general applicability date under paragraph (d)(1) of this section.

(5) *Elective application of definition of political subdivision.* An issuer may choose to apply the definition of political subdivision in paragraph (c) of this section to an issue of bonds in circumstances in which that section otherwise would not apply to that issue under paragraph (d)(2) or (3) of this section, provided that choice is applied consistently to the issue. An entity may choose to apply the definition of political subdivision in paragraph (c) of this section to an entity in circumstances in which that section otherwise would not apply to that entity under paragraph (d)(4) of this section, provided that choice is applied consistently to the entity.

John Dalrymple,

Deputy Commissioner for Services and Enforcement.

[FR Doc. 2016–03790 Filed 2–22–16; 8:45 am]

BILLING CODE 4830–01–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 223 and 224

[Docket No. 160105011–6011–01]

RIN 0648–XE390

Endangered and Threatened Wildlife; 90-Day Finding on a Petition To List Three Manta Rays as Threatened or Endangered Under the Endangered Species Act

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

ACTION: 90-day petition finding; request for information.

SUMMARY: We, NMFS, announce a 90-day finding on a petition to list three manta rays, identified as the giant manta ray (*Manta birostris*), reef manta ray (*M. alfredi*), and Caribbean manta ray (*M. c.f. birostris*), range-wide or, in the alternative, any identified distinct population segments (DPSs), as threatened or endangered under the Endangered Species Act (ESA), and to designate critical habitat concurrently with the listing. We find that the petition and information in our files present substantial scientific or commercial information indicating that the petitioned action may be warranted for the giant manta ray and the reef manta ray. We will conduct a status review of these species to determine if the petitioned action is warranted. To ensure that the status review is comprehensive, we are soliciting scientific and commercial information pertaining to these two species from any interested party. We also find that the petition and information in our files does not present substantial scientific or commercial information indicating that the Caribbean manta ray is a taxonomically valid species or subspecies for listing, and, therefore, it does not warrant listing at this time.

DATES: Information and comments on the subject action must be received by April 25, 2016.

ADDRESSES: You may submit comments, information, or data on this document, identified by the code NOAA–NMFS–2016–0014, by either any of the following methods:

- *Electronic Submissions:* Submit all electronic public comments via the Federal eRulemaking Portal. Go to *www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2016-0014.* Click the ''Comment Now'' icon, complete the required fields, and enter or attach your comments.
- *Mail:* Submit written comments to Maggie Miller, NMFS Office of Protected Resources (F/PR3), 1315 East-West Highway, Silver Spring, MD 20910, USA.

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

Copies of the petition and related materials are available on our Web site at *http://www.fisheries.noaa.gov/pr/species/fish/manta-ray.html.*

FOR FURTHER INFORMATION CONTACT: Maggie Miller, Office of Protected Resources, 301–427–8403.

SUPPLEMENTARY INFORMATION:

Background

On November 10, 2015, we received a petition from Defenders of Wildlife to list the giant manta ray (*M. birostris*), reef manta ray (*M. alfredi*) and Caribbean manta ray (*M. c.f. birostris*) as threatened or endangered under the ESA throughout their respective ranges, or, as an alternative, to list any identified DPSs as threatened or endangered. The petition also states that if the Caribbean manta ray is determined to be a subspecies of the giant manta ray and not a distinct species, then we should consider listing the subspecies under the ESA. However, if we determine that the Caribbean manta ray is neither a species nor a subspecies, then the petition requests that we list the giant manta ray, including all specimens in the Caribbean, Gulf of Mexico and southeastern United States, under the ESA. The petition requests that critical habitat be designated concurrently with listing under the ESA. Copies of the petition are available upon request (see **ADDRESSES**).

ESA Statutory, Regulatory, and Policy Provisions and Evaluation Framework

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

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

ESA-implementing regulations issued jointly by NMFS and USFWS (50 CFR 424.14(b)) define ''substantial information'' in the context of reviewing a petition to list, delist, or reclassify a species as the amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted. In evaluating whether substantial information is contained in a petition, the Secretary must consider whether the petition: (1) Clearly indicates the administrative measure recommended and gives the scientific and any common name of the species involved; (2) contains detailed narrative justification for the recommended measure, describing, based on available information, past and present numbers and distribution of the species involved and any threats faced by the species; (3) provides information regarding the status of the species over all or a significant portion of its range; and (4) is accompanied by the appropriate supporting documentation in the form of bibliographic references, reprints of pertinent publications, copies of reports or letters from authorities, and maps (50 CFR 424.14(b)(2)).

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

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

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

Many petitions identify risk classifications made by nongovernmental organizations, such as the International Union on the Conservation of Nature (IUCN), the American Fisheries Society, or NatureServe, as evidence of extinction risk for a species. Risk classifications by other organizations or made under other Federal or state statutes may be informative, but such classification alone may not provide the rationale for a positive 90-day finding under the ESA. For example, as explained by NatureServe, their assessments of a species' conservation status do ''not constitute a recommendation by NatureServe for listing under the U.S. Endangered Species Act'' because NatureServe assessments ''have different criteria, evidence requirements, purposes and taxonomic coverage than government lists of endangered and threatened species, and therefore these two types of lists should not be expected to coincide'' (*http://www.natureserve.org/prodServices/pdf/NatureServeStatusAssessmentsListing-Dec%202008.pdf*). Additionally, species classifications under IUCN and the ESA are not equivalent; data standards, criteria used to evaluate species, and treatment of uncertainty are also not necessarily the same. Thus, when a petition cites such classifications, we will evaluate the source of information that the classification is based upon in light of the standards on extinction risk and impacts or threats discussed above.

Taxonomy of the Petitioned Manta Rays

The petition identifies three manta ray ''species'' as eligible for listing under the ESA: The giant manta ray (*M. birostris*), reef manta ray (*M. alfredi*), and Caribbean manta ray (*M. c.f. birostris*). *Manta* is one of two genera under the family *Mobulidae,* the second being *Mobula* (commonly referred to as ''devil rays''). Collectively, manta and devil rays are referred to as mobulid rays and are often confused with one another. Until recently, all manta rays were considered to be a single species known as *Manta birostris* (Walbaum 1792). However, in 2009, Marshall et al. (2009) provided substantial evidence to support splitting the monospecific *Manta* genus into two distinct species. Based on new morphological and meristic data, the authors confirmed the presence of two visually distinct species: *Manta birostris* and *Manta alfredi* (Krefft 1868). *Manta birostris* is the more widely distributed and oceanic of the two species, found in tropical to temperate waters worldwide and common along productive coastlines, particularly off seamounts and pinnacles (Marshall et al. 2009; CITES 2013). *Manta alfredi* is more commonly observed inshore in tropical waters, found near coral and rocky reefs and also along productive coastlines. It primarily occurs throughout the Indian Ocean and in the eastern and south Pacific, with only a few reports of the species in Atlantic waters (off the Canary Islands, Cape Verde Islands and Senegal).While both species are wide-ranging, and are even sympatric in some locations, Marshall et al. (2009) provides a visual key to differentiate these two species based on coloration, dentition, denticle and spine morphology, size at maturity, and maximum disc width. For example, in terms of coloration, *M. birostris* can be distinguished by its large, white, triangular shoulder patches that run down the middle of its dorsal surface, in a straight line parallel to the edge of the upper jaw. The species also has dark (black to charcoal grey) mouth coloration, medium to large black spots that occur below its fifth gill slits, and a grey V-shaped colored margin along the posterior edges of its pectoral fins (Marshall et al. 2009). In contrast, *M. alfredi* has pale to white shoulder patches where the anterior margin spreads posteriorly from the spiracle before curving medially, a white to light grey mouth, small dark spots that are typically located in the middle of the abdomen, in between the five gill slits, and dark colored bands on the posterior edges of the pectoral fins that only stretch mid-way down to the fin tip (Marshall et al. 2009). The separation of these two manta species appears to be widely accepted by both taxonomists (with Marshall et al. (2009) published in the international animal taxonomist journal, *Zootaxa*) and international scientific bodies (Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Food and Agriculture Organization of the United Nations (FAO); see CITES (2013) and FAO (2013)), and, as such, we consider both *M. birostris* and *M. alfredi* to be taxonomically distinct species eligible for listing under the ESA.

The petitioners identify a third manta ray species, which they refer to as *M. cf. birostris,* or the ''Caribbean manta ray,'' based on their interpretation of data from Clark (2001). Clark (2001) is a Master's thesis that examined the population structure of *M. birostris* from the Pacific and Atlantic Oceans. This study was conducted prior to the splitting of the monospecific *Manta* genus, and, as such, all of the manta rays identified in the study are referred to as *M. birostris.* However, the petitioners argue that the genetic differences between populations discussed in Clark (2001) provide support for the differentiation of the Caribbean manta ray from *M. birostris.* Clark (2001) examined sequences of mitochondrial DNA (mtDNA) from 18 manta ray individuals and calculated the genetic divergence among haplotypes. Based on these estimates, Clark (2001) divided the 18 individuals into three operational taxonomic units: A Western Pacific unit (which included samples from Hawaii, French Frigate Shoals, Yap, and Fiji; n=5), a Baja unit (which included samples from two individuals from the Gulf of Mexico; n=10), and a Gulf of Mexico unit (n=3). The results showed low genetic divergence among samples from the Western Pacific (0.038–0.076 percent sequence divergence), hence their taxonomic grouping. Based on findings and distribution maps from Marshall et al. (2009), these samples were all likely taken from *M. alfredi* individuals. Similarly, the Baja samples were likely all from *M. birostris* individuals. Clark (2001) notes that the mtDNA haplotypes from the five individuals collected in the Gulf of Mexico formed two groups with percent sequence divergence values that were similar in magnitude to estimates obtained from geographically distinct samples. In other words, the mtDNA haplotypes from three of the Gulf of Mexico individuals were as distant genetically from the other two Gulf of Mexico individuals (0.724–0.80 percent sequence divergence) as samples from the Western Pacific unit were compared to the Baja unit (0.609–0.762 percent). Furthermore, the two Gulf of Mexico samples, which had identical sequences, were similar genetically to haplotype samples from Baja (0.076–0.228 percent sequence divergence), with phylogenetic analysis strongly supporting the pooling of these samples with the Baja taxonomic unit. The other Gulf of Mexico group (n=3) showed percent sequence divergence values ranging from 0.647–0.838 percent when compared to the Baja taxonomic unit and to the Western Pacific unit. The most parsimonious tree representing the phylogenic relationship among the mtDNA haplotypes had three well-supported clades that differed from one another by at least 14 nucleotide substitutions: A clade consisting of clustered western Pacific samples, the three Gulf of Mexico samples as another clade, and the third clade represented by the samples from Baja and the two genetically similar Gulf of Mexico samples.

The petitioners argue that the Gulf of Mexico clade, noted above, represents a third, distinct species of manta ray, which they identify as *Manta c.f. birostris.* While the genetic divergence between the Gulf of Mexico population and the Baja population (assumed to be *M. birostris*) was high relative to the intrapopulation values, this analysis was based on an extremely low sample size, with only three samples from the Gulf of Mexico, and thus cannot be reasonably relied upon to support the identification of a new species of manta ray. It is also important to note that this study analyzed only mtDNA. At best, this mtDNA evidence suggests that *M. birostris* females in the Gulf of Mexico may be philopatric (*i.e.,* returning or remaining near its home area); however, mtDNA does not alone describe population structure. Because mtDNA is maternally inherited, differences in mtDNA haplotypes between populations do not necessarily mean that the populations are substantially reproductively isolated from each other because they do not provide any information on males. As demonstrated in previous findings, in species where female and male movement patterns differ (such as philopatric females but wide-ranging males), analysis of mtDNA may indicate discrete populations, but analysis of nuclear (or bi-parentally inherited) DNA could show homogenous populations as a result of male-mediated gene flow (see *e.g.,* loggerhead sea turtle, 68 FR 53947, September 15, 2003, and sperm whale, 78 FR 68032, November 13, 2013). Although very little is known about the reproductive behavior of the species, the available information suggests that *M. birostris* is highly migratory, with males potentially capable of reproducing with females in different populations. *Manta birostris* is a cosmopolitan species, and in the western Atlantic has been documented as far north as Rhode Island and as far south as Uruguay. Marshall et al. (2009) note that the available information indicates that *M. birostris* is more oceanic than *M. alfredi,* and undergoes significant seasonal migrations. In a tracking study of six *M. birostris* individuals from off Mexico's Yucatan peninsula, Graham et al. (2012) calculated a maximum distance travelled of 1,151 km (based on cumulative straight line distance between locations), further confirming that the species is capable of fairly long-distance migrations. As such, it does not seem unreasonable to suggest that males from one *M. birostris* population may breed with females from other populations. We highlight the fact that all of the Gulf of Mexico samples from the Clark (2001) study were taken from the same area, the Flower Garden Banks National Marine Sanctuary, indicating significant overlap and potential for interchange of individuals between *M. birostris* populations, at least in the western Atlantic. In other words, without nuclear DNA analyses, or additional information on the mating and reproductive behavior of the species, we cannot confidently make conclusions regarding the genetic discreteness or reproductive isolation of the *M. birostris* populations in the western Atlantic. Therefore, at this time, we do not find that the petition's interpretation of the Clark (2001) results is substantial scientific or commercial information to indicate that *M. c.f. birostris* is a distinct species under the ESA. Furthermore, based on the conclusions from the widely accepted recent manta ray taxonomy publication (Marshall et al. 2009), to which we defer as the authority and best available scientific information on this topic, there is not enough information at this time to conclude that *M. c.f. birostris* is a distinct manta ray species. While Marshall et al. (2009) noted the possibility of this third, putative species, the authors were similarly limited by sample size. The authors examined only one physical specimen (an immature male killed in 1949) and concluded that ''further examination of specimens is necessary to clarify the taxonomic status of this variant manta ray.'' The authors proceed to state:

> At present there is not enough empirical evidence to warrant the separation of a third species of *Manta.* At minimum, additional examination of dead specimens of *Manta* sp. *cf. birostris* are necessary to clarify the taxonomic status of this variant manta ray. Further examinations of the distribution of *Manta* sp. *cf. birostris,* as well as, studies of its ecology and behaviour within the Atlantic and Caribbean are also recommended (Marshall et al. 2009).

We would also like to note that Clark (2001) was cited by Marshall et al. (2009), and, as such, we assume the authors reviewed this paper prior to their conclusions regarding the taxonomy of the manta ray species. Given the above information and analysis, we do not find that information contained in our files or provided by the petitioner presents substantial scientific or commercial information indicating that *M. c.f. birostris,* referred to as the ''Caribbean manta ray'' in the petition, is a valid manta ray species for listing under the ESA. As such, we will consider the information presented in the petition for the Caribbean manta ray as pertaining to the species *M. birostris,* as requested by the petitioner. We, therefore, proceed with our evaluation of the information in the petition to determine if this information indicates that *M. birostris* (referred henceforth as the giant manta ray) and *M. alfredi* (referred henceforth as the reef manta ray) may be warranted for listing throughout all or a significant portion of their respective ranges under the ESA.

Range, Distribution and Life History

Manta birostris

The giant manta ray is a circumglobal species found in temperate to tropical waters (Marshall et al. 2009). In the Atlantic, it ranges from Rhode Island to Uruguay in the west and from the Azores Islands to Angola in the east. The species is also found throughout the Indian Ocean, including off South Africa, within the Red Sea, around India and Indonesia, and off western Australia. In the Pacific, the species is found as far north as Mutsu Bay, Aomori, Japan, south to the eastern coast of Australia and the North Island of New Zealand (Marshall et al. 2011a; Couturier et al. 2015). It has also been documented off French Polynesia and Hawaii, and in the eastern Pacific, its range extends from southern California south to Peru (Marshall et al. 2009; Mourier 2012; CITES 2013).

The species is thought to spend the majority of its time in deep water, but migrates seasonally to productive coastal areas, oceanic island groups, pinnacles and seamounts (Marshall et al. 2009; CITES 2013). Giant manta rays have been observed visiting cleaning stations on shallow reefs (*i.e.,* locations where manta rays will solicit cleaner fish, such as wrasses, shrimp, and gobies, to remove parasitic copepods and other unwanted materials from their body) and are occasionally observed in sandy bottom areas and seagrass beds (Marshall et al. 2011a). While generally known as a solitary species, the giant manta ray has been sighted in large aggregations for feeding, mating, or cleaning purposes (Marshall et al. 2011a). In parts of the Atlantic and Caribbean, there is evidence that some *M. birostris* populations may exhibit differences in fine-scale and seasonal habitat use (Marshall et al. 2009).

The general life history characteristics of the giant manta ray are that of a long-lived and slow-growing species, with extremely low reproductive output (Marshall et al. 2011a; CITES 2013). The giant manta ray can grow to over 7 meters (measured by wingspan, or disc width (DW)) with anecdotal reports of the species reaching sizes of up to 9 m DW, and longevity estimated to be at least 40 years old (Marshall et al. 2009; Marshall et al. 2011a). Size at maturity for *M. birostris* varies slightly throughout its range, with males estimated to mature around 3.8–4 m DW and females at around 4.1–4.7 m DW (White et al. 2006; Marshall et al. 2009). Generally, maturity appears to occur at around 8–10 years (Marshall et al. 2011a; CITES 2013). The giant manta ray is viviparous (*i.e.,* gives birth to live young), with a gestation period of 10–14 months. Manta rays have among the lowest fecundity of all elasmobranchs, typically giving birth to only one pup on average every 2–3 years, which translates to around 5–15 pups total over the course of a female manta ray's lifetime (Couturier et al. 2012; CITES 2013).

Manta rays are filter-feeders that feed almost entirely on plankton. In a tracking study of *M. birostris,* Graham et al. (2012) noted that the species exhibited plasticity in its diet, with the ability to switch between habitat and prey types, and fed on three major prey types: Copepods (occurring in eutrophic waters), chaetognaths (predatory marine worms that feed on copepods), and fish eggs (occurring in oligotrophic waters). Because manta rays are large filter-feeders that feed low in the food chain, they can potentially be used as indicator species that reflect the overall health of the ecosystem (CITES 2013).

Manta alfredi

The reef manta ray is primarily observed in tropical and subtropical waters. It is widespread throughout the Indian Ocean, from South Africa to the Red Sea, and off Thailand and Indonesia to Western Australia. In the western Pacific, its range extends from the Yaeyama Islands, Japan in the north to the Solitary Islands, Australia in the south, and as far east as French Polynesia and the Hawaiian Islands (Marshall et al. 2009; Mourier 2012). Reef manta rays have not been found in the eastern Pacific, and are rarely observed in the Atlantic, with only a few historical reports or photographs of *M. alfredi* from off the Canary Islands, Cape Verde Islands, and Senegal (Marshall et al. 2009).

In contrast to the giant manta ray, *M. alfredi* is thought to be more of a resident species, commonly observed inshore, around coral and rocky reefs, productive coastlines, tropical island groups, atolls, and bays (Marshall et al. 2009). According to Marshall et al. (2009), the species tends to exhibit smaller home ranges, philopatry, and shorter seasonal migrations compared to *M. birostris.* However, recent tracking studies, while showing evidence of site fidelity (Couturier et al. 2011; Deakos et al. 2011), also indicate that *M. alfredi* travels greater distances than previously thought (*e.g.,* >700 km), with distances similar to those exhibited by *M. birostris* (Convention on Migratory Species (CMS) 2014). Braun et al. (2014) also observed diel behavior in *M. alfredi* whereby the manta rays occupy shallower waters (such as reef cleaning stations and feeding grounds; <10 m depths) during daylight hours and move toward deeper, offshore pelagic habitats throughout the night. It is thought that this behavior, which has also been reported for *M. birostris* (CMS 2014), is associated with feeding, with mantas exploiting emergent reef and pelagic plankton that move into the photic zone at night (Braun et al. 2014). The authors also confirmed the capability of *M. alfredi* to conduct deep-water dives (up to 432 m), the purpose of which has not yet been understood.

The reef manta ray has a similar life history to that of the giant manta ray; however, *M. alfredi* grows to a smaller size than *M. birostris.* Based on observations from southern Mozambique, reef manta rays can grow to slightly over 5 m DW (Marshall et al. 2009). Maturity estimates range from around 2.5–3.0 m DW for males, and 3.0–3.9 m DW for females, which corresponds to around 8–10 years of age (Marshall et al. 2009; Deakos 2010; Marshall and Bennett 2010; Marshall et al. 2011b). Longevity is unknown but is thought to be at least 40 years (Marshall et al. 2011b). The reef manta ray is also viviparous, with a gestation period of around 12 months, and typically gives birth to only one pup on average every 2 years; however, there are reports of individuals reproducing annually in both the wild and captivity (Marshall and Bennett 2010).

Using estimates of known life history parameters for both giant and reef manta rays, and plausible range estimates for the unknown life history parameters, Dulvy et al. (2014) calculated a maximum population growth rate of *Manta* spp. and found it to be one of the lowest values when compared to 106 other shark and ray species. Specifically, the median maximum population growth rate (R_{max}) was estimated to be 0.116, which is among the lowest calculated for chondrichthyan species and is actually more similar to those estimates calculated for marine mammal species (Croll et al. 2015). Productivity (r) was calculated to be 0.029 (Dulvy et al. 2014). When compared to the productivity parameters and criteria in Musick (1999), manta rays can be characterized as having ''very low'' productivity (<0.05). Overall, given their life history traits and productivity estimates, manta ray populations (discussed in more detail below) are extremely susceptible to depletion and vulnerable to extirpations (CITES 2013).

Analysis of Petition and Information Readily Available in NMFS Files

The petition contains information on the two manta ray species, including their taxonomy, description, geographic distribution, habitat, population status and trends, and factors contributing to the species' declines. According to the petition, all five causal factors in section 4(a)(1) of the ESA are adversely affecting the continued existence of both the giant and reef manta ray: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors.

In the following sections, we summarize and evaluate the information presented in the petition and in our files on the status of *M. birostris* and *M. alfredi* and the ESA section 4(a)(1) factors that may be affecting these species' risks of global extinction. Based on this evaluation, we determine whether a reasonable person would conclude that an endangered or threatened listing may be warranted for these two manta ray species.

Status and Population Trends

The global abundance of either manta species is unknown, with no available historical baseline population data. Worldwide, only 10 subpopulations of *M. birostris* and 14 subpopulations of *M. alfredi* have been identified and studied, and in most cases are comprised of fewer than 1,000 individuals (see Annex V; CITES 2013). An additional 25 more subpopulations are known to exist, and although species-level information is unavailable, these subpopulations are also assumed to consist of very small aggregations. Given this information, it can be inferred that global population numbers of both *M. birostris* and *M. alfredi* are likely to be small (CITES 2013).

For *M. birostris,* the small subpopulations are thought to be sparsely distributed. In the 10 studied subpopulations mentioned above, the number of recorded individuals ranges from 60 to around 650 (Annex V; CITES 2013). The only subpopulation estimate available is from the aggregation site off southern Mozambique, where 5 years of mark and recapture data (2003–2008) were used to estimate a local subpopulation of 600 individuals (CITES 2013 citing Marshall 2009).

Reef manta ray subpopulations are also thought to be small and geographically fragmented. The number of individuals recorded from the monitored aggregation sites mentioned above range from 35 to 2,410 (Annex V; CITES 2013). Estimates of subpopulations are available from five aggregation sites, ranging from around 100 individuals in Yap, Micronesia to 5,000 in the Republic of Maldives, which, presently, is the largest known aggregation of manta rays (CITES 2013). Based on mark-recapture data, subpopulations in southern Mozambique and western Australia are estimated to be on the order of around 890 and 1,200–1,500 individuals, respectively, and the subpopulation found off Maui, Hawaii is estimated to comprise around 350 individuals (Annex V; CITES 2013).

Given the small, sparsely distributed, and highly fragmented nature of these subpopulations, even a small number of mortalities could potentially have significant negative population-level effects that may lead to regional extirpations (CITES 2013; CMS 2014), increasing these species' risks of global extinction. In fact, information from known aggregation sites suggests global abundance may already be declining, with significant subpopulation reductions (as high as 56–86 percent) for both *Manta* species observed in a number of regions (see Annex VI; CITES 2013). [Note: As the *Manta* genus was split in 2009, information prior to this year is lumped for both species. Where possible (*i.e.,* in locations where the two species are allopatric or where species is described or assumed), we identify the likely species to which the dataset applies.] For example, based on annual landings data from Lamakera, Indonesia, *Manta* spp. landings fell from 1,500 individuals in 2001 to only 648 in 2010, a decline of 57 percent in 9 years. Fishing effort was also noted to have increased over those years, from 30 boats in 2001 to 40 boats in 2011, with no other change to gear or fishing practices (CITES 2013), indicating that the observed decline in *Manta* spp. could likely be attributed to a decrease in abundance of the subpopulation. Similarly, a 57 percent decline in *Manta* spp. landings in Lombok, Indonesia over the course of 6–7 years was also observed, based on market surveys and fishermen and dealer interviews conducted between 2001–2005 and 2007–2011. In the Philippines, artisanal fishermen indicate declines of up to 50 percent in *Manta* spp. landings over the course of 30 years.

Anecdotal reports and professional diver observational data also suggest substantial declines from historical numbers, with significantly fewer diver sightings and overall sporadic observations of manta rays in areas where they were once common (CITES 2013). For example, off southern Mozambique, scuba divers reported an average of 6.8 mantas (likely *M. alfredi*) per dive, but by 2011, this figure had dropped to less than 1, a decline of 86 percent (CITES 2013 citing Rohner et al. *in press*). Off the Similan-Surin Islands in Thailand, sightings of manta rays (likely *M. birostris*) fell from 59 in 2006–2007 to only 14 in 2011–2012, a decline of 76 percent in only 5 years (CITES 2013). Declines were also observed off Japan, with manta ray numbers (likely *M. alfredi*) sighted by divers dropping from 50 in 1980 to 30 in 1990 (CITES 2013 citing Homma et al. 1999). In Cocos Island National Park, a Marine Protected Area (MPA), White et al. (2015) used diver sighting data to estimate a decline of 89 percent in *M. birostris* relative abundance, although the authors noted that giant manta rays were observed ''only occasionally'' in the area over the course of the study. Additionally, in the Sea of Cortez, the subpopulation (of likely *M. birostris*) is thought to have completely collapsed, with manta rays rarely seen despite being present on every major reef and frequently observed during dives back in the early 1980s (CITES 2013). Anecdotal reports from Madagascar, India, and the Philippines reflect similar situations, with scuba divers and fishermen noting the large declines in the manta ray populations over the past decade and present rarity of the species (CITES 2013).

Not all subpopulations are declining, though, with information to suggest that those manta ray aggregations not subject to fishing or located within protected areas are presently stable. These include the manta ray aggregations found off Micronesia, Palau, Hawaii, and currently the largest known aggregation off the Maldives (CITES 2013). However, given these species' sensitive life history traits and demographic risks, including small, sparsely distributed, and highly fragmented subpopulations (which inhibit recruitment and recovery following declines), we find that the declining and unknown statuses of the remaining 43 subpopulations to be a concern, especially as it relates to the global extinction risk of these two manta ray species, and thus, further investigation is warranted.

Analysis of ESA Section 4(a)(1) Factors

While the petition presents information on each of the ESA Section 4(a)(1) factors, we find that the information presented, including information within our files, regarding the overutilization of these two species for commercial purposes is substantial enough to make a determination that a reasonable person would conclude that these species may warrant listing as endangered or threatened based on this factor alone. As such, we focus our below discussion on the evidence of overutilization for commercial purposes and present our evaluation of the information regarding this factor and its impact on the extinction risk of the two manta ray species.

Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Information from the petition and in our files suggests that the primary threat to both *M. birostris* and *M. alfredi* is overutilization by fisheries. Because both species exhibit affinities for coastal habitats and aggregate in predictable locations, they are especially vulnerable to being caught in numerous types of fishing gear and are both targeted and taken as bycatch in various commercial and artisanal fisheries (CITES 2013; Croll et al. 2015). They have historically been a component of subsistence fishing for decades, primarily fished with simple fishing gear (CITES 2013); however, international demand for manta ray gill rakers (sometimes referred to as ''gill plates''—thin, cartilage filaments used to filter plankton out of the water) has led to a significant increase in fishing pressure on both species. The gill rakers are used in Asian medicine and are thought to have healing properties, from curing chicken pox to cancer, with claims that they also boost the immune system, purify the body, enhance blood circulation, remedy throat and skin ailments, cure male kidney issues, and help with fertility problems (Heinrichs et al. 2011). The use of gill rakers as a remedy, which was widespread in Southern China many years ago, has recently gained renewed popularity over the past decade as traders have increased efforts to market its healing and immune boosting properties directly to consumers (Heinrichs et al. 2011). As a result, demand has significantly increased, incentivizing fishermen who once avoided capture of manta rays to directly target these species (Heinrichs et al. 2011; CITES 2013). According to Heinrichs et al. (2011), it is primarily the older population in Southern China as well as Macau, Singapore, and Hong Kong, that ascribe to the belief of the healing properties of the gill rakers; however, the gill rakers are not considered ''traditional'' or ''prestigious'' items (*i.e.,* shark fins) and many consumers and sellers are not even aware that gill rakers come from manta or mobula rays (devil rays). Meat, cartilage, and skin of manta rays are also utilized, but valued at significantly less than the gill rakers, and usually enter local trade or are kept for domestic consumption (Heinrichs et al. 2011; CITES 2013).

In terms of the market and trade of gill rakers, Guangzhou, Guangdong Province in Southern China is considered to be the ''epicenter'' for trade and consumption, comprising as much as 99 percent of the global gill raker market (Heinrichs et al. 2011). Gill rakers specifically from giant manta rays comprise a large proportion of this trade. Based on market investigations (see Annex VIII; CITES 2013), around 30 percent of the gill raker stock in stores consisted of ''large'' gill rakers attributed to *M. birostris,* and had an average sale price in Guangzhou of $251/kg (with some selling for up to $500/kg). Small gill rakers attributed to *Manta* spp. (including juvenile *M. birostris*) comprised 4 percent of the stock but sold for the fairly high average price of $177/kg. In total, about 61,000 kg of gill rakers (from both mobula and manta rays) are traded annually. While *Manta* spp. made up about a third of this total, in terms of total market value, they comprised almost half (45 percent; around $5 million) of the total value of the trade. This indicates the higher value placed on manta ray gill rakers compared to mobula ray gill rakers (Annex VIII; CITES 2013). While this trade does not significantly contribute to the Chinese dried seafood or Traditional Chinese Medicine industries (and amounting to less than 3 percent of the value of the shark fin trade), the numbers of manta rays traded annually, estimated at 4,653 individuals (average), are around three times higher than the vast majority of known subpopulation and aggregation estimates for these two species (CITES 2013). In other words, the amount of manta rays killed every year for the gill raker trade is equivalent to removing multiple subpopulations of these species, and given their demographic risks of extremely low productivity, evidence of declining population abundances, and low spatial structure and connectivity, we conclude that this level of utilization for the gill raker trade is a threat that may be significantly contributing to the extinction risk of *M. birostris* and *M. alfredi* and requires further investigation.

The three countries presently responsible for the largest documented fishing and exporting of *Manta* spp. are Indonesia, Sri Lanka, and India. These countries account for an estimated 90 percent of the world's *Manta* spp. catch, yet, prior to 2013, when the species complex was added to Appendix II of CITES, lacked any sort of landings restrictions or regulations pertaining to manta rays (CITES 2013). Furthermore, the fact that there is no documented domestic use of gill rakers within these countries, with reports that income from directed fisheries for *Manta* spp. is unlikely to even cover the cost of fuel without the gill raker trade, further points to the significant and lucrative incentives of the gill raker trade as the primary driver of directed manta ray fisheries (CITES 2013). In fact, prior to the rapid growth of the gill raker trade, fishermen in Sri Lanka would avoid setting nets in known *Manta* spp. aggregation areas, and release any incidentally caught manta rays alive (Heinrichs et al. 2011). However, with the increase in the international demand and high value for gill rakers, fishermen are now landing all *Manta* spp. and CITES (2013) warns that directed and opportunistic fisheries may develop elsewhere.

In the Pacific, directed fisheries for manta rays already exist (or existed) in many areas, including China, Tonga, Peru, and Mexico. In Zhejiang, China, Heinrichs et al. (2011) (citing Hilton 2011) estimate that fisheries currently targeting manta rays land around 100 individuals per year (species not identified). While subpopulation estimates in this area are unknown, it is likely that this level of fishing mortality is contributing to local population declines as evidenced by the fact that sightings of manta rays (likely *M. alfredi*) at nearby Okinawa Island, Japan, have fallen by over 70 percent since the 1980s (CITES 2013). Directed fisheries in the eastern Pacific may also likely be contributing to the overexploitation of manta ray subpopulations. Heinrichs et al. (2011), citing to a rapid assessment of the mobulid fisheries in the Tumbes and Piura regions of Peru, reported estimated annual landings of *M. birostris* on the order of 100–220 rays. The petition asserts that this estimate is based on limited data and interviews and, as such, should be viewed as an absolute minimum for the region. Of concern, in terms of risk of extirpations and extinction of *M. birostris,* is the fact that this assumed minimum level of take is equivalent to about one third of the estimate of the closest known, largest, but also protected aggregation of giant manta rays off the Isla de la Plata, Ecuador. While the manta rays targeted by the Peruvian fishermen may comprise a separate subpopulation, given the seasonal migratory behavior of *M. birostris,* it is also possible that the take consists of animals from the protected aggregation as they migrate south (Heinrichs et al. 2011). Regardless, given the very small estimated sizes of *M. birostris* aggregations (range 60–650 individuals) coupled with the species' sensitive life history traits, even low levels of fishing mortality can quickly lead to depletion of subpopulations and drive overall population levels down to functional extinction. In fact, evidence of the rapid decline of *M. birostris* from directed fishing efforts in the eastern Pacific is most apparent in the Sea of Cortez, Mexico. Prior to the start of targeted fishing (which began in the 1980s), the giant manta ray was reportedly common on every major reef in the area. In 1981, a filmmaker reported seeing three to four manta rays during every dive while filming; however, in a follow-up project, conducted only 10 years later, not a single giant manta ray was observed (CITES 2013). Within a decade of the start of directed manta ray fishing, the *M. birostris* population in the Sea of Cortez had collapsed, and reportedly still has not recovered (CITES 2013), despite a 2007 regulation prohibiting the capture and retention of the species in Mexican waters (NOM–029–PESC–2006).

Manta rays may also be at risk of extinction in the Indo-Pacific region, where the number of fisheries directly targeting manta species has substantially increased over the past decade, concurrent with the rise in the gill raker trade. This targeted fishing has already led to substantial declines in the numbers and size of *Manta* populations, particularly off Indonesia. Many shark fishermen have also turned to manta ray targeted fishing following the collapse of shark populations throughout the region (CITES 2013 citing Donnelly et al. 2003). As recently as 2012, *Manta* spp. fisheries were noted in Lamalera, Tanjung Luar (Lombok), Cilacap (Central Java), Kedonganan (Bali), and the Wayag and Sayan Islands in Raja Ampat, Indonesia (Heinrichs et al. 2011; CITES 2013). In Lamakera, as technology improved and fishermen replaced their traditional dugout canoes with motorized boats, catch rates of *Manta* spp. increased by an order of magnitude above historical levels (CITES 2013 citing Dewar 2002). This intense fishing pressure on a species that is biologically sensitive to depletion subsequently led to noticeable declines in populations. In Lombok, for example, a survey of fishermen and local processing facilities indicated that manta ray catches have declined in recent years (around 57 percent), with the average size of a manta ray now less than half of what it was historically, a strong indication of overutilization of the species (Heinrichs et al. 2011). Based on data from 2001–2012, Indonesian landings were estimated to be around 1,026 per year, the largest for any country, and attributed to *M. birostris,* although *M. alfredi* are also present in this region (Annex VII; CITES 2013). Given the observed declines in both size and catch of manta rays throughout the region, in relatively short periods of time (over 9 years in Lamakera; 6–7 years in Tanjung Luar, Lombok) that are notably less than one generation (~25 years) for either species, we find that the available information indicates that overutilization of manta rays in this region may be a significant threat to both species and is cause for concern.

Similarly, in the Philippines, recent exploitation of manta rays through targeted fishing efforts has also contributed to significant and concerning declines. Artisanal fishermen note that directed fishing on *Manta* species (likely *M. birostris*) in the Bohol Sea started in the 1960s, but really ramped up in the early 1990s and consequently led to population declines of up to 50 percent by the mid-1990s (CITES 2013 citing Alava et al. 2002). Similar declines were observed for the local population of manta rays (species not identified; although petition refers to them as *M. alfredi*) in the Sulu Sea off Palawan Island, with estimates of between 50 and 67 percent over the course of 7 years (from the 1980s to 1996) (CITES 2013). Although there is presently a ban on catching and selling manta rays in the Philippines, Heinrichs et al. (2011) reports that enforcement varies, with locals continuing to eat manta ray meat in line with their cultural practices. Furthermore, in 2011, Hong Kong traders identified the Philippines as a supplier of dried gill rakers, indicating that fishermen may still be actively targeting the species for trade (Heinrichs et al. 2011). Manta rays are now considered rare throughout the Philippines (CITES 2013), and, as such, any additional mortality on these species, either through incidental fishing or illegally directed fishing, may have significant negative effects on the viability of giant and reef manta ray populations.

In the Indian Ocean, directed fisheries for manta rays exist in Sri Lanka, India, Thailand, and are known from several areas in Africa, including Tanzania and Mozambique. As mentioned previously, Sri Lanka is one of the top three nations in terms of manta ray landings, with estimates totaling around 1,055 *M. birostris* individuals per year (Heinrichs et al. 2011; CITES 2013), the second highest amount behind Indonesia. Historically, fishermen in Sri Lanka would catch manta rays primarily as bycatch or avoid them altogether; however, as the gill raker market took shape and demand increased (with reports of gill rakers selling for as much as 250 times the price of meat), fishermen gained incentive to actively target mobulids (both manta and devil rays) (Heinrichs et al. 2011). As direct targeting of manta rays increased, a corresponding decrease in catches was reported by fishermen, particularly over the past 3–5 years (Heinrichs et al. 2011). Of concern, as it relates to the extinction risk of particularly the giant manta ray, is the fact that a large proportion of the identified *M. birostris* landings are reportedly immature. Based on available data from Negombo and Mirissa fish market surveys, at least 87 percent (possibly up to 95 percent; CITES 2013) of the *M. birostris* sold in the markets are juveniles and sub-adults (Heinrichs et al. 2011). Although the proportion of these fish markets to total Sri Lankan manta ray landings is not provided, the direct targeting and removal of immature manta rays can have negative impacts on the recruitment of individuals to the populations, and may likely explain the decrease in catches observed by Sri Lankan fishermen in recent years. Furthermore, these data also suggest that fishermen in Sri Lanka are potentially exploiting a ''nursery'' ground for manta rays, which, if found to be true, would be the first identified juvenile aggregation site in the world (Heinrichs et al. 2011). In fact, aggregations consisting of primarily immature individuals are extremely rare, with only one other subpopulation identified (off Egypt's Sinai Peninsula) where observations of immature manta rays outnumber adults (CITES 2013). Given the predominance of immature manta rays and recent decreases in catches, we find that present utilization levels and the impacts of this potential nursery ground exploitation, particularly on the manta ray populations in this area (especially *M. birost*ris populations, although *M. alfredi* is also noted in this region but not identified in the available information), are threats contributing to a risk of extinction that is cause for concern.

In India, which has the second largest elasmobranch fishery in the world, Heinrichs et al. (2011) report manta ray landings of around 690 individuals per year (based on data from 2003–2004). However, the authors also caution that these landings data from the Indian trawl and gillnet fleets targeting sharks, skates, and rays, are likely largely underreported given the limited oversight of these fisheries. Although the exact extent of utilization of manta ray species in Indian waters is unknown, decreases in overall mobulid catches have been observed in several regions, including Kerala, along the Chennai and Tuticorin coasts, and Mumbai (CITES 2013). These declines are despite increases in fishing effort, suggesting that abundance of mobulids has likely decreased in these areas as a result of heavy fishing pressure and associated levels of fishery-related mortality (CITES 2013).

Harpoon fisheries that target *Manta* spp. also exist on both coasts of India, but landings data are largely unavailable. Despite the lack of data, anecdotal reports suggest that the level of utilization by these fisheries may also be contributing to the decline of these species within the region. For example, prior to 1998, landings of manta rays (thought to be *M. alfredi*) were reportedly abundant in a directed harpoon fishery operating at Kalpeni, off Lakshadweep Islands; however, based on personal communication from a local dive operator, this harpoon fishery no longer operates because manta ray sightings around the Lakshadweep Islands are now a rare occurrence. Similarly, dive operators in Thailand have observed increased fishing for *Manta* spp. off the Similan Islands, including within Thai National Marine Parks, with corresponding significant declines in sightings (Heinrichs et al. 2011). Specifically, during the 2006–2007 season, professional dive operators sighted 59 *Manta* individuals; however, 5 years later, sightings had fallen by 76 percent, with only 14 *Manta* individuals spotted during the 2011–2012 season (CITES 2013).

Across the Indian Ocean, manta rays are also likely at risk of overutilization; however, data are severely lacking. Off Mozambique, Marshall et al. (2011b) estimate that subsistence fishermen, alone, catch around 20–50 *M. alfredi* annually in a 100 km area/length of coast. This area corresponds to less than five percent of the coastline; however, fisheries in this region are widespread and, therefore, the actual landings of manta rays are likely significantly more (Marshall et al. 2011b). In fact, based on a study on the abundance of manta rays in southern Mozambique, Rohner et al. (2013) (cited by Croll et al. (2015)) provides evidence of the impact of the current level of utilization on manta ray species. From their findings, the authors report declines of up to 88 percent in the abundance of the heavily fished *M. alfredi* over the past 8 years (Heinrichs et al. 2011; CITES 2013; Croll et al. 2015), but a relatively stable abundance trend in the un-targeted *M. birostris.* These data further confirm the extreme vulnerability of the manta ray species to depletion from fisheries-related mortality in relatively short periods of time, and raise significant cause for concern for the species' viability in areas where they are being directly targeted or landed as bycatch.

In the Atlantic, the only known directed fishing of *Manta* spp. occurs seasonally off Dixcove, Ghana, where the meat is consumed locally, but manta rays have also been reported as targets of the mesh drift gillnet fishery that operates year-round in this area (Heinrichs et al. 2011; CITES 2013). *Manta* spp. are also reportedly illegally caught off Mexico's Yucatan peninsula (Graham et al. 2012; CITES 2013), but without additional information, the extent of utilization of the species in this region is unknown.

In addition to the threat from directed fisheries, manta rays are susceptible to being caught as bycatch in many of the international fisheries operating throughout the world, with present utilization levels contributing to their extinction risk that may be cause for concern. According to Croll et al. (2015), mobulids (manta and devil rays) have been reported as bycatch in 21 small-scale fisheries in 15 countries and 9 large-scale fisheries in 11 countries. In terms of the estimated impact of bycatch rates on extinction risk, the commercial tuna purse seine fisheries are thought to pose one of the most significant threats to mobulids, given the high spatial distribution overlap of tunas and mobulids coupled with the global distribution and significant fishing effort by the tuna purse seine fisheries (Williams and Terawasi 2011; Croll et al. 2015). Based on extrapolations of observer data, Croll et al. (2015) estimated an average annual capture of

2,774 mobulids in the Eastern Pacific, 7,817 in the Western and Central Pacific, 1,936 mobulids in the Indian Ocean, and 558 in the Atlantic Ocean.

While the above data are lumped for all mobulids, specific observer data on manta rays suggest that present bycatch levels may have potentially serious negative population-level impacts on both manta ray species. In the Atlantic Ocean, for example, observer data from 2003–2007 showed manta rays (presumably *M. birostris*) represented 17.8 percent of the total ray bycatch in the European purse seine tuna fishery operating between 10° S. and 15° N. latitude off the African coast (Amandè et al. 2010). While only 11 total giant manta rays were observed caught over the study period, observer coverage averaged a mere 2.9 percent (Amandè et al. 2010), suggesting the true extent of *M. birostris* catch may be significantly greater. In fact, within the Mauritanian exclusive economic zone (EEZ) alone, Zeeberg et al. (2006) estimated an annual removal rate of between 120 and 620 mature manta rays by large foreign trawlers operating off the western coast of Africa, which the authors deemed likely to be an unsustainable rate. This removal rate is especially troubling in terms of its impact on the extinction risk of both species, given that the only known populations of *M. alfredi* in the Atlantic Ocean occur within this region (off Senegal, Cape Verde and Canary Islands), and that this level of take is equivalent to the subpopulation sizes of *M. birostris* (estimates of 100–1000) and *M. alfredi* (100–1500, with the exception of 5,000 in Maldives) found throughout the world. As such, utilization of manta ray species at this level may likely be contributing to population declines in this region for giant manta rays and could easily lead to the extirpation of reef manta rays from the Atlantic Ocean, if this has not already occurred. (Based on information in the petition and in our files, we could not verify the year of the most recent observations of *M. alfredi* off Cape Verde or the Canary Islands. The evidence of *M. alfredi* off Senegal is based on historical reports and photos from 1958; (Marshall et al. (2009) citing Cadenat (1958))).

In the Indian Ocean, manta rays are reportedly taken in large numbers as bycatch in the Pakistani, Indian, and Sri Lankan gillnet fisheries where their meat is used for shark bait or human consumption and their gill rakers are sold in the Asian market. Manta rays have also been identified in U.S. bycatch data from fisheries operating primarily in the Central and Western Pacific Ocean, including the U.S. tuna purse seine fisheries (likely *M. birostris;* estimates of 1.14 mt in 1999) (Marshall et al. 2011a citing Coan et al. 2000) and the Hawaii-based deep-set and shallow-set longline fisheries for tuna (with 2010 bycatch estimates of 8,510 lbs (3,860 kg) of *M. birostris* and 2,601 lbs (1,180 kg) of unidentified Mobulidae) (NMFS 2013). While manta rays may have a fairly high survival rate after release (based on 1.4 percent hooking mortality rate in longline gear (Coelho et al. 2012) and 33.7 percent mortality rate in protective shark nets (Marshall et al. (2011a) citing Young 2001)), significant debilitating injuries from entanglements in fishing gear (*e.g.,* gillnets and longlines) have been noted (Heinrichs et al. 2011). The likelihood of bycatch mortality significantly increases when fishing pressure is concentrated in known manta ray aggregation areas. For example, in a major *M. birostris* aggregation site off Ecuador, researchers have observed large numbers of manta rays with life-threatening injuries as a result of incidental capture in illegal wahoo (*Acanthocybium solandri*) trawl fisheries operating within Machalillia National Park (Heinrichs et al. 2011; Marshall et al. 2011a). Similarly, off Thailand, a significantly higher proportion of manta rays show net and line injuries compared to anywhere else in the world, with the aforementioned exception off Ecuador (Heinrichs et al. 2011). Off Papua New Guinea, manta rays (presumably *M. alfredi*) are reported as bycatch in purse seines, and from 1994 to 2006 comprised an estimated 1.8 percent of the annual purse seine bycatch. While the condition of the manta rays in these purse seines was not described, by 2005/2006, a sharp decline in the catches of manta rays was observed in these waters, suggesting the population may have been unable to withstand the prior bycatch mortality rates (Marshall et al. 2011b). For the most part, though, manta rays are almost never recorded down to species in bycatch reports, and more often than not tend to be lumped into broader categories such as ''Other,'' ''Rays,'' and ''Batoids.'' As such, the true extent of global manta ray bycatch and associated mortality remains largely unknown.

Although there are a number of both national and international regulations aimed at protecting manta rays from the above threat of overutilization by fisheries, the petition asserts that these existing regulatory measures, both species-specific and otherwise, do not adequately protect the manta rays. In fact, as of 2013, neither India nor Sri Lanka, two of the top manta ray fishing countries, had implemented any landings restrictions or population monitoring programs for manta ray species (CITES 2013). In terms of national protections, the petition states that due to the recent splitting of the genus, many of the pre-2009 national laws define ''manta ray'' as a single species, *M. birostris,* and, therefore, those associated protections fail to protect the newly identified reef manta ray. Furthermore, even where protections exist, there are noted enforcement difficulties in many areas, with the lucrative trade in manta gill rakers driving the illegal fishing of the species. For example, although Indonesia prohibited fishing for manta rays throughout its entire EEZ in 2014, only 2 years prior, it was ranked as likely the most aggressive fishing nation for manta rays (based on landing estimates; see CITES 2013). Based on evidence of enforcement difficulties of prior regulations (particularly relating to manta rays), and citing to examples of illegal fishing in Indonesian waters, the petitioners note that the financial incentive of targeting manta rays will continue to drive their exploitation. In a study on the movement of manta rays between manta ray sanctuaries in Indonesia, Germanov and Marshall (2014) also recognized the inadequacy of existing regulatory measures, noting that although the prohibition was implemented in 2014, ''[I]n reality, however, it may be a long time before all manta ray fisheries in Indonesia are completely shut down.'' Illegal fishing, landings and trade of manta rays have also been reported from the Philippines, Ecuador, Mexico, and Thailand (Heinrichs et al. 2011; Graham et al. 2012; CITES 2013); however, the true extent of the global illegal trade in manta species is not known (CITES 2013).

In terms of regulations pertaining to the legal international trade in the species, all manta ray species (*Manta* spp.) were listed in Appendix II of CITES (with listing effective on September 14, 2014). CITES is an international agreement between governments that regulates international trade in wild animals and plants. It encourages governments to take a proactive approach and the species covered by CITES are listed in appendices according to the degree of endangerment and the level of protection provided. For example, Appendix I includes species threatened with extinction; trade in specimens of these species is permitted only in exceptional circumstances. Appendix II includes species not necessarily threatened with extinction, but for which trade must be controlled to avoid exploitation rates incompatible with species survival. Appendix III contains species that are protected in at least one country that has asked other CITES Parties (*i.e.,* those countries that have ''joined'' CITES) for assistance in controlling the trade.

The listing of manta rays on Appendix II of CITES provides increased protection for both species, but still allows legal and sustainable trade. Export of any part of a manta ray requires permits that ensure the products were legally acquired and that the CITES Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species. This is achieved through the issuing of a ''Non-Detriment Finding'' or ''NDF.'' The petition argues, however, that there are no clear standards for making this CITES NDF. Furthermore, the petition states that given the limited population information for the manta ray species, it will be difficult to even determine sustainable harvest, and coupled with the lack of adequate scientific capacity in many CITES member countries, the determinations with respect to manta ray exports will be inconsistent and unreliable. Ward-Paige et al. (2013) remark that despite these efforts by CITES, no international management plans have been put in place to ''ensure the future of mobulid populations,'' and with manta ray species only recently subject to the management of only one Regional Fishery Management Organization (RFMO) (the Inter-American Tropical Tuna Commission; Resolution C–15–04), as Mundy-Taylor and Crook (2013) state, ''it is expected that it will be particularly challenging for countries and/or territories that harvest *M. birostris* [and potentially also *M. alfredi*] on the high seas to carry out NDFs for such specimens.'' Based on the information provided in the petition and in our files, we are presently unable to speak to the current effectiveness of the CITES Appendix II listing in protecting manta ray species from levels of trade that may contribute to the overutilization of both species. Overall, we find that further evaluation of existing regulatory measures is needed to determine if these regulations are inadequate to protect the giant and reef manta ray from threats that are significantly contributing to their extinction risks.

While the petition identifies numerous other threats to the two species, including habitat destruction and modification from coral reef loss, climate change, and plastic marine debris, recreational overutilization by the manta ray tourism industry, and predation from shark and orca attacks, we find that the petition and information in our files suggests that overutilization for commercial purposes, in and of itself, may be a threat impacting the giant and reef manta ray to such a degree that raises concern that these two species may be at risk of extinction throughout all or a significant portion of their respective ranges. We note that the information in our files and provided by the petitioner does indicate that a few identified subpopulations of reef manta rays appear to be stable, particularly those which receive at least some protection from fisheries, including: Subpopulations in Hawaii (Maui subpopulation estimate = 350; CITES 2013 citing personal communication), where harvest and trade of manta rays are prohibited (H.B. 366); the Maldives (subpopulation estimate = 5,000; CITES 2013 citing personal communication), where export of all ray species has been banned since 1995, where most types of net fishing are prohibited, and where two MPAs have been created to protect critical habitat for the Maldives populations (Anderson et al. 2011; CMS 2014); Yap (subpopulation estimate = ~100), with a designated Manta Ray Sanctuary that covers 8,234 square miles (21,326 square km) (CMS 2014); and Palau (estimate = 170 recorded individuals). With the passage of Micronesia's Public Law 18–108 in early 2015 (which created a shark sanctuary in the Federated States of Micronesia EEZ, encompassing nearly 3 million square kilometers in the western Pacific Ocean), a Micronesia Regional Shark Sanctuary now exists that prohibits the commercial fishing and trade of sharks and rays and their parts within the waters of the Republic of Marshall Islands, Republic of Palau, Guam, Commonwealth of the Northern Mariana Islands, and the Federated States of Micronesia and its four member states, Yap, Chuuk, Pohnpei, and Kosrae. However, these protections cover only a small portion of the migratory giant and reef manta ray ranges. Additionally, manta rays are not confined by national boundaries and, for example, may lose certain protections as they conduct seasonal migrations (or even as they move around to feed; Graham et al. (2012)) if they cross particular national jurisdictional boundaries (*e.g.,* between the Maldives and Sri Lanka or India), move outside of established MPAs, or enter into high seas.

Overall, when we consider the number of manta ray subpopulations throughout the world where, based on the available information in the petition and in our files, their statuses are either unknown or in rapid decline, and yet both species appear to continue to face heavy fishing pressure (due to the high value of gill rakers in trade) and have significant biological vulnerabilities and demographic risks (*i.e.,* extremely low productivity; declining abundance; small, fragmented, and isolated subpopulations), we find that the information in the petition and in our files would lead a reasonable person to conclude that both *M. birostris* and *M. alfredi* may warrant listing as threatened or endangered species throughout all or a significant portion of their ranges.

Petition Finding

After reviewing the information contained in the petition, as well as information readily available in our files, and based on the above analysis, we conclude the petition presents substantial scientific information indicating the petitioned action of listing the giant manta ray and the reef manta ray as threatened or endangered species may be warranted. Therefore, in accordance with section 4(b)(3)(B) of the ESA and NMFS' implementing regulations (50 CFR 424.14(b)(3)), we will commence a status review of these two species. We also find that the petition did not present substantial scientific information to indicate that the Caribbean manta ray (identified as *Manta c.f. birostris*) is a taxonomically valid species eligible for listing under the ESA. However, if during the course of the status review of the giant and reef manta ray we find new information to suggest otherwise, we will self-initiate a status review of the Caribbean manta ray, announcing our intention in the **Federal Register**.

During the status review, we will determine whether the particular manta ray species is in danger of extinction (endangered) or likely to become so (threatened) throughout all or a significant portion of its range. We now initiate this review, and thus, both *M. birostris* and *M. alfredi* are considered to be candidate species (69 FR 19975; April 15, 2004). Within 12 months of the receipt of the petition (November 10, 2016), we will make a finding as to whether listing the giant manta ray and the reef manta ray as endangered or threatened species is warranted as required by section 4(b)(3)(B) of the ESA. If listing is found to be warranted, we will publish a proposed rule and solicit public comments before developing and publishing a final rule.

Information Solicited

To ensure that the status review is based on the best available scientific and commercial data, we are soliciting information on whether the giant manta ray and reef manta ray are endangered or threatened. Specifically, we are soliciting information in the following areas: (1) Historical and current distribution and abundance of these species throughout their respective ranges; (2) historical and current population trends; (3) life history in marine environments, including identified nursery grounds; (4) historical and current data on manta ray catch, bycatch and retention in industrial, commercial, artisanal, and recreational fisheries worldwide; (5) historical and current data on manta ray discards in global fisheries; (6) data on the trade of manta ray products, including gill rakers, meat, and skin; (7) any current or planned activities that may adversely impact either of these species; (8) any impacts of the manta ray tourism industry on manta ray behavior; (9) ongoing or planned efforts to protect and restore these species and their habitats; (10) population structure information, such as genetics data; and (11) management, regulatory, and enforcement information. We request that all information be accompanied by: (1) Supporting documentation such as maps, bibliographic references, or reprints of pertinent publications; and (2) the submitter's name, address, and any association, institution, or business that the person represents.

References Cited

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

Authority

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

Dated: February 16, 2016.

Samuel D. Rauch, III,

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

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 665

[Docket No. 150715616–6097–01]

RIN 0648–XE062

Pacific Island Fisheries; 2015–16 Annual Catch Limit and Accountability Measures; Main Hawaiian Islands Deep 7 Bottomfish

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

ACTION: Proposed specifications; request for comments.

SUMMARY: NMFS proposes to specify an annual catch limit (ACL) of 326,000 lb for Deep 7 bottomfish in the main Hawaiian Islands (MHI) for the 2015–16 fishing year, which began on September 1, 2015, and ends on August 31, 2016. If the ACL is projected to be reached, as an accountability measure (AM), NMFS would close the commercial and non-commercial fisheries for MHI Deep 7 bottomfish for the remainder of the fishing year. The proposed ACL and AM support the long-term sustainability of Hawaii bottomfish.

DATES: NMFS must receive comments by March 9, 2016.

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2015–0090, by either of the following methods:

- *Electronic Submission:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to *http://www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2015-0090,* click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.
- *Mail:* Send written comments to Michael D. Tosatto, Regional Administrator, NMFS Pacific Islands Region (PIR), 1845 Wasp Blvd. Bldg. 176, Honolulu, HI 96818.

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

FOR FURTHER INFORMATION CONTACT: Matt Dunlap, NMFS PIR Sustainable Fisheries, 808–725–5177.

SUPPLEMENTARY INFORMATION: The bottomfish fishery in Federal waters around Hawaii is managed under the Fishery Ecosystem Plan for the Hawaiian Archipelago (Hawaii FEP), developed by the Western Pacific Fishery Management Council (Council) and implemented by NMFS under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The regulations at Title 50, Code of Federal Regulations, Part 665 (50 CFR 665.4) require NMFS to specify an ACL for MHI Deep 7 bottomfish each fishing year, based on a recommendation from the Council. The Deep 7 bottomfish are onaga (*Etelis coruscans*), ehu (*E. carbunculus*), gindai (*Pristipomoides zonatus*), kalekale (*P. sieboldii*), opakapaka (*P. filamentosus*), lehi (*Aphareus rutilans*), and hapuupuu (*Hyporthodus quernus*).

NMFS proposes to specify an ACL of 326,000 lb of Deep 7 bottomfish in the MHI for the 2015–16 fishing year. The Council recommended the ACL at its 163rd meeting held in June 2015. The proposed specification is 20,000 lb less than the ACL that NMFS specified for the past four consecutive fishing years (*i.e.,* 2011–12, 2012–13, 2013–14, and 2014–15). NMFS monitors Deep 7 bottomfish catches based on data provided by commercial fishermen to the State of Hawaii. If NMFS projects the fishery will reach this limit, NMFS would close the commercial and non-commercial fisheries for MHI Deep 7 bottomfish for the remainder of the fishing year, as an accountability measure (AM). In addition, if NMFS and the Council determine that the final 2015–16 Deep 7 bottomfish catch exceeds the ACL, NMFS would reduce the Deep 7 bottomfish ACL for the 2015–16 fishing year by the amount of the overage. The fishery did not attain the specified ACL in fishing years from September 2011 to August 2015, and NMFS does not anticipate the fishery will attain the limit in the current fishing year, which began on September 1, 2015, and ends on August 31, 2016.

The Council recommended the ACL and AMs based on a 2011 NMFS bottomfish stock assessment updated with three additional years of data, and in consideration of the risk of overfishing, past fishery performance, the acceptable biological catch (ABC) recommendation from its Scientific and