. As explained above, being overfished does not necessarily mean that the population is not growing, it is not an indication of population trajectory—it just means that biomass is below a target level. An overfished stock can be rebuilding and on a trajectory to recovery. Overfishing will slow the rate of biomass growth and, if it continues, can reverse replenishment and the population will decrease. With respect to extinction risk, an overfished marine fish stock may be at greater risk than one that is not overfished, but being overfished does not automatically equate to a species having an especially high risk of extinction (Curtis *et al.,* 2016).

This means that while the North Atlantic stock sizes are smaller than threshold levels (because of fishing or other causes), the annual catch rate is at a level that is allowing rebuilding. There is also evidence to suggest that the populations in the Southern Hemisphere, while overfished, are stable or increasing (ICES/ICCAT, 2009; Pons and Domingo, 2010; Francis *et al.,* 2014; WCPFC, 2014).

Northwest Atlantic—The estimate of the stock of porbeagle sharks in the Northwest Atlantic in 1961 is considered to be at an unexploited or virgin level. Therefore, this estimate is used for comparison with more recent estimates. Several models have assessed porbeagle shark abundance, biomass, and trends in the Northwest Atlantic. Different types of models have been used, including forward-projecting age and sex structured models (DFO, 2005; Campana *et al.,* 2012) and a Bayesian Surplus Production (BSP) model (ICES/ICCAT, 2009). These independent models came to the same conclusions with respect to the stock size and trends (*i.e.,* stock size below target levels, but increasing).

For 2005, the stock was estimated to be between 188,000 to 195,000 (DFO, 2005) individuals, 12–24 percent of the 1961 estimates (Gibson and Campana, 2005). Campana *et al.* (2012) modeled the populations from the 1961 baseline and projected forward by adding recruitment to the population and removing catches. This assessment ran four different models using differing assumptions, a routine practice in fisheries stock assessment. This method estimated 196,111–206,956 porbeagle sharks in 2009 (Campagna *et al.,* 2012), 22–27 percent of the 1961 estimates. The estimates for 2005 and 2009 can be directly compared because the same models and data sources were used in estimating the populations. The results indicate that the overall population is increasing; even when comparing the low ends of the estimates (188,000 porbeagle sharks in 2005 compared to 196,111 porbeagle sharks in 2009).

Campana *et al.* (2012) also estimated the number of mature females. The estimated number of mature females in 2009 ranged from 11,339 to 14,207 individuals. The estimates of mature females or spawning stock biomass are used as indicators of stock health. All four models indicated that the number of mature females in the Northwest Atlantic stock is increasing and that the 2009 estimates are higher than the 2005 levels (Campana *et al.,* 2012).

Furthermore, estimated total biomass (the weight of all porbeagle sharks collectively) is also increasing. In 2009, total biomass was around 10,000 metric tons (mt), 20–24 percent of the 1961 estimate. The 2005 assessment did not assess the total biomass. However, Campana e*t al.* (2012) did estimate total biomass in 2001. The 2009 biomass estimate is 4–22 percent higher than the biomass estimated from 2001 (Campana *et al.,* 2012; Campana *et al.,* 2010b). Population metrics are often expressed in biomass rather than the number of individuals, as catch data are reported in weight. An increase in biomass is generally indicative of an increase in number of individuals (Curtis *et. al.,* 2016) and not just an increase in the weight of the same number of individuals. Significantly, all four model variations show mean increases in biomass since 2001, confirming the increasing biomass estimated in the stock assessment (ICES/ICCAT, 2009). This increase likely indicates increased recruitment to the adult stock and continued growth of individual fish in the stock (Curtis *et al.,* 2016).

Maximum likelihoood estimation is a technical, computer-intensive statistical approach that allows a researcher to evaluate the parameters in a model to identify those with the greatest likelihood of having produced the observed (given) data. This statistical analysis produces a maximum likelihood value. By iteratively changing the parameters in the model until this value is found to be highest (maximum), the researcher can identify those parameters most likely to have produced the observed data.

Model runs with different parameters or parameter values will result in different maximum likelihood values. Therefore, this approach can be used to evaluate a series of models as to which model is the preferred model; that is, which model fits the data best. Models with higher maximum likelihood values are more likely than those with lower values to have produced the observed data. Therefore, models with higher maximum likelihood values may be preferred.

Using this approach, Campana *et al.* (2012) concluded that Model 1 was the most plausible model. Model 1 showed increases in the number of mature females in the overall populations since 2001, likely reflecting the positive effects of management (Campana *et al.,* 2012). Model 2 was the least plausible model. Therefore, it is not reasonable to rely on Model 2 to assess the population.

All model variations, except model 2, showed increases in the overall population since 2001. Model 2 suggested that there could have been slightly fewer fish in 2009 than 2001, but, as noted above, based on the maximum likelihood method, the researchers identified this model variation as the ''least plausible'' variation and indicated that it is not likely an indicator of the true trend in the population (Campana *et al.,* 2010b; Campana *et al.,* 2012). Because of this, it is not reasonable to rely on Model 2. The overall agreement of all modeled population trends provides strong evidence of increasing abundance in this stock (Campana *et al.,* 2012).

Similarly, all four model variations show increases in female stock numbers and three of the four show increases in general populations from 2005–2009. Again, model 2 was the exception. This model estimated a slight decrease (approximately two percent or 4,000 fish) in the overall population from 2005 to 2009. As mentioned, this model was determined to be the ''least plausible'' (Campana *et al.,* 2012). Even if the more conservative model 2 (a lower productivity scenario) more closely reflected the reality of porbeagle stock size, the stock was still projected to increase under the current harvest levels (Campana *et al.,* 2012). Based on the four model runs and taking into account the most plausible scenarios as defined by the researchers, the reasonable conclusion is that biomass and the general population has increased since 2001 and will continue to increase in the future (Curtis *et al.,* 2016).

The models used by Campana *et al.* (2010, 2012) were forward projecting age- and sex-based models. These models projected the population forward in time from an equilibrium starting abundance (*i.e.,* the unfished population in 1961) and age distribution by adding recruitment and removing catches. The models assessed both the female population and total population.

In 2009, the ICES/ICCAT stock assessment working group ran a BSP model for the Northwest Atlantic stock, which was considered in addition to the forward projecting age- and sex-based model from Campana *et al.* (2010). The BSP model was used to confirm the trends from the results of Campana's age-structured model. The Campana *et al.* (2010) model and the BSP model are based on different assumptions as to how the data should be interpreted and weighted and, therefore, result in differing estimates. The BSP model used catch per unit effort (CPUE) to estimate biomass and weighted the CPUE data using two approaches resulting in two variations of the model. CPUE data in the catch-weighted model were weighted by relative proportion of the catch corresponding to each CPUE series in each year (catch-weighted model; meaning that annual data with more catch had a greater influence on the model output). The equal-weighted BSP considered eight CPUE series; six Canadian CPUE series, the U.S. series, and the Spanish series (limited to two areas). Each point in each data series was given equal weight (equal weighted model; meaning that the relative amount of catch in each annual point had no influence on the model output). Thus the Canadian series, which has the majority of the catch, was effectively given more weight than the United States or Spanish series. The catch-weighted BSP model estimated the biomass in 2005 to be 66 percent of the 1961 biomass. The equal weighted BSP model estimated the biomass in 2005 as 37 percent of the 1961 biomass. Both models resulted in estimates higher than the estimate of 10–24 percent from the Campana *et al.* (2010) age-structured model. Results of the BSP model applied to data through 2009 were similar to those of the age-structured model, providing further support that Model 2 (Campana *et al.,* 2012) is less reliable. Because the two independent models came to the same conclusions with respect to the stock size and trends (*i.e.,* stock size below target levels, but increasing), we have confidence in the determination that the stock has increased.

The ICES/ICCAT (2009) working group looked at all available models, data, and fits to the data. They determined that, in recent years, total biomass is increasing and fishing mortality is decreasing. This indicates that the Northwest Atlantic stock is recovering. These results are supported by more recent assessments (Campana *et al.,* 2010; Campana *et al.,* 2012; SCRS, 2014). In summary, recent biomass and abundance appears to be increasing under all available models. While the population is overfished, overfishing is not occurring.

Northeast Atlantic—This stock has the longest history of being targeted by commercial fishing. The highest catches occurred between the 1930s and 1950s (ICES/ICCAT, 2009). The lack of CPUE data during the peak of the fishery makes it difficult to estimate current status relative to biomass of an unfished stock. The ICCAT stock assessment working group ran various model scenarios to assess the Northeast Atlantic stock of porbeagle sharks. The working group found that the stock was overfished but that overfishing was not occurring and that current management was likely to prevent the stock from declining further and allow recovery (ICES/ICCAT, 2009). The working group indicated that the stock would recover within 15–34 years (one to two generations) if there was no fishing mortality (ICES/ICCAT, 2009). Under the 2009 European Union (EU) total allowable catch (TAC) level, the stock was projected to increase slowly but not rebuild (*i.e.,* reach a target population size that supports maximum sustainable yield) within 50 years. The TAC is the amount of the species allowed to be harvested by all users, commercial and recreational, over a specified time. In 2010, the TAC was set at zero and has remained at zero; therefore, it is reasonable to assume that at the current fishing levels the stock will continue to increase and rebuild.

Porbeagle sharks from the Northeast Atlantic stock are also found in the Mediterranean Sea. The Mediterranean Sea is in the southeastern edge of the porbeagle shark's range in the North Atlantic, and the species has always been uncommon in the region (Storai *et al.,* 2005; CITES, 2013). There is no information suggesting that porbeagle sharks in the Mediterranean Sea are isolated genetically or spatially from the larger Northeast Atlantic stock. Given that porbeagle sharks are highly mobile and habitat generalists, the animals in the Mediterranean Sea are likely to mix with animals in adjacent regions. Ferretti *et al.* (2008) examined various historical data sources, some of which dated back to 1800s, from the Mediterranean Sea and estimated that lamnid sharks (including porbeagle and shortfin mako sharks) had declined significantly from historical levels. The researchers were unable to distinguish what portion of the decline is attributable to porbeagle sharks. Porbeagle sharks have had a low occurrence and catch rate in this region even at the earliest stages of the time series (Ferretti *et al.,* 2008). This research was based on small overall sample sizes and used methods that have been previously criticized as producing overly pessimistic population trends (Burgess *et al.,* 2005). Storai *et al.* (2005) were only able to document 33 verified records of porbeagle sharks around Italy from 1871–2004, confirming that these sharks have had a low historical occurrence. Other data sources also show low historical occurrence throughout the Mediterranean Sea (CITES, 2013). The ERA team concluded that porbeagle abundance has possibly declined in the Mediterranean Sea, but the species is historically uncommon in this region (Curtis *et al.,* 2016).

Southern Hemisphere—Data on porbeagle sharks in the Southern Hemisphere are sparse. This limits the ability to provide a robust indication of the stock status and sustainable harvest levels. However, there is some information available. The 2009 ICES/ICCAT working group found that the available data, from the Uruguayan longline fleet operating between 1982 and 2008, indicate a long-term decline in CPUE in the Uruguayan fleet, meaning that fewer porbeagle sharks were being caught with the same amount of effort in 2008 compared to 1982. The data indicate that the CPUE has stabilized since 2000 (ICES/ICCAT, 2009). In a modeling effort, they concluded that biomass levels may be below B_{MSY} and that fishing mortality rates may be above those producing MSY (*i.e.,* overfishing may be occurring). Pons and Domingo (2010) also evaluated the CPUE using data from 1982–2008. They found declines in CPUE in the Uruguayan fleet during the 1990s, but that the trend has been stable or slightly increasing since 2000. In 2013, Uruguay prohibited retention of porbeagle sharks. The Standing Committee on Research and Statistics (SCRS, 2014) determined that the Southwest Atlantic stock was overfished but overfishing was probably not occurring. While data in the Southeast Atlantic was too limited to assess whether porbeagle stocks were overfished or if overfishing was occurring (ICES/ICCAT, 2009; SCRS, 2014), catch rate patterns suggest that this stock has stabilized since 2000 and is no longer declining (ICES/ICCAT, 2009; Pons and Domingo, 2010).

Semba *et al.* (2013) analyzed porbeagle sharks in the Southern Hemisphere using standardized CPUE data from the southern Bluefin Tuna longline fishery (1994–2011) and a driftnet survey (1982–1990). The study found no decreasing trend in abundance and concluded porbeagle sharks had a widely continuous distribution between the South Pacific and southeastern Indian Ocean and between the southwestern Indian Ocean and southeastern Atlantic Ocean. They also determined that juvenile abundance had not changed greatly during the period of 1982 to 2011. Due to a lack of fishing effort in the Indian Ocean, the study was unable to confirm presence in the central South Indian ocean but noted that genetic data indicate that the distribution is likely continuous through the Indian Ocean (Semba *et al.,* 2013).

There are no abundance trend data for porbeagle sharks in Australian waters. Historically, Japanese longline vessels operating in Australian waters caught porbeagle sharks, but these vessels have been excluded from these waters since 1997 and domestic Australian fishing effort is greatly reduced in areas where porbeagle sharks were caught (Bruce *et al.,* 2014). Porbeagle sharks are also caught incidentally in New Zealand's Southern Bluefin Tuna longline fishery. In New Zealand waters in recent years, stock status indices showed no sign of declining trends in abundance (Francis *et al.,* 2014; WCPFC, 2014). The CPUE indices were stable or increasing and the frequency of zero catches in the fishery declined, suggesting increases in relative abundance since 2005.

The level of diversity in genetic samples can also be an indicator of the population size. Mitochondrial DNA from samples in the North and South Atlantic show high diversity, indicative of a large population. Porbeagle sharks are the third most dominant species in the sub-Antarctic region of the South Pacific and are common throughout the Southern Hemisphere (Semba *et al.,* 2013).

In summary, stocks in the North Atlantic have stabilized and appear to be increasing. The Southwest Atlantic stock is considered overfished but overfishing is not occurring. Information on the Southeast Atlantic stock is too limited to determine the overfished/overfishing status, but it has been stable and not declining since the 1990s (ICES/ICCAT, 2009; SCRS, 2014). Populations in New Zealand also appear to be increasing (Francis *et al.,* 2014; WCPFC, 2014). Stocks in the Southern Hemisphere have stabilized and some may be increasing.

Distinct Population Segment Analysis

As described above, the ESA's definition of ''species'' includes ''any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.'' The term ''distinct population segment'' is not recognized in the scientific literature and is not clarified in the ESA or its implementing regulations. Therefore, the Services adopted a joint policy for recognizing DPSs under the ESA (DPS Policy; 61 FR 4722) on February 7, 1996. Congress has instructed the Secretaries of Interior and Commerce to exercise this authority with regard to DPSs ''* * * sparingly and only when biological evidence indicates such an action is warranted.'' The DPS Policy requires the consideration of two elements when evaluating whether a vertebrate population segment qualifies as a DPS under the ESA: (1) The discreteness of the population segment in relation to the remainder of the species or subspecies to which it belongs; and (2) the significance of the population segment to the species or subspecies to which it belongs.

A population segment of a vertebrate species may be discrete if it satisfies either one of the following conditions: (1) It is markedly separated from other populations of the same taxon (an organism or group of organisms) as a result of physical, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation; or (2) it 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 (*e.g.,* inadequate regulatory mechanisms). If a population segment is found to be discrete under one or both of the above conditions, its biological and ecological significance to the taxon to which it belongs is evaluated. This consideration may include, but is not limited to: (1) Persistence of the discrete population segment in an ecological setting unusual or unique for the taxon; (2) evidence that loss of the discrete population segment would result in a significant gap in the range of a taxon; (3) evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historical range; or (4) evidence that the discrete population segment differs markedly from other population segments of the species in its genetic characteristics.

The petition from Wild Earth Guardians requested that we list porbeagle sharks throughout their entire range, or as Northwest Atlantic, Northeast Atlantic, and Mediterranean Distinct Populations Segments (DPS) under the ESA, and that we designate critical habitat for the species. The petition from the HSUS requested we list a Northwest Atlantic DPS of porbeagle shark as endangered.

In the Status Review, the ERA team considered the available information to assess whether there are any porbeagle population segments that satisfy the DPS criteria of both discreteness and significance. Rather than limit the analysis to only the potential DPSs identified by the petitioners, the ERA team considered whether any DPSs could be determined for porbeagle sharks. Data relevant to the discreteness question included physical, ecological, behavioral, tagging, and genetic data. As described above, porbeagle sharks occur in the North Atlantic and in a continuous band around the Southern Hemisphere. They are absent from equatorial waters. Recent assessments have identified four stocks: The Northwest, Northeast, Southwest, and Southeast Atlantic stocks for fishery management purposes. An additional Indo-Pacific stock may also be present, but Southern Hemisphere stock boundaries are unclear (CITES, 2013).

The population in the North Atlantic is separated from the population in the Southern Hemisphere, as porbeagle sharks are absent from equatorial waters. It is likely that their preference for colder water temperatures limits movement between the Northern and Southern Hemispheres. The genetic data support that they do not move between these hemispheres, as genetic studies show marked differences between the populations in the North Atlantic and the Southern Hemisphere. This indicates that porbeagle sharks in the North Atlantic and porbeagle sharks in the Southern Hemisphere do not interbreed (Padre *et al.,* 2006; Testerman *et al.,* 2007; ICES/ICCAT, 2009; Kitamura and Matsunaga, 2010). Porbeagle sharks in the Southern Hemisphere are also biologically different. In the Southern Hemisphere, porbeagle sharks are smaller, slower growing, mature at a smaller size and greater age, and may be longer lived than those in the North Atlantic (Francis *et al.,* 2007, 2008, 2015). The ERA team concluded, and we concur, that the North Atlantic and Southern Hemisphere populations are discrete.

There is no information indicating that porbeagle sharks in the Mediterranean Sea, where they are historically rare, are isolated from the Northeast Atlantic stock. There are no direct genetic or tagging data on porbeagle sharks in the Mediterranean Sea, but numerous other highly migratory species (tunas, sharks) are known to move in and out of the Mediterranean Sea. Given that porbeagle sharks are widely distributed and highly migratory, it is reasonable to expect that porbeagle sharks in the Mediterranean Sea would mix with porbeagle sharks in other parts of the Northeast Atlantic. There is no information to indicate that porbeagle sharks in the Mediterranean Sea are a discrete population. As there is no evidence that the Mediterranean Sea population of porbeagle sharks is discrete, it was considered as part of the Northeast Atlantic stock for the remainder of the analysis.

Both tagging and genetic data can provide insight into whether a population is discrete. Conventional and satellite tagging data suggest limited, but occasional movements of porbeagle sharks between the Northwest and Northeast Atlantic, as well as long distance movements into subtropical latitudes of the North Atlantic (Kohler *et al.,* 2002; Pade *et al.,* 2008; ICCAT, 2009; Skomal *et al.,* 2009; Campana *et al.,* 2010a; Saunders *et al.,* 2011; Bendall *et al.,* 2013). As described above, using conventional tagging data to inform our understanding of the animal's movements is limited by the frequency of recapture/return of tags and by the limited data returned. Though the tagging data offer little evidence of mixing between the Northwest and Northeast Atlantic, the genetic analyses show that these populations do mix. Mitochondrial DNA studies indicate that there is no differentiation among the stocks in the North Atlantic. The stocks are indistinguishable genetically, indicating that there is mixing and gene flow between them (Pade *et al.,* 2006; Testerman *et al.,* 2007). This level of mixing is occurring at a rate that has prevented the species from becoming genetically differentiated, meaning that there is enough interbreeding between porbeagle sharks in the Northwest and Northeast Atlantic that the populations are not significantly different genetically. Genetic homogeneity across broad regions can be achieved with extremely low mixing rates, even one percent per generation (Ward 2000). While the mixing rates between the Northwest and Northeast North Atlantic may be low, these populations mix sufficiently that there is a lack of genetic differentiation between the stocks. Curtis *et al.* (2016) hypothesize two pathways by which these movements may occur: (1) Active emigration or vagrancy of mature females from one subpopulation to a neighboring one or (2) a lack of philopatry in porbeagle pups born in subtropical waters (*i.e.,* not all porbeagle sharks return to their birthplace to breed). For example, pups born from Northwest Atlantic mothers may move into the Northeast Atlantic as they mature. More tagging and genetic studies are needed to determine the pathway and to better assess mixing rates (Curtis *et al.,* 2016); however, the current available evidence indicates that porbeagle sharks in the Northeast and Northwest Atlantic are not discrete.

In the North Atlantic, the porbeagle shark does cross international governmental boundaries. There are regulatory mechanisms in place across the species' range with respect to conserving and recovering porbeagle stocks. Similar regulatory mechanisms have been implemented on both sides of the Atlantic. These mechanisms include regulating directed catch and bycatch and are described further below. Given the lack of genetic differentiation between the North Atlantic stocks and the lack of significant differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms across international borders, we have determined that the two stocks in the North Atlantic are not discrete from one another.

Tagging data in the Southern Hemisphere are very limited. Porbeagle sharks have a continuous distribution throughout the Southern Hemisphere (Semba *et al.,* 2013). As described above, Southwest and Southeast Atlantic stocks have been defined for management purposes, and there may also be an Indo-Pacific stock (including Australia, New Zealand, and the greater Southwest Pacific). Potential stock boundaries have been difficult to define and remain unclear (CITES, 2013). The available genetics data have not revealed any clear differentiation among samples throughout the region (Pade *et al.,* 2006; Testerman *et al.,* 2007; Kitamura and Matsunaga, 2010). Similar to the North Atlantic, porbeagle sharks in the Southern Hemisphere cross jurisdictional boundaries. As described below, regulatory measures restricting harvest are also in place across the range of this population. There is no information indicating that the populations in the Southern Hemisphere are discrete from one another. Therefore, there is no information to indicate there are separate DPSs in the Southern Hemisphere. Based on the best available information, the ERA team concluded that that there are two discrete populations; one in the North Atlantic and the other in the Southern Hemisphere.

In accordance with the DPS policy, the ERA team also reviewed whether these two population segments identified in the discreteness analysis were significant. If a population segment is considered discrete, its biological and ecological significance relative to the species or subspecies must then be considered. We must consider available scientific evidence of the discrete segment's importance to the taxon to which it belongs. Data relevant to the significance question include morphological, ecological, behavioral, and genetic data, as described above. The ERA team found that the loss of either population segment would result in a significant gap in the range of the taxon and, therefore, both were significant. We considered the information presented in the status review and the following factors, identified in the DPS policy, which can inform the significance determination: (a) Persistence of the discrete segment in an ecological setting unusual or unique for the taxon; (b) evidence that loss of the discrete segment would result in a significant gap in the range of the taxon; (c) evidence that the discrete segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historical range; and (d) evidence that the discrete segment differs markedly from other populations of the species in its genetic characteristics. A discrete population segment needs to satisfy only one of these criteria to be considered significant.

The range of each discrete population (*i.e.,* the North Atlantic and Southern Hemisphere populations) represents a large portion of the species' range, as well as a unique ecosystem that has influenced the population. The North Atlantic and Southern Hemisphere ecosystems are unique with different physical (*e.g.,* currents), chemical (*e.g.,* salinity), and biological (*e.g.,* species size, longevity) properties. Each population is in a separate hemisphere, and the loss of either segment would result in a significant gap in the range of the species. That is, if the North Atlantic population were extirpated, the only porbeagle sharks would be in the Southern Hemisphere. As porbeagle sharks do not move between hemispheres and equatorial waters are too warm to support the species, it is not reasonable to expect that porbeagle sharks would move from the Southern Hemisphere into the North Atlantic, and the result would be a significant gap in the range of the species. In evaluating the factors above, factors a and b indicate that the two discrete population segments are significant. Therefore, we concur with the ERA team that the two discrete population segments are also significant. As such, we are identifying two DPSs of porbeagle shark. The extinction risk to the North Atlantic and Southern Hemisphere DPSs was evaluated separately for each DPS.

Assessment of Extinction Risk

The ESA (Section 3) defines endangered species as ''any species which is in danger of extinction throughout all or a significant portion of its range.'' A threatened species is ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' Neither we nor the USFWS have developed any formal policy guidance about how to further define the thresholds for when a species is endangered or threatened. We consider the best available information and apply professional judgment in evaluating the level of risk faced by a species in deciding whether the species is currently in danger of extinction throughout all or in a significant portion of its range (endangered) or likely to become so in the foreseeable future (threatened). We evaluate both demographic risks, such as low abundance and productivity, and threats to the species, including those related to the factors specified by the ESA Section 4(a)(1)(A)–(E).

Methods

As described above, we convened an ERA team to evaluate extinction risk to the species. This section discusses the methods used to evaluate demographic factors, threats, and overall extinction risk to the species now and in the foreseeable future. For this assessment, the term ''foreseeable future'' was defined as two generation times (40 years), consistent with other recent assessments for shark species. A generation time is defined as the time it takes, on average, for a sexually mature female porbeagle shark to be replaced by offspring with the same spawning capacity. As a late-maturing species, with slow growth rate and relatively low productivity, it would likely take more than a generation time for conservative management actions to be realized and reflected in population abundance indices. The ERA team reviewed other comparable assessments (which used generation times of either one or two generations) and discussed the appropriate timeframe for porbeagle sharks. The ERA team determined that, for porbeagle sharks, there was reasonable confidence across this time period (40 years) that the information on threats and management is accurate.

Often the ability to measure or document risk factors is limited, and information is not quantitative or very often lacking altogether. Therefore, in assessing risk, it is important to include both qualitative and quantitative information. In previous NMFS' status reviews, Biological Review Teams have used a risk matrix method, described in detail by Wainwright and Kope (1999), to organize and summarize the professional judgement of a panel of knowledgeable scientists. The approach of considering demographic risk factors to help frame the consideration of extinction risk has been used in many of our status reviews (see *http://www.nmfs.noaa.gov/pr/species* for links to these reviews). In this approach, the collective condition of individual populations is considered at the species level according to four demographic viability factors: Abundance, growth rate/productivity, spatial structure/connectivity, and diversity. Connectivity refers to rates of exchange among populations of organisms. These viability factors reflect concepts that are well-founded in conservation biology and that individually and collectively provide strong indicators of extinction risk.

Using these concepts, the ERA team evaluated demographic risks by individually assigning a risk score to each of the four demographic criteria (abundance, growth rate/productivity, spatial structure/connectivity, diversity). The scoring for the demographic risk criteria correspond to the following values: 1—very low, 2—low, 3—medium, 4—high, and 5—very high. A demographic factor was ranked very low if it is very unlikely the factor contributes or will contribute significantly to the risk of extinction. A factor was ranked low if it is unlikely it contributes or will contribute significantly to the risk of extinction. A factor was ranked medium if it is likely it contributes to or will contribute significantly to the risk of extinction. A factor was ranked high if it is highly likely that it contributes or will contribute significantly to the risk of extinction, and a factor was ranked very high if it is very highly (extremely) likely that the factor contributes or will contribute significantly to the risk of extinction.

Each team member scored each demographic factor individually. Each team member identified other demographic factors and/or threats that would work in combination with factors ranked in the higher categories to increase risk to the species. After scores were provided, the team discussed the range of perspectives and the supporting data for these perspectives. Team members were given the opportunity to adjust the scores, if desired, after discussion. The scores were then tallied, reviewed, and considered in the overall risk determination. As noted above, this scoring was carried out for each of the two identified DPSs.

The ERA team also performed a threats assessment for the porbeagle shark by evaluating the impact that a particular threat was currently having on the extinction risk of the species. Threats considered included habitat destruction, modification, or curtailment; overutilization; disease or predation; inadequacy of existing regulatory mechanisms; and other natural or manmade threats, because these are the five factors identified in Section 4(a)(1) of the ESA. The scoring for the threats correspond to the following values: 1—very low, 2—low, 3—medium, 4—high, and 5—very high. A threat was given a rank of very low if it is very unlikely that the particular threat contributes or will contribute to the decline of the species. That is, it is very unlikely that the threat will have population-level impacts that reduce the viability of the species. A threat was ranked as low if it was unlikely the threat contributes or will contribute to the decline of the species. A threat was ranked as medium if it was likely that it contributes or will contribute to the decline of the species and high if it highly likely that it contributes or will contribute to the decline of the species. A threat was given a rank of very high if it was very highly (extremely) likely that the particular threat contributes or will contribute to the decline of the species. Detailed definitions of the risk scores can be found in the status review report. Similar to the demographic parameters, the ERA team was asked to identify other threat(s) and/or demographic factor(s) that may interact to increase the species extinction risk. The ERA team also considered the ranking with respect to the interactions with other factors and threats. For example, team members identified that threats due to the inadequacy of existing regulatory mechanisms may interact with the threat of overutilization and slow population growth rates (a demographic factor) to increase the risk extinction. When potential interactions such as these were identified, the team then evaluated those interactions (in this case interactions between the regulatory mechanisms, overutilization, and growth rates) to determine whether they would significantly change the ranking of the threat (in this case inadequacy of regulatory mechanisms). Team members again discussed their rankings and the supporting data and were given a chance to revise scores based on the discussion. These scores were considered with the demographic scores in the overall risk assessment.

The ERA team members were then asked to use their informed professional judgment to make an overall extinction risk determination for the porbeagle shark. The results of the demographic risks analysis and threats assessment, described below, informed this ranking. For this analysis, the ERA team defined four levels of extinction risk: Not at risk, low risk, moderate risk, and high risk. A species is at high risk of extinction when it is at or near a level of abundance, spatial structure and connectivity, and/or diversity and resilience that place its persistence in question. Demographic risk may be strongly influenced by stochastic (random events or processes that may affect the population) or depensatory (resulting from a depressed breeding population) processes. Similarly, a species may be at high risk of extinction if it faces clear and present threats (*e.g.,* confinement to a small geographic area, imminent destruction, modification, or curtailment of habitat; or disease epidemic) that are likely to create imminent demographic risks (*e.g.,* low abundance, genetic diversity, resilience). A species is at moderate risk of extinction due to projected threats and its likely response to those threats (*i.e.,* declining trends in abundance/population growth, spatial structure and connectivity, and/or diversity and resilience) if it exhibits a trajectory indicating that it is more likely not to be at a high level of extinction. A species is at low risk of extinction due to projected threats and its likely response to those threats (*i.e.,* stable or increasing trends in abundance/population growth, spatial structure and connectivity, and/or diversity and resilience) if it exhibits a trajectory indicating it is not at moderate level of extinction risk. Lastly, a species is not at risk of extinction due to projected threats and its response to those threats (*i.e.,* long-term stability, increasing trends in abundance/population growth, spatial structure and connectivity, and/or diversity and resilience) if it exhibits a trajectory indicating that it is not at a low risk of extinction.

The ERA team adopted the ''likelihood point'' method for ranking the overall risk of extinction to allow individual team members to express uncertainty. For this approach, each team member distributed 10 'likelihood points' among the extinction risk categories (that is, each team member had 10 points to distribute among the four extinction risk categories). Uncertainty is expressed by assigning points to different risk categories. For example, a team member would assign all 10 points to the 'not at risk' category if he/she was certain that the definition for 'not at risk' was met. However, he/she might assign a small number of points to the 'low risk' category and the majority to the 'not at risk' category if there was a low level of uncertainty regarding the risk level. The more points assigned to one particular category, the higher the level of certainty. This approach has been used in previous NMFS status reviews (*e.g.,* Pacific salmon, Southern Resident killer whale, Puget Sound rockfish, Pacific herring, black abalone, and common thresher shark) to structure the team's thinking and express levels of uncertainty when assigning risk categories. Although this process helps to integrate and summarize a large amount of diverse information, there is no simple way to translate the risk matrix scores directly into a determination of overall extinction risk. The team scores were tallied (mode, median, range), discussed, and summarized for each DPS.

The ERA team did not make recommendations as to whether the species should be listed as threatened or endangered. Rather, the ERA team drew scientific conclusions about the overall risk of extinction faced by the North Atlantic and Southern Hemisphere populations of porbeagle shark under present conditions and in the foreseeable future (as noted above, defined as two generation times or 40 years) based on an evaluation of the species' demographic risks and assessment of threats.

Evaluation of Demographic Risks

Abundance: The ERA team evaluated the available information on population abundance and trends. They concluded that a ranking of low was warranted for both DPSs, as this factor is unlikely to contribute significantly to the porbeagle shark's risk of extinction. Kitamura and Matsunaga (2010) analyzed mtDNA from sharks in the North and South Atlantic. The research found high genetic diversity, indicative of a large population. Campana *et al.* (2012) reports that the large population size of the porbeagle shark in the Northwest Atlantic should make it such that random factors would not pose a major risk to the species. The ERA team concluded that the best available information does not indicate a decrease in the productivity of the porbeagle shark and that both DPSs exhibit significant diversity indicative of large populations (Curtis *et al.,* 2016).

Both DPSs have declined significantly from historical levels. In the North Atlantic, these declines appear to have been halted and the DPS' abundance and biomass are increasing (ICES/ICCAT, 2009; Campana *et al.,* 2010b; Campana *et al.,* 2012). Further declines are unlikely due to improved and continuing management. As described in the status review, the North Atlantic population is overfished, but overfishing is not occurring (Curtis *et al.,* 2016). Estimates of the population size are in the hundreds of thousands of individuals for just the Northwest Atlantic portion of the DPS (DFO, 2005; Camapana *et al.,* 2010, 2012). The population abundance and trends of porbeagle sharks throughout the Southern Hemisphere are stable or increasing. The declines in the Southern Hemisphere appear to be halted and, in some regions, the abundance has increased in recent years (ICES/ICCAT, 2009; Pons and Domingo, 2010; Semba *et al.,* 2013; Francis *et al.,* 2014; WCPFC, 2014; Curtis *et al.,* 2016).

Targeted removal from a population can result in a population structure (*e.g.,* size and sex composition) that has been modified from unfished conditions. If fisheries remove certain age classes or sexes (*e.g.,* selectively target the largest individuals in the population), the structure of the population will be modified. Porbeagle sharks are overfished and, therefore, it is likely the population structure (*e.g.,* the number of large females) has been reduced, resulting in a truncated size/age distribution. However, declines have been halted, and stocks are rebuilding. As the stocks rebuild, the population structure will return to its more natural state with a robust size/age composition.

Growth rate/productivity: The ERA team evaluated the information available on the porbeagle shark's growth rate/productivity. They determined that this is a medium risk factor for both DPSs. Life history characteristics of late age to maturity, low fecundity, slow population growth rates, and long generation time contribute to low productivity in porbeagle sharks. These characteristics make both DPSs vulnerable to overexploitation and slow to recover from depletion. This vulnerability is characteristic of species with this type of life history.

Spatial structure/connectivity: The ERA team evaluated the porbeagle shark's spatial structure and connectivity (*i.e.,* rates of exchange among populations). They concluded that this factor is very unlikely to contribute to the risk of extinction for either the North Atlantic or Southern Hemisphere DPS. While there is not mixing across the equator, tagging studies show that the species is highly mobile, and there are movements over long distances within the North Atlantic and the Southern Hemisphere. Genetic studies show that within each DPS, mixing occurs, and there is connectivity within each of the two DPSs. There is no evidence of isolation of any stock within either DPS. There is also no evidence that the range of the species has contracted over time or is likely to contract in the future (Curtis *et al.,* 2016). The ERA team ranked this factor as very low.

Diversity: The ERA team also evaluated the diversity within both DPSs. They concluded that this is a very low risk factor because diversity is high within each DPS. Genetic studies indicate high diversity in both DPSs, and there is connectivity across the ocean basins. The high genetic diversity indicates that, within hemispheres, the populations are not isolated. Significant differentiation within either DPS has not been identified, meaning that while diversity is high within each DPS (indicative of a large population), each stock within a DPS has similar genetics that are not distinct. The species does not appear to be at risk due to substantial changes or loss of variation in life history characteristics, population demography, morphology, behavior, or genetic characteristics.

Evaluation of Threats

Habitat Destruction, Modification, or Curtailment: The ERA team ranked this threat as very low for both DPSs. As described above, porbeagle sharks are highly mobile generalists. That is, they are not substantially dependent on any particular habitat type. Occurring in coastal and offshore waters, this shark is not dependent during any life stage on more vulnerable estuarine habitats, and there are no indications that its range has contracted or is expected to contract in the future (Curtis *et al.*, 2016). While their distribution is influenced by temperature and prey distributions, they have broad temperature tolerances (1–26 °C) and an opportunistic diet, feeding on a wide range of species, depending on what is available (Joyce *et al.*, 2002). Both factors make them less vulnerable to impacts from habitat changes.

The literature review found no information to indicate that there has been a change in distribution of porbeagle sharks due to climate change or that porbeagle sharks would be unable to adapt to potential changes in prey distribution. Changes in temperature in the range of those predicted under various climate scenarios (Hare *et al.*, 2016) are unlikely to have a significant impact on porbeagle sharks (Curtis *et al.*, 2016). Fabry *et al.*, (2008) indicate that increases in carbon dioxide (CO_2) have the potential to affect pH levels in marine animals. Active animals have a higher capacity for buffering pH changes, and the tolerance of CO_2 by marine fish appears to be very high (Fabry *et al.*, 2008). Porbeagle sharks are an active and highly mobile species. Therefore, it is reasonable to expect that porbeagle sharks will tolerate changes in CO_2 and buffer pH (Compagno, 2001; Fabry *et al.*, 2008; Curtis *et al.*, 2016).

As detailed in the status review, they also appear to have low exposure to pollution and do not appear to be threatened by it. The National Shark Research Consortium (2007) determined that it was unlikely that infertility rates were associated with contaminant exposure. The available information indicates that the fitness of porbeagle sharks is not likely to be negatively impacted by mercury or other contaminants to any significant degree (Curtis *et al.*, 2016). Therefore, this threat is considered to be very low to both the North Atlantic and Southern Hemisphere DPSs.

Overutilization: Overutilization was ranked as medium in the threats assessment by each member of the ERA team. In evaluating the status of the species, Curtis *et al.* (2016) reviewed population dynamics, including population size, abundance trends, recruitment and depensation, and the effects of trade as most shark landings enter international trade. Porbeagle sharks have historically been fished commercially, and overutilization is considered the primary threat to porbeagle shark populations. They have primarily been harvested incidentally in longline fisheries targeting other highly migratory species. Incidental harvest occurs when the species is caught in a fishery targeting other species. Directed fisheries for porbeagle sharks have occurred in Canada, France, Norway, Faroe Islands, and Uruguay (Curtis *et al.*, 2016). Porbeagle stocks are overfished. Being overfished is not, by itself, equivalent to having a high risk of extinction. Currently, overfishing is not occurring and populations of porbeagle sharks appear to be stable or increasing, and further declines are considered unlikely, given conservation and management measures. Declines in catch in recent years are largely due to greater regulatory controls, especially in nations that had directed fisheries (DFO, 2005; ICCAT, 2009).

In the United States, commercial fishermen can land porbeagle under a directed or incidental shark permit. In the past, most porbeagle sharks have been landed via pelagic longline, but there have also been some incidental landings in Gulf of Maine fisheries targeting other species. According to logbook data, pelagic longline fishermen have not reported landing any porbeagle sharks in the last few years (2013–2015) and reported landing only between 3 and 23 sharks each year from 2010 through 2012 (NMFS, unpublished data). The majority of porbeagle sharks caught by pelagic longline fishermen from 2010 through 2015 were released alive (on average 78 percent per year). There are strict regulations in the pelagic longline fishery including restrictions on hook size, hook type, and bait type. There are no mesh restrictions in the shark gillnet fishery under the management plan for highly migratory species. However, incidental gillnet landings of porbeagle sharks have occurred in the Gulf of Maine. Gillnet fisheries operating in this area are subject to the requirements of other fishery management plans such as the Northeast multispecies and monkfish plans. These plans restrict the mesh sizes and overall fishing effort in the Gulf of Maine. The commercial porbeagle shark fishery is regulated by a TAC of 11.3 mt dressed weight (dw) (24,912 lb dw) and a commercial quota. The U.S. commercial quota is the portion of the TAC that can be landed by fishermen with a commercial fishing permit and is adjusted annually based on any overharvest from previous years. In recent years, the commercial quota was reduced due to overharvest from previous fishing years. The commercial quota was 1.5 mt (3,307 lb) dw in 2010, 1.6 mt (3,479 lb) dw in 2011, and 0.7 mt (1,585 lb) dw in 2012. In 2013, the fishery was closed due to overharvest in the previous years. It reopened in 2014 with a quota of 1.2 mt (2,820 lb) dw; however, by early December 2014, 198 percent of the quota (2.5 mt dw or 5,586 lb dw) had been reported landed and triggered a commercial fishery closure for the rest of 2014 and all of 2015. This reported overharvest represents approximately 27 individual fish if the catch consisted of large adults (Curtis *et al.*, 2016). It is unlikely that this overharvest represents a significant threat to the species as it represents only a small fraction of the estimated abundance (*i.e.*, 27 fish out of hundreds of thousands). The 2016 commercial quota in the U.S. is 1.7 mt dw (3,594 lbs dw). There have been no landings in 2016 so far. In the past, most of the landings occurred in the fall.

Landings in Canada have progressively decreased from a peak of 1,400 mt (3,086,471 lbs) in 1995 to 92 mt (202,825 lbs) in 2007, corresponding with decreasing TAC levels. Canadian landings have been below the TAC since 2007. There were no landings in the directed fishery in 2012, and the directed fishery has been closed since 2013.

At mortality rates less than four percent of the vulnerable biomass, recovery for the Northwest Atlantic stock was estimated to be achievable in 5 to 100 years (Campana *et al.*, 2012). Estimated recovery times vary based on assumed productivity and harvest rates. The authors concluded that all the analyses indicate that the porbeagle shark population can recover at modest fishing mortalities but that the time horizon for recovery is sensitive to the amount of human-induced mortality. They note that the known cause of human-induced mortality is bycatch, and it is under management controls (Campana *et al.*, 2012). Generally, the vulnerable biomass is that portion of the population that is biologically available to the fishery to catch. That is, it is of a size that can be caught in the gear used in the fishery; the vulnerable biomass is not the amount that they are allowed to catch. The gears used in the shark fisheries select for larger fish. In 2009, the vulnerable biomass in the Northwest Atlantic assessment was estimated to be between 4,406 and 5,092 mt (9,713,568 and 11,228,143 lbs) (Campana *et al.*, 2012).

There are restrictions on catch in the EU. In 2010, regulations set the EU TAC at zero in domestic waters and prohibited EU vessels from fishing for, retaining on board, transferring from one ship to another, and landing porbeagle sharks in international waters. Since 2010, the TAC has been at zero (SCRS, 2014). Under the older TAC of 436 mt (961,200 lbs), the Northeast Atlantic stock was projected to remain stable (ICES/ICCAT, 2009). The elimination of directed and bycatch fisheries is expected to allow the population to rebuild.

Data in the Southern Hemisphere are more limited. Since 2000, the CPUE in the Uruguayan fleet has been stable or slightly increasing (Pons and Domingo, 2010); and Uruguay prohibited retention of porbeagle sharks in 2013. Argentinian and Chilean fisheries have also harvested porbeagle sharks as incidental catch. In Argentina, catches ranged from 19–70 mt (41,890–154,300 lbs) from 2003–2006. Live sharks greater than 4.9 ft (1.5 m) are required to be released (CITES, 2013). In Chilean fisheries, landings are mostly unreported but are thought to comprise less than two percent of harvests (Hernandez *et al.*, 2008). Semba *et al.*, (2013) analyzed distribution and abundance trends in the Southern Hemisphere using CPUE data from the southern bluefin tuna longline fishery (see above). During this study, they found that the fishery occurs primarily on the edge of porbeagle shark habitat and that the majority of the shark's distribution is located outside of where the fishery operates. The authors also assert that there is only a small overlap between porbeagle sharks and the eastern Pacific purse seine fisheries. Catches in Australia and New Zealand have also declined significantly due to reductions in fishing effort and protective regulations. The available data indicate that this stock has stabilized (ICES/ICCAT, 2009; Pons and Domingo, 2010; Semba *et al.*, 2013; Curtis *et al.*, 2016). Bycatch in non-directed fisheries could be an ongoing source of fishing mortality (Simpson and Miri, 2013).

Although catch on the high seas, including the Japanese catch of porbeagle sharks outside of the Canadian Exclusive Economic Zone, was once considered a significant factor in total catch from the Northwestern Atlantic stock of porbeagle sharks, the ICES/ICCAT (2009) assessment found that catch levels on the high seas occurred at low levels, indicating that bycatch and directed catch in this area is minor and does not pose a significant risk to the species (ICES/ICCAT, 2009). Information on catch ratios indicated that the relative abundance of porbeagle shark in the catch tended to be greatest on or near the continental shelf and declined markedly in the high seas (ICES/ICCAT, 2009). There were differences in the catch ratios among fisheries from different nations, but the relative proportion of porbeagle sharks in the high seas catch was almost always less than 2 percent (ICES/ICCAT, 2009). Bycatch of porbeagle sharks within some major ICES and Northwest Atlantic Fisheries Organization (NAFO) longline fisheries was reported to be very rare, and bycatch in the North and South Atlantic swordfish pelagic longline fisheries was very low (ICES/ICCAT 2009). Because North Atlantic porbeagle stocks are increasing in abundance, any ongoing discards or additional unreported mortality does not appear to be of a magnitude that is negatively impacting the stocks.

In addition to bycatch in pelagic longline gear, incidental catch in Canada and the United States occurs in trawl, gillnet, and bottom longline fisheries for various groundfish species (Simpson and Miri, 2013; NAFO, unpublished data: *www.nafo.int*). Using fisheries data and observer data, Simpson and Miri (2013) estimated bycatch in Canada's Newfoundland/Grand Banks Region (NAFO Division 3LNOP). From 2006–2010, bycatch averaged 19 mt (41,890 lb) per year (Simpson and Miri, 2013). Total reported landings, which includes directed and incidental catch, from NAFO fisheries averaged 43.2 mt (95,240 lb) per year from 2010–2014 (NAFO unpublished data as cited in Curtis *et al.*, 2016). These data are included in assessment and management of the Northwest Atlantic stock.

Underreporting of incidental catch is often noted as a concern (ICES/ICCAT, 2009; CITES, 2013; Simpson and Miri, 2013), particularly in high seas fisheries. The level of capture of porbeagle sharks in the high seas longline fisheries is unclear as there is non-reporting and generic reporting of sharks. However, the ICES/ICCAT (2009) assessment estimated the potential porbeagle shark catch based on observed catch ratios of porbeagle sharks to tuna and swordfish. For the Northwest Atlantic, this analysis indicated that unaccounted high seas longline catches were a minor portion of the total reported catch historically and that catches have been even smaller in recent years (ICES/ICCAT, 2009). The data on non-reporting in Southern Hemisphere fisheries are less certain, but there is little evidence that these catches would significantly alter stock assessments (Semba *et al.*, 2013; Francis *et al.*, 2014).

Recreational catch is minimal (NMFS, 2013). Harvests are extremely low in the United States, Canada, and New Zealand (CITES, 2009; WCPFC, 2014). Regulations in Canada and the United States limit the gear that is allowed to be used for sharks. Most porbeagle sharks caught in recreational fisheries are released with a small percentage being retained. In the United States, porbeagle sharks must be at least 4.5 ft (137 cm) fork length and one shark (porbeagle or other) per vessel per trip can be landed. Recreational gears in the United States are restricted to rod and reel and handline.

Estimates of the catch in the United States vary depending on the data source analyzed. Data on recreational catch are available through the Marine Recreational Fisheries Statistics Survey (MRFSS) and from the large pelagic survey (LPS). MRFSS is a generalized angler survey; LPS is a specialized survey focused on highly migratory species such as pelagic sharks and tunas. This specialization allows for a higher level of sampling needed to obtain more precise estimates. However, because of limited overlap in species distribution and recreational fishery effort, some species such as porbeagle sharks are less commonly encountered by recreational anglers (Curtis *et al.*, 2016). During the summer when fishing effort is higher, porbeagle sharks are distributed farther north and offshore. Due to these lower encounters, even the specialized surveys are not able to produce precise estimates of overall catch. Data from the LPS survey from 2010 through 2015 indicate that 15 porbeagle sharks were observed or reported as kept and 103 were observed or reported as released alive; none were observed or reported as released dead (NMFS, 2015).

When animals are captured and released, whether in commercial or recreational fisheries, it is important to understand at-vessel and post-release mortality. At-vessel mortality rate is the percentage of animals that are dead when retrieved from the fishing gear; post-release mortality refers to the percentage of animals that die after being released from fishing gear alive. Several researchers have evaluated at-vessel mortality, and mortality rates have varied. In several of the studies, at-vessel mortality in longline gear averaged around 20 percent (Marshall *et al.*, 2012; Griggs and Baird, 2013; Gallagher *et al.*, 2014; NMFS HMS Logbooks), while other studies have found higher rates up to approximately 44 percent (Francis *et al.*, 2004; Coelho *et al.*, 2012; Campana *et al.*, 2015), meaning that of the porbeagle sharks caught, 20–44 percent are dead when retrieved from the gear. Campana *et al.*, (2015) also evaluated post-release mortality rates as determined from PSAT studies. Healthy porbeagle sharks had a 10 percent post-release mortality rate, while injured porbeagle sharks had a 75 percent mortality rate. The overall mortality due to capture and discard mortality was then calculated as the sum of the post-release mortality rates for healthy and injured sharks, weighted by the frequency of injury as recorded by fisheries observers from 2010–2014, plus the observed frequency of dead sharks. Of porbeagle sharks reported by the observers, the mean annual percentage of injured sharks at release from pelagic longlines was 14.6 percent. Healthy sharks accounted for 41.6 percent. Applying the 75 percent mortality rate to the 14.6 percent injury rates and the 10 percent mortality rate to the 41.6 percent healthy sharks resulted in an overall post-release mortality rate of 27.2 percent. Total mortality includes both hooking and post-release mortality. In this study of the Canadian pelagic longline fishery, the mean at-vessel mortality was 43.8 percent. When combined with an overall post release mortality of live (healthy and injured sharks), this yielded an overall non-landed fishing mortality of 59 percent (Campana *et al.*, 2015).

Applying the 27 percent mean post-release mortality rate to the mean 20 percent mortality rate from the other studies suggests an average total mortality of approximately 47 percent. These studies suggest that there is great deal of variability in mortality rates. Survival rates are dependent on numerous factors, including soak time, handling, water temperature, shark size, shark sex, degree of injury, etc. (Campana *et al.*, 2015). The studies indicate a moderate to high risk of mortality to a porbeagle shark once it is hooked on longline gear (Curtis *et al.*, 2016). The elimination of most directed fisheries and reductions in catches are likely reducing overall fishing mortality. The status review concluded that, while it had been the primary threat, overutilization no longer appears to be a threat to the species' survival anywhere in its range. The ERA team ranked the threat as medium as it is likely that it contributes or will contribute to the decline of the species. Continued fishery management efforts are necessary to rebuild populations and prevent future declines (Curtis *et al.*, 2016).

The ERA team also considered whether any of the demographic factors or other threats would interact with this threat to increase its overall threat level. As described above, stocks have been overfished; however, fishing pressure has decreased, and overfishing is no longer occurring. Stocks have stabilized, and some are increasing. Under current management, stocks are projected to continue to recover. Therefore, this threat was ranked as medium. The threat from overutilization would be higher if there were threats due to inadequate regulation coupled with the life history of porbeagle sharks (low productivity). As described below, the inadequacy of existing regulations measures was determined to be a low risk by the ERA team for the North Atlantic DPS and medium for the Southern Hemisphere DPS. Regulatory mechanisms to protect porbeagle sharks are widespread and improving throughout their range. The porbeagle shark's inherently low productivity indicates that recovery from overutilization will take a long time, on the order of decades. After considering these factors, the ERA team concluded that the threat from overutilization would not significantly increase due to interactions with other risk factors. Therefore, the ERA team maintained the ranking of medium.

The only interactions with overutilization identified by the status review team were the inadequacy of regulatory mechanisms and the porbeagle shark's growth rate/productivity. However, we also evaluated potential interactions between overutilization and spatial structure/connectivity and overutilization and diversity. Risks associated with spatial structure/connectivity and diversity are both ranked very low for the North Atlantic and Southern Hemisphere DPSs. Porbeagle sharks are distributed broadly across both the North Atlantic and the Southern Hemisphere. The species is highly mobile, and, as described above, the available data indicate that there is connectivity within each DPS. The genetic studies also indicate that there is high genetic diversity and reproductive connectivity within each DPS. Genetic diversity appears to be sufficiently high and not indicative of isolated or depleted populations. Overutilization does not appear to have reduced the genetic diversity or limited the spatial distribution and connectivity. Given this and that the risk from both these factors is considered very low, interactions between these factors and overutilization would not increase the ranking from medium.

Disease and Predation: Disease and predation were ranked as very low risk for both DPSs. Porbeagle sharks are an apex predator residing at the top of the food web. Rarely, white sharks and orcas will prey on porbeagle sharks. However, predation on the species is very low. In general, sharks may be susceptible to diseases, but there is no evidence that disease has ever caused declines in shark populations (Curtis *et al.*, 2016). Sharks have shown occurrences of cancer, but rates are unknown (National Geographic, 2003). There is no evidence that either of these threats is negatively impacting either DPS.

Inadequacy of Existing Regulatory Mechanisms: This threat was ranked as low for the North Atlantic DPS and as medium for the Southern Hemisphere DPS. Porbeagle sharks are managed by Fisheries and Oceans Canada (DFO), NMFS, and the EU. Australia, New Zealand, Argentina, and Uruguay also manage porbeagle sharks in their waters. Several international organizations, including the North East Atlantic Fisheries Commission (NEAFC), NAFO, WCPFC, CCAMLR, and ICCAT, also work collaboratively on the science and management of this species. Porbeagle sharks are listed under several international conventions, including the UN Convention on the Law of the Sea (UNCLOS), the Barcelona Convention Protocol, the Bern Convention on the Conservation of European Wildlife and Habitats, the Convention for the Protection of the Marine Environment of the North-east Atlantic (OSPAR), the Bonn Convention on the Conservation of Migratory Species (CMS), and CITES.

Porbeagle sharks are listed under Annex I of UNCLOS which establishes conservation for highly migratory fish stocks on the high seas and encourages cooperation between nations on their management. Listings under Annex II of the Barcelona Convention, Appendix III of the Bern Convention, and Annex V of the OSPAR Convention are intended to protect porbeagle sharks and their habitats in the Northeast Atlantic and the Mediterranean Sea. The CMS Migratory Shark Memorandum of Understanding and Appendix II of CMS aim to enhance conservation of migratory sharks and require range states to coordinate management efforts for trans-boundary stocks. Inclusion under Appendix II of CITES results in regulation of trade and close monitoring. International trade must be non-detrimental to the survival of the stock. CCAMLR implemented a moratorium on all directed shark fishing in the Antarctic region in 2006 and encourages the live release of incidentally caught sharks. Under these governments, organizations and conventions, porbeagle sharks are currently one of the most widely protected sharks in the world.

Management efforts and regulations that benefit porbeagle sharks have increased in the United States, Canada, and other waters in recent years. In the United States, the shark must be landed with its fins naturally attached (which helps prevent the illegal practice of finning, as species identification is enhanced by the presence of fins which may facilitate identification for enforcement and data collection), a commercial fishing permit is required, and the fishery is regulated by a TAC that is adjusted annually based on any overharvests. Other measures in highly migratory species fisheries in the United States include retention limits, time/area closures, observer requirements, and reporting requirements. These measures are designed to prevent overfishing and allow an increase in biomass. Canada has closed the mating grounds to directed fisheries, and catch is regulated by a TAC limit that has been lowered in recent years. In 2013, Canada suspended the directed porbeagle shark fishery and will not resume it until the stock has sufficiently recovered (Canada/ICCAT 2014, Doc. No. PA4–810). Canada also has a national plan for the conservation and management of sharks and their long-term sustainable use. This plan outlines monitoring and management measures, including observer coverage and dockside monitoring. New Zealand and Australia have harvest quotas, and catches have been greatly reduced. Uruguay has also implemented fishing regulations for porbeagle sharks.

An ICCAT working paper from the 19th Special Meeting of ICCAT (CPC/ICCAT, 2015; Doc. No. COC 314/2014) summarizes how ICCAT members are implementing shark measures. Belize reported that they do not conduct scientific research for porbeagle sharks or catch them in the convention area; Japan reports that no tuna longline vessels are targeting porbeagle sharks and incidental catch is retained with all parts or released alive. The United Kingdom indicated that porbeagle sharks are rarely caught. Porbeagle sharks are a prohibited species in the EU and Turkey; there is no permitted harvest in these countries. Retention of porbeagle sharks has been prohibited in Uruguay since 2013. In 2015, ICCAT adopted additional measures that require all vessels promptly release unharmed porbeagle sharks when brought alive alongside the vessel and improved reporting, and encouraged research and monitoring to improve assessments. Similarly, NEAFC prohibited all directed fishing for porbeagle in the NEAFC area (high seas) by vessels flying their flag. Incidentally caught porbeagle sharks must be promptly released unharmed.

Domestic, regional, and international regulation designed to reduce catch and rebuild stocks have been broadly implemented. Directed porbeagle shark fisheries have been mostly eliminated, many fisheries require live release of incidentally caught animals, and trade restrictions have been implemented. This improved management has resulted in declining catches, and overfishing is not occurring. The ERA team ranked this factor as low for the North Atlantic population and as medium for the Southern Hemisphere, where there is less rigorous monitoring, reporting and enforcement of regulations resulting in more uncertainty in their effectiveness.

In both DPSs, this threat could interact with the medium threat of overutilization to increase the risk of extinction and with the demographic factor of slow population growth rates to increase the risk of extinction. The threat of overutilization has been reduced through improved management as has this threat. The shark's inherently low productivity means that recovery from past utilization will take decades, but this would not significantly increase the ranking of this threat as the current regulations have ended overfishing and stocks are rebuilding. The ERA team found that the significant interacting threats are being simultaneously reduced, supporting the low and medium rankings for the North Atlantic and Southern Hemisphere DPSs, respectively.

We also considered whether measures to protect the species (*e.g.*, closed areas, fishery restrictions, etc.) had been implemented effectively. With respect to the conservation measures described here, the measures have been implemented. Despite some uncertainties around the monitoring and enforcement of the measures in the Southern Hemisphere, both DPSs have stabilized and, in some areas are increasing. Therefore, regulations to reduce the threat of overutilization appear to be effective and are positively affecting the status of the porbeagle sharks in both DPSs.

Other Natural or Manmade Factors Affecting the Porbeagle's Continued Existence

Overall, this threat was ranked low for both DPSs. Genetic studies indicate that isolation is not a factor affecting this species in the North Atlantic. In the Southern Hemisphere, the population is widespread in a continuous circumglobal band, and there is no evidence that any of the populations in the Southern Hemisphere might be isolated. Given its migratory nature, isolation does not appear to be a factor impacting the porbeagle shark.

Low productivity has the potential to make the species more vulnerable to threats, but is considered in modelling and assessment and in management and conservation actions. Several Ecological Risk Assessments have evaluated the productivity of the porbeagle shark in terms of its vulnerability to certain fisheries. Results from these assessments have varied. Cortes *et al.*, (2010) and Murua *et al.*, (2012) found porbeagle sharks less vulnerable than other shark species to pelagic longline fisheries in the Atlantic and Indian Oceans, respectively. Cortes *et al.*, (2010) conducted a quantitative assessment that consisted of a risk analysis to evaluate the productivity of the stocks and a susceptibility analysis to assess their propensity to capture and mortality in pelagic longline fisheries. In this assessment, vulnerability considered both productivity and susceptibility to evaluate relative risk. They found that porbeagle sharks were less vulnerable than other shark species to pelagic longlines in the Atlantic Ocean (Cortes *et al.*, 2010). Murua *et al.*, (2012) also ranked the vulnerability of porbeagle sharks based on the productivity and susceptibility to fishing gear. In the Indian Ocean, porbeagle ranked eight (rankings 1–16 with lower numbers being more vulnerable (Murua *et al.*, 2012)). SCRS (2014) reported on a risk assessment carried out for 20 stocks of pelagic sharks, finding porbeagle sharks to rank fourth in vulnerability (1 being most vulnerable) to pelagic longline gear. The Ecological Risk Assessment conducted by the committee was a quantitative assessment consisting of a risk analysis to evaluate productivity and susceptibility of stocks in the Atlantic to being caught in pelagic longline gear (SCRS, 2014; Cortes *et al.*, 2015).

The results of an ecological risk assessment are used to determine a species' vulnerability to a specific fishery and can be a first step in the assessment process. Although a risk assessment considering a specific vulnerability may rank porbeagle sharks higher than other sharks in some respects, this is not necessarily an indicator of a high risk of extinction. Thus, results of stock assessments, which incorporate additional and more quantitative sources of information than ERAs, should generally outweigh the qualitative outputs from ERAs when available.

Global climate change, including warming and acidification, is unlikely to substantially impact porbeagle populations. The species has an inherently high adaptive capacity. They are highly mobile, have a broad temperature tolerance, and have a generalist diet. They are highly likely to adapt to changing conditions. Chin *et al.*, (2010) found that continental shelf- and pelagic sharks have a low overall vulnerability to climate change.

In an assessment of 82 Northeast U.S. fishery species, Hare *et al.*, (2016) found that porbeagle sharks have, on a scale of low to very high, a high vulnerability to climate change. Exposure to warming ocean temperatures and ocean acidification was considered high for most species in this region (Hare *et al.*, 2016). This high sensitivity was influenced by the porbeagle shark's low productivity and overfished status. Most other sensitivity attributes, including habitat and prey specificity, mobility, early life history requirements, were considered to be low for porbeagle sharks (Hare *et al.*, 2016). Therefore, we expect the overall vulnerability to drop as populations rebuild. Hare *et al.*, (2016) indicated that the overall climate vulnerability ranking would drop to moderate if the poor stock status is removed as a factor. In addition, the mobility and temperature tolerances of the species are expected to limit the impacts from climate change. The distribution of porbeagle sharks may shift away from the northeast United States with climate change; its overall population is likely to persist (Curtis *et al.*, 2016). Due to their high mobility and temperature tolerances, the overall directional effect of climate changes was considered to be neutral (Hare *et al.*, 2016).

This threat may interact with the threat of overutilization and the demographic factor of low population growth rates. Since overutilization is being reduced through improved management, which takes into account the porbeagle shark's life history (*e.g.,* restricting directed fishing in mating areas), this threat is expected to remain as low for both DPSs.

Summary of Demographic Factors and Threats Affecting Porbeagle Sharks

Both demographic factors and threats were ranked on a scale from very low to very high by the ERA team members. For the demographic factors, diversity and spatial structure/connectivity were ranked very low for each DPS, abundance was ranked low for each DPS, and growth rate/productivity was ranked medium for each DPS. For the threats, habitat destruction, modification, or curtailment and disease or predation were both ranked very low for each DPS; inadequacy of existing regulation mechanisms was ranked low for the North Atlantic DPS and other natural or manmade threats was ranked low for each DPS; overutilization was ranked medium for each DPS and inadequacy of existing regulation mechanisms was ranked medium for the Southern Hemisphere DPS. No demographic factors or threats were ranked high or very high.

The only demographic factor ranked above low was growth rate/productivity. The porbeagle shark's life history traits make the populations vulnerable to threats and slow to recover from depletion. The only threats ranked above low are overutilization (both DPSs) and inadequacy of existing regulatory mechanisms (Southern Hemisphere DPS). These threats are ranked as medium. Recent management efforts across the globe have reduced fishing mortality. There are a number of countries or organizations that restrict the harvest of porbeagle sharks. Due to these efforts, stocks are no longer declining and most have begun to recover. Given their life history traits, recovery is likely to take decades, but demographic risks are mostly low and significant threats have been reduced. The inadequacy of existing regulatory mechanisms for the Southern Hemisphere DPS was ranked medium due to uncertainties in monitoring, reporting, and enforcement of regulations when compared to the North Atlantic, suggesting the Southern Hemisphere DPS may be more vulnerable to this threat.

Overall Risk Summary

As described, the ERA team used a ''likelihood analysis'' to evaluate the overall risk of extinction. The ERA team did not find either DPS to be at high risk of extinction as no team members assigned points to this category. For the North Atlantic DPS, the current level of extinction risk was 7.5 percent likelihood of moderate risk, 80 percent likelihood of low risk, and 12.5 percent likelihood of not at risk. For the foreseeable future, the ERA team found that the level of moderate risk remained the same, the level of low risk decreased to 62.5 percent and the not-at-risk level increased to 30 percent. For the Southern Hemisphere population, the current levels were 25 percent likelihood of moderate risk, 72.5 percent likelihood of low risk, and 2.5 percent likelihood of not at risk. Similar to the North Atlantic DPS, the level of moderate risk for the Southern Hemisphere DPS remained at 25 percent in the foreseeable future; the low risk decreased to 70 percent, and the not at risk category increased to 5 percent.

While these numbers reflect the percentage of risk assigned to each category, we also evaluated the points assigned to each category by individual team members to better understand the risk. Each individual team member assigned 10 points across the risk categories. As described above, no points were assigned to the high risk category for the North Atlantic DPS for the current or foreseeable future categories of risk. In the North Atlantic DPS, no more than 1 point was assigned by any individual to the moderate risk currently or in the foreseeable future. Each team member assigned eight points to the low risk category and one or two points to the not at risk category for the current risk. For the foreseeable future, team members assigned 4 to 8 points to the 'low risk' and 1 to 6 to the 'not at risk' categories.

As with the North Atlantic DPS, each team member assigned 10 points across the four categories for the Southern Hemisphere DPS. No team member assigned points to the high risk category for this DPS for either the current or foreseeable future level of risk. For the current level of extinction risk, team members each assigned 2–3 points to the moderate category and 7–8 points to the low category; one team member assigned a single point to the not at risk category. For the level of risk through the foreseeable future, team members assigned 1–4 points to the moderate category and 6–8 points to the low category; two team members each assigned one point to the not at risk category.

The ERA team determined that, overall, both DPSs are at low risk of extinction. While the overall risk is low, there is some likelihood of a moderate risk of extinction, especially in the Southern Hemisphere DPS. The scoring, along with the information in the status review, indicates that the moderate level of risk in the Southern Hemisphere population is due to the uncertainty in current stock status and projections for the Southern Hemisphere, and more uncertainty about the adequacy of current and future regulatory mechanisms, including fishery monitoring, reporting, and enforcement in that region. In addition, generation times are longer in the Southern Hemisphere and the DPS is potentially more vulnerable to depletion. Populations with longer generation times and low productivity cannot rebound as quickly as populations with short generation times and high productivity. Considering the factors and despite the uncertainty, each team member assigned the majority of the points to the low risk category, resulting in 75 percent of the points being assigned to the low/not at risk categories. Based on this, we conclude that, while there is some uncertainty, the Southern Hemisphere DPS is at low risk of extinction currently and in the foreseeable future. We also conclude that the North Atlantic DPS is at low risk of extinction currently and in the foreseeable future.

The ERA team noted that there is a higher likelihood that the North Atlantic DPS is at low risk of extinction than the Southern Hemisphere DPS. Despite these concerns, they still agreed that there was a much greater likelihood of Southern Hemisphere porbeagle sharks having an overall low risk of extinction. For both DPSs, the ERA team determined that overall extinction risk is likely to be lower in the foreseeable future (40 years) than it is currently, due to improved management and recent indications of population recoveries. This decrease in risk in the foreseeable future is reflected in the decrease in the percentages in the low level category and the increases in the not at risk category. This shift, while relatively small in the Southern Hemisphere, indicates that the porbeagle population will face fewer threats and populations will grow, provided effective management continues to be implemented. Recovery is likely to take decades, but the demographic risks are mostly low, and significant threats have been reduced.

We have independently reviewed the best available scientific and commercial information, including the status review report (Curtis *et al.,* 2016) and other published and unpublished information. We concluded that the two DPSs are not in danger of extinction or likely to become so in the foreseeable future throughout their ranges. As described earlier, an endangered species is ''any species which is in danger of extinction throughout all or a significant portion of its range'' and a threatened species is one ''which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' The ERA team ranked the demographic criteria and the five factors identified in the ESA and completed an assessment of overall risk of extinction. The ERA team provided this information to us to determine whether listing is warranted. We reviewed the results of the ERA and concurred with the team's conclusions regarding extinction risk. We then applied the statutory definitions of ''threatened species'' and ''endangered species'' to determine if listing either of the DPSs based on the ERA results and other available information is warranted.

The ERA team concluded that the level of extinction risk to the North Atlantic DPS is low, with 92.5 percent of its likelihood points allocated to the ''low risk'' or ''not at risk'' category, both now and in the foreseeable future. Furthermore, the percentage assigned to the ''not at risk'' category increased for the foreseeable future, while the percentage assigned to the ''low risk'' category decreased. The ERA team allocated only 7.5 percent of its likelihood points to the ''moderate extinction risk'' category, both now and in the foreseeable future. Given this low level of risk and an evaluation of the demographic parameters and threats, we have determined that this DPS does not meet the definition of an endangered or threatened species and, as such, listing under the ESA is not warranted at this time.

The ERA team concluded that the Southern Hemisphere DPS was at low risk of extinction, though their distribution of likelihood points indicates that there was some uncertainty about this. However, 75 percent of the likelihood points were allocated to the ''low risk'' or ''not at risk of extinction'' category. The ERA Team's uncertainty about the level of risk is due to some uncertainty in the stock status, projections, and fishery monitoring/enforcement. Described in detail elsewhere, the primary threat to porbeagle sharks is overfishing. Strict management measures have been implemented to minimize this threat and, given that abundance and biomass have stabilized, these measures appear to be effective in addressing the threat. In addition, the available information indicates that the current population, while reduced from known historical levels, is sufficient to maintain population viability. We agree with the ERA Team's conclusions, and, therefore, we conclude that this DPS does not warrant listing as threatened or endangered under the ESA at this time.

We also considered the risk of extinction of porbeagle sharks throughout their range. As described above, porbeagle sharks are found in both the Northern and Southern Hemispheres. There is no evidence that this range has contracted or that there has been any loss of habitat. The abundance and biomass have stabilized and in many areas are increasing. As indicated above, overfishing is the primary threat to the species throughout its range. Regulations, both domestic and international, have been put in place across the range and overfishing is not occurring. As the primary threat has been reduced, the population has stabilized, and neither of the DPSs are threatened or endangered, we have concluded that the species as a whole is not threatened or endangered.

Significant Portion of Its Range

Though we find that the porbeagle shark, the North Atlantic DPS of the porbeagle shark, and the Southern Hemisphere DPS of the porbeagle shark (all of which are considered ''species'' under the ESA) are not in danger of extinction now or in the foreseeable future, under the SPR Policy, we must go on to evaluate whether these species are in danger of extinction, or likely to become so in the foreseeable future, in a ''significant portion of its range'' (79 FR 37578; July 1, 2014).

When we conduct an SPR analysis, we first identify any portions of the range that warrant further consideration. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that are not reasonably likely to be significant or in which a species may not be endangered or threatened. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that (1) the portions may be significant and (2) the species may be in danger of extinction in those portions or likely to become so within the foreseeable future. We emphasize that answering these questions in the affirmative is not a determination that the species is endangered or threatened throughout a significant portion of its range—rather, it is a step in determining whether a more detailed analysis of the issue is required (79 FR 37578, July 1, 2014). Making this preliminary determination triggers a need for further review, but does not prejudge whether the portion actually meets these standards such that the species should be listed.

If this preliminary determination identifies a particular portion or portions for potential listing, those portions are then fully evaluated under the ''significant portion of its range'' authority as to whether the portion is *both* biologically significant *and* endangered or threatened. In making a determination of significance, we consider the contribution of the individuals in that portion to the viability of the species. That is, we determine whether the portion's contribution to the viability is so important that, without the members in that portion, the species would be in danger of extinction or likely to become so in the foreseeable future.

The SPR policy further explains that, depending on the particular facts of each situation, NMFS may find it is more efficient to address the significance issue first, but in other cases it will make more sense to examine the status of the species in the potentially significant portions first. Whichever question is asked first, an affirmative answer is required to proceed to the second question. *Id.* ''[I]f we determine that a portion of the range is not 'significant,' we will not need to determine whether the species is endangered or threatened there; if we determine that the species is not endangered or threatened in a portion of its range, we will not need to determine if that portion is 'significant''' (79 FR 37587). Thus, if the answer to the first question is negative—whether it addresses the significance question or the status question—then the analysis concludes, and listing is not warranted.

As described elsewhere, the ERA team determined that there are two DPSs of porbeagle shark. Therefore, we will apply the SPR policy to the North Atlantic DPS, the Southern Hemisphere DPS, and the taxonomic species separately. The first step in applying the SPR policy is to identify portions of the range that may be significant and in which the species may be threatened or endangered.

In the North Atlantic DPS, we preliminarily identified two portions for further consideration—the western North Atlantic and the Mediterranean

Sea. Porbeagle sharks in the western North Atlantic may be more susceptible to threats than those in the eastern North Atlantic given that the western area includes known and suggested locations for mating and pupping (birthing). In addition, Campana *et al.* (2015b) identify Emerald Basin off Nova Scotia, Canada, as a potential sensitive life history area at least in the fall. Emerald Basin is an area with high densities of juveniles (Campana *et al.,* 2015b). The available research indicates that mating occurs in at least two locations. The first mating ground identified is on the Grand Banks, off southern Newfoundland and at the entrance to the Gulf of St. Lawrence. A second mating ground was identified on Georges Bank, based on high catch rates and similar aggregations of mature females that did not appear to be feeding (Campana *et al.,* 2010b). Research also suggests that there may be a pupping ground in the Sargasso Sea (Campana *et al.,* 2010a). Transmissions were received from 21 PSATs applied in the summer to porbeagle sharks off the eastern coast of Canada between 2001 and 2008. While males and immature sharks remained in the cool temperate water, all tagged mature females exited these waters by December, swimming to the Sargasso Sea. Pupping was strongly suggested based on the observation that only the sexually mature females made the migration and the residency in the Sargasso Sea overlapped with the known pupping period (Campana *et al.,* 2010a). However, pupping was not directly observed, only logically inferred from the tagging data. Both the mating and pupping stages of the life history can concentrate the species in specific areas making them more vulnerable to threats in those areas.

In order to determine whether the western North Atlantic constitutes a significant portion of the North Atlantic DPS' range, we first examined whether this portion of the range is biologically significant. A portion of the range of a species is ''significant'' if the portion's contribution to the viability of the species is so important that, without the members of that portion, the species would be in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range. As described above, this portion of the porbeagle range includes known mating and presumed pupping areas. These areas are important to the continued existence of the North Atlantic DPS as they allow for recruitment into the population. Recruitment into the population must occur for it to increase. While similar mating areas likely exist in the Northeast Atlantic, these areas have not yet been described. In addition, the loss of porbeagle sharks in the western North Atlantic would result in a significant gap in the distribution of the North Atlantic DPS as this is a relatively large area relative to the spatial distribution throughout the North Atlantic. We have concluded that the western North Atlantic portion is a significant portion of the North Atlantic DPS under the SPR policy.

Next, we examined whether porbeagle sharks were endangered or threatened in the western North Atlantic portion. As described elsewhere, the primary threat to porbeagle sharks is fishing. In the mating areas, there is no directed fishery for porbeagle sharks. Similarly, there is no directed fishing in the area of Emerald Basin. Porbeagle sharks may be incidentally caught in other fisheries. In the Sargasso Sea (presumed to be a pupping area), tagged sharks undertook multiple ascents and descents between 50 and 850 m (164 and 2,789 ft) in waters between 8 and 23 °C (46 and 73 °F). The mean daily depth in April and May was 480 m (1,575 ft) indicating that most of the pupping period was spent at depth (Campana *et al.,* 2010), which would limit the interactions with anthropogenic threats. While individual porbeagle sharks may be caught as bycatch in fisheries on the mating grounds or in fisheries in the Sargasso Sea, the population in the Northwest Atlantic is increasing (see abundance and trends above). If fisheries in these areas were impacting the species to the extent that they are threatened or endangered, we would not expect the population to continue to grow. That is, impacting essential life history needs such as mating or pupping would result in less recruitment to the population, which would be reflected in the overall population trend. Accordingly, the primary threat in these areas is being addressed by existing regulatory measures, precluding directed fisheries in the areas. There are no other known significant threats in these areas. Based on an evaluation of threats in the areas, the population data, and life history of the species, we have determined that porbeagle sharks in the western North Atlantic are not threatened or endangered.

The second portion of the North Atlantic DPS' range identified as potentially significant under the SPR Policy is the Mediterranean Sea. Porbeagle shark abundance in the Mediterranean Sea is low, making them more vulnerable to threats in this area. As described elsewhere, the main threat to the species in the North Atlantic is fishing. In the Mediterranean Sea, catch rates are low. However, the available data suggest that porbeagle sharks were historically uncommon in this area. In addition, the Mediterranean Sea represents a small portion of the range of the North Atlantic DPS, which is found in the Mediterranean Sea and the North Atlantic. Given that porbeagle sharks are widely distributed and highly mobile within the North Atlantic, we did not find that the loss of the Mediterranean Sea portion of the range would severely fragment and isolate the population to a point where individuals would be prevented from moving to suitable habitats or would have an increased vulnerability to threats. We also did not find that the loss of this portion would result in a level of abundance for the remaining North Atlantic population that would to be so low or variable that it would cause the DPS to be at an increased risk of extinction due to environmental variation, anthropogenic perturbations, or depensatory processes. With mixing between the Northeast Atlantic and Mediterranean Sea animals, we would also expect that increases in the population in the Northeast Atlantic would have positive impacts on the population in the Mediterranean Sea as individuals may move from the Northeast Atlantic to the Mediterranean Sea. There is no substantial evidence that the loss of the Mediterranean portion of its range would isolate the North Atlantic DPS such that the remaining populations would be at risk of extinction from demographic processes. As described elsewhere, genetic data show that there is mixing between the populations across the North Atlantic. If this portion were lost, we would not expect it to result in a loss of genetic diversity in the DPS as a whole. Overall, we did not find any evidence to suggest that this portion of the range has increased importance over any other with respect to the species' survival. Given that porbeagle abundance is historically low in the Mediterranean Sea, that the Mediterranean Sea represents a small portion of the North Atlantic DPS' range, that mixing occurs between the Mediterranean Sea and the Northeast Atlantic, and that there is no evidence to suggest that the loss of the Mediterranean Sea portion would result in the remainder of the North Atlantic DPS being endangered or threatened, we have determined that this area does not represent a significant part of the North Atlantic DPS' range. Given that the portion is not significant, the question of whether it is endangered or threatened in this area is not addressed.

The other DPS considered under the SPR policy is the Southern Hemisphere DPS. Porbeagle sharks in the Southern Hemisphere are found in a continuous band around the globe, and the genetic data indicate that this population is mixing. For management purposes, ICCAT has identified two stocks in the South Atlantic. There may also be an Indo-Pacific stock. However, stock boundaries in the Southern Hemisphere remain unclear (Curtis *et al.,* 2016). As with the North Atlantic DPS, the greatest threat to porbeagle sharks in the Southern Hemisphere is fishing. Threats from fishing are likely more concentrated closer to the coast. However, there is no evidence that porbeagle sharks face a higher risk of extinction in one area of the Southern Hemisphere over any other. Under the SPR policy, we could not identify, in the preliminary analysis, any portion of the porbeagle shark's range in the Southern Hemisphere DPS that may be significant and in which members of the species may be endangered or threatened. As we did not find evidence to suggest that any one portion of the range has increased importance over any other with respect to that species' survival, no further analysis under the SPR policy was conducted.

Finally, we also considered whether there is any portion of the range of the taxonomic species that could be considered significant under the SPR Policy and that is threatened or endangered. Two portions of the range of the species could be considered significant: The North Atlantic DPS and the Southern Hemisphere DPS. However, as we described above in our extinction risk analysis, these two DPSs are not in danger of extinction throughout their ranges or likely to become so in the foreseeable future. Therefore, there is no need to consider further whether any of these two DPSs constitute significant portions of the species' range.

Final Determination

Section 4(b)(1) of the ESA requires that listing determinations be based solely on the best scientific and commercial data available after conducting a review of the status of the species and taking into account those efforts, if any, being made by any state or foreign nation, or political subdivisions thereof, to protect and conserve the species. We have independently reviewed the best available scientific and commercial information, including the petition, public comments submitted in response to the 90-day finding (80 FR 16356; March 27, 2015), the status review report (Curtis *et al.,* 2016), and other published and unpublished information, and we have consulted with species experts and individuals familiar with porbeagle sharks. We identified two DPSs of the porbeagle shark: The North Atlantic DPS and the Southern Hemisphere DPS. We considered each of the Section 4(a)(1) factors to determine whether it contributed significantly to the extinction risk of each DPS on its own. We also considered the combination of those factors to determine whether they collectively contributed significantly to the extinction risk of the DPSs. As previously explained, we could not identify any portion of either DPS' range that met both criteria of the SPR policy. Therefore, our determination set forth below is based on a synthesis and integration of the foregoing information, factors and considerations, and their effects on the status of the species throughout each DPS.

We conclude that neither the North Atlantic nor Southern Hemisphere DPS of porbeagle shark is presently in danger of extinction, nor is it likely to become so in the foreseeable future throughout all or a significant portion of its range. We summarize the factors supporting this conclusion as follows: (1) The species is broadly distributed over a large geographic range within each hemisphere, with no barrier to dispersal within each DPS; (2) genetic data indicate that, within each DPS, populations are not isolated, have high genetic diversity, and reproductive connectivity; (3) there is no evidence of a range contraction, and there is no evidence of habitat loss or destruction; (4) while the species possesses life history characteristics that increase its vulnerability to overutilization, overfishing is not currently occurring within the range of either the North Atlantic or Southern Hemisphere DPS; (5) the best available information indicates that abundance and biomass has stabilized in the Southern Hemisphere and is increasing in the North Atlantic; (6) while the current population size in both DPSs has declined from historical numbers, the population sizes are sufficient to maintain population viability into the foreseeable future and consist of at least hundreds of thousands of individuals; (7) the main threat to the species is fishery-related mortality from incidental catch; however, there are strict management requirements in place to minimize this threat in many areas of the North Atlantic and Southern Hemisphere, and these measures appear to be effective in addressing this threat; (8) porbeagle shark's high mobility, broad temperature tolerance, and generalist habitat and opportunistic diet limit potential impacts from climate change; (9) directional effects of climate change are expected to be neutral; (10) there is no evidence that disease or predation is contributing to increasing the risk of extinction of either DPS; and (11) there is no evidence that either DPS is currently suffering from depensatory processes (such as reduced likelihood of finding a mate or mate choice or diminished fertilization and recruitment success) or is at risk of extinction due to environmental variation or anthropogenic perturbations.

Based on these findings, we conclude that the North Atlantic and Southern Hemisphere DPSs of the porbeagle shark are not currently in danger of extinction throughout all or a significant portion of their ranges, nor are they likely to become so within the foreseeable future. We have further concluded that the species as a whole is not currently in danger of extinction throughout all or a significant portion of its range nor is it likely to become so in the foreseeable future. Accordingly, the porbeagle shark does not meet the definition of a threatened or endangered species and, thus, does not warrant listing as threatened or endangered at this time.

Porbeagle sharks from Newfoundland, Canada to Massachusetts, and seasonally to New Jersey, were identified as a NMFS ''species of concern'' in 2006. A species of concern is one for which we have concerns regarding status and threats but for which insufficient information is available to indicate a need to list the species under the ESA. In identifying species of concern, we consider demographic and genetic diversity concerns; abundance and productivity; distribution; life history characteristics and threats to the species. Given the information presented in the status review and the findings of this listing determination, we are removing the designation of species of concern for porbeagle sharks in the North Atlantic DPS. This is a final action, and, therefore, we do not solicit comments on it.

Classification

National Environmental Policy Act

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing. Based on this limitation of criteria for a listing decision and the opinion in *Pacific Legal Foundation* v. *Andrus,* 675 F. 2d 825 (6th Cir. 1981), we have concluded that ESA listing actions are not subject to the environmental assessment requirements of the National Environmental Policy Act (See NOAA Administrative Order 216–6).

References

A complete list of all references cited herein is available upon request (see **FOR FURTHER INFORMATION CONTACT**).

Authority

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

Dated: July 25, 2016.

Samuel D. Rauch III,

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

[FR Doc. 2016–18101 Filed 7–29–16; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Availability of Seats for National Marine Sanctuary Advisory Councils

AGENCY: Office of National Marine Sanctuaries (ONMS), National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC).

ACTION: Notice and request for applications.

SUMMARY: ONMS is seeking applications for vacant seats for eight of its 13 national marine sanctuary advisory councils and Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council (advisory councils). Vacant seats, including positions (*i.e.,* primary member and alternate), for each of the advisory councils are listed in this notice under **SUPPLEMENTARY INFORMATION**. Applicants are chosen based upon their particular expertise and experience in relation to the seat for which they are applying; community and professional affiliations; views regarding the protection and management of marine or Great Lake resources; and possibly the length of residence in the area affected by the sanctuary. Applicants chosen as members or alternates should expect to serve two or three year terms, pursuant to the charter of the specific national marine sanctuary advisory council or Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council.

DATES: Applications are due before or by Wednesday, August 31, 2016.

ADDRESSES: Application kits are specific to each advisory council. As such, application kits must be obtained from and returned to the council-specific addresses noted below.

- Channel Islands National Marine Sanctuary Advisory Council: Jessica Morten, NOAA Channel Islands National Marine Sanctuary, University of California, Santa Barbara, Ocean Science Education Building 514, MC 6155, Santa Barbara, CA 93106; 805–893–6433; email *Jessica.Morten@noaa.gov;* or download applications from *http://channelislands.noaa.gov/sac/council_news.html.*
- Cordell Bank National Marine Sanctuary Advisory Council: Lilli Ferguson, Cordell Bank National Marine Sanctuary, P.O. Box 159, Olema, CA 94950; 415–464–5265; email *Lilli.Ferguson@noaa.gov;* or download applications from *http://cordellbank.noaa.gov.*
- Florida Keys National Marine Sanctuary Advisory Council: Beth Dieveney, Florida Keys National Marine Sanctuary, 33 East Quay Road, Key West, FL 33040; 305–809–4710; email *Beth.Dieveney@noaa.gov;* or download applications from *http://floridakeys.noaa.gov/sac/welcome.html?s=sac.*
- Greater Farallones National Marine Sanctuary Advisory Council: Carolyn Gibson, Greater Farallones National Marine Sanctuary, 991 Marine Drive, The Presidio, San Francisco, CA 94129; 415–970–5252; email *Carolyn.Gibson@noaa.gov*; or download applications from *http://farallones.noaa.gov/manage/sac.html.*
- Hawaiian Islands Humpback Whale National Marine Sanctuary Advisory Council: Shannon Ruseborn, NOAA Inouye Regional Center, NOS/ONMS/HIHWNMS/Shannon Ruseborn, 1845 Wasp Boulevard, Building 176, Honolulu, HI 96818; 808–725–5905; email *Shannon.Ruseborn@noaa.gov;* or download applications from *http://hawaiihumpbackwhale.noaa.gov/council/council_app_accepting.html.*
- *Monitor* National Marine Sanctuary Advisory Council: William Sassorossi, *Monitor* National Marine Sanctuary, 100 Museum Drive, Newport News, VA 23606; 757–591–7329; email *William.Sassorossi@noaa.gov;* or download applications from *http://monitor.noaa.gov/advisory/news.html.*
- National Marine Sanctuary of American Samoa Advisory Council: Joseph Paulin, National Marine Sanctuary of American Samoa, Tauese P.F. Sunia Ocean Center, P.O. Box 4318, Pago Pago, American Samoa 96799; 684–633–6500 extension 226; email *Joseph.Paulin@noaa.gov;* or download applications from *http://americansamoa.noaa.gov/.*
- Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council: Allison Ikeda, NOAA Inouye Regional Center, NOS/ONMS/PMNM/Allison Ikeda, 1845 Wasp Boulevard, Building 176, Honolulu, HI 96818; 808–725–5818; email *Allison.Ikeda@noaa.gov;* or download applications from *www.papahanaumokuakea.gov/council.*
- Stellwagen Bank National Marine Sanctuary Advisory Council: Elizabeth Stokes, Stellwagen Bank National Marine Sanctuary, 175 Edward Foster Road, Scituate, MA 02066; 781–545–8026 extension 201; email *Elizabeth.Stokes@noaa.gov;* or download applications from *http://stellwagen.noaa.gov/.*

FOR FURTHER INFORMATION CONTACT: For further information on a particular national marine sanctuary advisory council, please contact the individual identified in the **ADDRESSES** section of this notice.

SUPPLEMENTARY INFORMATION: ONMS serves as the trustee for a network of underwater parks encompassing more than 170,000 square miles of marine and Great Lakes waters from Washington state to the Florida Keys, and from Lake Huron to American Samoa. The network includes a system of 13 national marine sanctuaries and Papahānaumokuākea and Rose Atoll marine national monuments. National marine sanctuaries protect our nation's most vital coastal and marine natural and cultural resources, and through active research, management, and public engagement, sustain healthy environments that are the foundation for thriving communities and stable economies. One of the many ways ONMS ensures public participation in the designation and management of national marine sanctuaries is through the formation of advisory councils. National marine sanctuary advisory councils are community-based advisory groups established to provide advice and recommendations to the superintendents of the national marine sanctuaries and Papahānaumokuākea Marine National Monument on issues including management, science, service, and stewardship; and to serve as liaisons between their constituents in the community and the sanctuary. Additional information on ONMS and its advisory councils can be found at *http://sanctuaries.noaa.gov.* Materials related to the purpose, policies, and operational requirements for advisory councils can be found in the charter for a particular advisory council (*http://*