

BEFORE THE SECRETARY OF COMMERCE

**Petition to List the Atlantic Humpback Dolphin (*Sousa teuszii*)
Under the Endangered Species Act**



Atlantic humpback dolphin surfacing in nearshore waters of the Rio Nuñez Estuary, Guinea. Photograph by Caroline Weir.

Petitioners:



Animal Welfare Institute



Center for Biological Diversity



September 8, 2021

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NOTICE OF PETITION

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Pursuant to Section 4(b) of the Endangered Species Act (ESA), 16 U.S.C. § 1533(b), Section 553(3) of the Administrative Procedure Act, 5 U.S.C. § 553(e), and 50 C.F.R. § 424.14(a), the Animal Welfare Institute, the Center for Biological Diversity, and VIVA Vaquita (Petitioners) hereby petition the Secretary of Commerce (Secretary), acting through the National Marine Fisheries Service (NMFS), an agency within the National Oceanic and Atmospheric Administration, to list the Atlantic humpback dolphin (*Sousa teuszii*), as an endangered or threatened species pursuant to the ESA. 16 U.S.C. §§ 1531-1544.

NMFS has jurisdiction over this petition for listing of a marine species. 16 U.S.C. § 1533(a)(2). This petition sets in motion a specific process, requiring NMFS to respond by certain deadlines. Specifically, NMFS must issue an initial finding as to whether the petition “presents substantial scientific or commercial information indicating that the petitioned action may be warranted.” 16 U.S.C. § 1533(b)(3)(A). NMFS must make this initial finding “[t]o the maximum extent practicable, within 90 days after receiving the petition.” *Id.* If NMFS finds listing “may be warranted,” then, within 12 months of receiving the petition, NMFS must determine whether the petition “is warranted,” and if it is, “promptly” propose a rule to list the species. *Id.* § 1533(b)(3)(B). NMFS must make listing determinations “solely on the basis of the best scientific and commercial data available.” *Id.* § 1533(b)(1)(A).

The term “species” is broadly defined under the ESA to include “any subspecies of fish or wildlife or plants and any distinct population segment of any species of vertebrate fish or wildlife that interbreeds when mature.” 16 U.S.C. § 1532(16). The petitioners ask that the Secretary list the Atlantic humpback dolphin as a threatened or endangered species because the population is in serious decline, is critically endangered (as already recognized by the IUCN Red List), and is threatened by at least four of the five listing factors.

EXECUTIVE SUMMARY

The Atlantic humpback dolphin (*Sousa teuszii*) is the most endangered of the four species of coastal humpback dolphins in the genus *Sousa*, which are all recognized by the International Union for Conservation of Nature (IUCN) as threatened by human activities. The species is found only along the western African coast, ranging through at least 13 countries from Western Sahara south to Angola. These dolphins occur exclusively in relatively shallow waters and are most common in estuarine environments close to shore. They feed on a wide variety of nearshore fish species, with mullet being the most commonly reported prey item. Eleven management stocks have been identified, mostly from apparent gaps in distribution, but there have been no studies of geographic variation in morphology or genetics to further clarify stock structure of the species. Most known populations appear to number in the tens to low hundreds. It is thought that the entire species consists of no more than 3,000 individuals and is declining in numbers. The IUCN Red List currently classifies this species as Critically Endangered, the most dire threat category for an extant species. Such a listing indicates “an extremely high risk of extinction in the wild.”

Bycatch in fisheries, deliberate capture, depletion of prey by fisheries, coastal development, and anthropogenic noise are considered to be the major threats to the species, with fisheries impacts (especially bycatch in local gillnet fisheries) undoubtedly the most severe. There seems to be little commercial, recreational, or scientific utilization of the species, but a market for its meat is apparently growing, as part of the African ‘marine wildmeat’ trade. Disease and predation have been very poorly studied, though spinal pathology has been noted in Atlantic humpback dolphins. Large sharks and killer whales are likely the only natural predators.

Regulatory mechanisms and conservation measures needed to protect this species are currently woefully inadequate. Although marine protected areas do exist in some range countries, the effectiveness of their management is variable and few laws or regulations exist specifically to conserve the Atlantic humpback dolphin. There are no natural factors known to be threatening the species’ survival prospects; all known threats are anthropogenic. The Atlantic humpback dolphin is one of the least-known species of dolphins or porpoises in the world. The dearth of knowledge on most aspects of the species’ biology and ecology represents a serious impediment to developing effective conservation measures.

The petitioners request that the National Marine Fisheries Service list the Atlantic humpback dolphin as “endangered” or “threatened” under the Endangered Species Act (ESA). Listing under the ESA would significantly improve the species’ survival prospects, by increasing global awareness of the species, assisting research efforts, helping to stimulate funding for important science, and providing financial and legal/political assistance to local and international conservation efforts.

PART I. SPECIES ACCOUNT

A. Species Description and Taxonomy

Order Cetartiodactyla (Montgelard, Catzefils and Douzery, 1997)
 Suborder Cetacea (Brisson, 1762)
 Infraorder Odontoceti (Flower, 1867)
 Family Delphinidae (Gray, 1821)
 Genus *Sousa* (Gray, 1866)
 Species *S. teuszii* (Kükenthal, 1892)

The Atlantic humpback dolphin, *Sousa teuszii*, is one of four known species of humpback dolphins in the genus *Sousa* (Mendez et al. 2013, p. 5936; Jefferson and Rosenbaum 2014, p. 1494). This species is the only humpback dolphin found in the Atlantic Ocean and occurs along the coast of western Africa. *Sousa teuszii* was first described in the late nineteenth century by Kükenthal (1892, p. 442), who based his description primarily on perceived differences in the skull of the holotype (collected in Cameroon), from other humpback dolphins known at the time. The distinctness of the species from the others has been questioned over the years (see Ross et al. 1996, p. 1), but recent work involving adequate samples of both morphometric (Jefferson and Van Waerebeek 2004, p. 3) and molecular (Mendez et al. 2013, p. 5936) characters has confirmed that it is a species separate from the other three of the genus *Sousa*: *S. plumbea* (Indian Ocean humpback dolphin), *S. chinensis* (Indo-Pacific humpback dolphin), and *S. sahulensis* (Australian humpback dolphin) (Jefferson and Rosenbaum 2014, p. 1494).



Fig. 1. A young specimen of the Atlantic humpback dolphin, which was caught in a gillnet. Photo by Tim Collins/WCS.

For many decades, even the external appearance of this species was little known and poorly documented (see Cadenat 1956, p. 555; 1959, p. 1394; Cadenat and Paraiso 1957, p. 324; Maigret 1980, p. 619). Although the sample size of measured specimens is still quite small for *S. teuszii*, the known maximum length of the species appears to be somewhat less than other species' maximum length in the genus, ca.

266 cm (Jefferson and Rosenbaum 2014, p. 1513). Externally, the species is generally uniform dark gray in color, though often with lighter areas on the belly and undersides. The dorsal fin is small and rounded, sitting atop a large hump of connective tissue (called the dorsal hump) on the back (this gives the species its common name), the hump representing about 26–32% of the total length (Jefferson and Rosenbaum 2014, p. 1513). The skull is also distinctive, having a relatively shorter and wider rostrum (especially at the base) than in other species of the genus. Tooth counts are also lower (27–32 per tooth row vs. 31–39 in other species of *Sousa*; Jefferson and Rosenbaum 2014, p. 1513). Sexual dimorphism has not been studied in detail (largely due to small sample sizes of specimens), but it is suspected that males reach greater lengths and heavier weights than females and have a more pronounced dorsal hump, as is the case in their closest relative, *S. plumbea* (Jefferson and Van Waerebeek 2004, p. 3; Jefferson and Rosenbaum 2014, p. 1513).

The species also has distinct differences in its mtDNA and nuclear DNA profiles (Jefferson and Rosenbaum 2014, p. 1513), with no mtDNA haplotypes shared with other species in the genus (Mendes et al. 2013, p. 5941). Genetic results suggest that the species is most closely related to the Indian Ocean humpback dolphin, the species that is geographically and morphologically most similar to *S. teuszii*. There is very little known, however, about the extent of geographic variation within the various species of the genus (Mendes et al. 2013, p. 5936). The cold Benguela current is associated with extensive upwelling in the ca. 2,200 km gap between *S. teuszii* and *S. plumbea* off southwestern Africa, likely resulting in unsuitable habitat for humpback dolphins and causing isolation that resulted in speciation (Jefferson and Van Waerebeek 2004, p. 12).

Eight management stocks were proposed by Van Waerebeek et al. (2004, p. 72), although these were based largely on apparent distributional gaps rather than any indication of geographic forms in either morphology or genetics. Such differences may very well exist, but the sample sizes available for scientific analysis are simply inadequate at present to examine for such differences. Three other areas (including Gabon and Cameroon Estuary), with no known records of *S. teuszii* at the time of Van Waerebeek et al.'s (2004, p. 70) review, have since been found to contain extant humpback dolphin populations (Collins 2015, p. 53), bringing the total number of putative stocks to 11.

B. Distribution, Habitat, and Movements

The Atlantic humpback dolphin is found in over a dozen countries in western Africa, ranging from Western Sahara (ca. 24°N) in the north to Angola (ca. 16°S) in the south (Weir and Collins 2015, p. 86). Although the known range spans 19 countries and the species may have been present in all of them at one time, there are currently only confirmed records of occurrence in the following 13 nations: Western Sahara, Mauritania, Senegal, The Gambia, Guinea Bissau, Guinea, Togo, Benin, Nigeria, Cameroon, Gabon, Republic of Congo, and Angola (Minton et al. 2020, p. 3). The nations with no specific records (Sierra Leone, Liberia, Cote d'Ivoire, Ghana, Equatorial Guinea, and Democratic Republic of the Congo) are generally quite poorly

studied in terms of marine mammal distribution. Therefore, in some cases these apparent gaps in range might not be real (Collins et al. 2017, Geographic Range). However, there has been some recent work conducted in Ghana and the absence of records there was suggested to be due to local (and possibly recent) extirpation of the species (Van Waerebeek et al. 2009, p. 84).

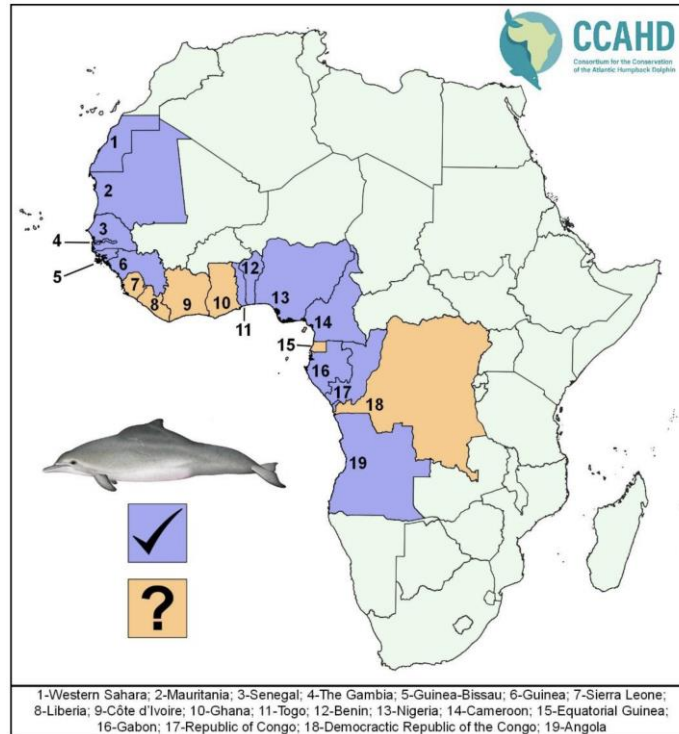


Fig. 2. The range of the Atlantic humpback dolphin, as currently known, covers 13 countries from Western Sahara in the north, to Angola in the south (blue shading). Countries in orange are ones in which there are no current records of the species, but in which it likely occurs (or did in the past). From Minton et al. (2020, p. 3).

Based on 853 records of occurrence, the species prefers habitats characterized by shallow (<20 m deep), warm (15.8-31.8°C) waters that are strongly influenced by tidal action (Weir and Collins 2015, p. 101). Such habitat is typically found in estuaries, tidal mud flats, and sheltered bays, but can also be found in some archipelagos over the continental shelf and even some open coastlines. Atlantic humpback dolphins are found within a wide range of distances from shore, from 13 m to 12.8 km (Weir and Collins 2015, p. 102). Although clearly a relatively coastal species overall, this finding led Weir and Collins (2015, p. 102) to postulate that the species' preferred habitats are determined less by distance from shore and more by water depth, wave activity, and sedimentation. There is no evidence that *S. teuszii* inhabits the coastal lagoons that occur along the coastlines of equatorial western Africa (Collins 2015, p. 51). Although they have been recorded in some rivers, even extending tens of kilometers upriver, the available evidence suggests that they typically do not extend beyond the point of marine tidal intrusion (Maigret 1980, p.

627; Van Waerebeek et al. 2004, p. 73; Weir and Collins 2015, p. 103). Despite some previous speculation, this is not a freshwater species.



Fig. 3. Two Atlantic humpback dolphins move along shore near the coastline of Angola. Photo by Caroline Weir.

No large-scale seasonal migrations are known for the species, although smaller-scale seasonal shifts in abundance have been postulated (this is often based on fragmentary evidence, at best – Collins 2015, p. 62). In the Flamingoes area of Angola, the small population of about 10 individuals appears to be largely resident, with very restricted movements. Although photo-identification has occurred in a few very specific parts of the species' range, as far as we are aware, there has been no effort to compare identification photos among different study areas. Tagging work has never been attempted with this species; thus individual movements are not well understood. Despite this, movements across national boundaries have been documented in some cases and probably occur regularly (Collins et al. 2017, Geographic Range).

C. Diet and Feeding Ecology

The feeding habits of the species are not well known, largely due to a paucity of research on the subject. Previously, the species had a reputation for being herbivorous or omnivorous, which was based on a misunderstanding. Leaves, fruit, and grass found in the stomach of what was thought to be an Atlantic humpback dolphin specimen (Kükenthal 1891, p. 446; 1892, p. 175) prompted speculation that this species may feed on plant material (which is actually unknown among cetaceans). However, the stomach actually came from a West African manatee specimen (*Trichechus senegalensis* – a species that actually is herbivorous); thus this speculation has turned out to be false (Collins 2015, p. 58).

Though sample sizes of stomach contents records are still very limited, like other species of the genus *Sousa*, Atlantic humpback dolphins appear to feed primarily on coastal, estuarine, and reef-associated fishes (see reviews by Collins 2015, p. 58; Collins et al. 2017, Habitat and Ecology). The main types of fishes recorded so far

have been grunts (*Pomadysis*), croakers (*Pseudotolithus*), mullet (*Mugil*), shad (*Ethmalosa*), snapper (*Lutjanus*), emperor (*Lethrinus*), spadefish (*Chaetodipterus*), flounders (*Paralichthodes*, *Pseudorhombius*), and threadfin (*Pentanemus*). Invertebrates have rarely been recorded as prey and do not appear to be regular prey items, although one study found some mantis shrimp (*Squilla*) in Atlantic humpback dolphin stomachs.

Observations of foraging and feeding behavior have most often involved the pursuit of mullets (*Mugil*, *Liza*), which appear to be the major prey type (Collins et al. 2017, Habitat and Ecology). Atlantic humpback dolphins have occasionally been observed among groups of common bottlenose dolphins (*Tursiops truncatus*), which regularly work cooperatively with Imraguen fishermen in Mauritania to capture mullet with shore seines (Busnel 1973, p. 116). *Sousa* have been observed pursuing sardines in Angola (Weir 2009, p. 326). Dolphins in Angola were also observed pursuing a bonito (*Sarda*), though it is not known if the fish was consumed. This fast-swimming, oceanic fish is quite different from the regular prey of the species and seems unlikely to be a regular prey item.

Foraging often appears to occur on flood or low tides, though there is some variability across the range. Estuaries, creeks, and tidal channels are favored feeding locations. In at least Angola and Gabon, feeding also occurs near rocks and reefs. At times, dolphins gather into large groups to feed – groups of 20–40 individuals, the largest known for the species, have been observed feeding together (Collins et al. 2017, Habitat and Ecology).

D. Population Status and Trends

Population or stock structure in the Atlantic humpback dolphin has not been studied using state-of-the art techniques, such as comparison of geographic variation in morphological features or molecular genetics. As a result, the only information available on stock structure comes from known distribution records and evidence of range gaps. Van Waerebeek et al. (2004, p. 72) used such an approach to suggest that there were eight management stocks for this species. Three additional stocks have been identified since the Van Waerebeek et al. (2004) study, bringing the total to 11 stocks:

- a. Dakhla Bay stock (Morocco/Western Sahara)
- b. Banc d'Arguin stock (Mauritania)
- c. Saloum-Niumi stock (Senegal/The Gambia)
- d. Canal do Geba- Bijagos stock (Guinea Bissau)
- e. South Guinea stock (Guinea)
- f. Togo stock (Togo)
- g. Benin stock (Benin)
- h. Cameroon Estuary stock (Cameroon)
- i. Gabon Estuary stock (Gabon)
- j. Congo stock (Republic of Congo)
- k. Angola stock (Angola)

Van Waerebeek et al. (2004, p. 72) suggested that the distribution may have been more continuous in the past and that many of these more-or-less isolated stocks may have resulted from human impacts that reduced numbers and caused extirpations in certain parts of the range.

For almost all of these stocks, data are insufficient to establish statistically-defensible abundance estimates, although for most of them, an approximate general estimate has been made by those who have worked there (see Collins 2015, p. 53). These general estimates range from a handful of individuals to several hundred; no populations have been estimated to consist of more than a few hundred animals.

The only population estimate based on quantitative methods is for the Angola stock, which inhabits the Flamingoes area. This stock has been studied with photo-identification methods and is thought to contain only 10 individuals (Weir 2009, p. 327). Collins (2015, p. 53) and Collins et al. (2017, Population) reviewed all available data on the population biology of this species and concluded that the total global population of the species is almost certainly less than 3,000 individuals. Assuming about 50% mature individuals, this would make the mature population about 1,500 individuals (Collins et al. 2017, Assessment Information). Although this is speculative, it is based on a thorough review of the best available data and new research from the past few years has not provided evidence to undermine this assumption.



Fig. 4. An Atlantic humpback dolphin surfaces in the Rio Nuñez Estuary, Guinea, showing the characteristic hump of the species, on which the small rounded dorsal fin sits. Photo by Caroline Weir.

With no time-series of abundance estimates available, nothing is known for certain about population trends for this species. However, the badly deteriorating conditions of the coastal zones that these animals inhabit in West Africa, along with known serious issues of bycatch, directed catches, and other conservation threats, have resulted in the inference that all populations are currently declining (Collins 2015, p. 55; Collins et al. 2017, Assessment Information).

Previous assessments of this species on the IUCN Red List of Threatened Species emphasized the lack of knowledge about the species' status (resulting in Insufficiently Known and Data Deficient listings in 1994 and 1996, respectively), but the IUCN later recognized the species as Vulnerable in 2008 and 2012 (Collins et al. 2017, Assessment Information). A thorough assessment of the species after the taxonomic revision of 2014 confirmed its uniqueness at the species level (Jefferson and Rosenbaum 2014, p. 1494) and resulted in uplisting to the current status of Critically Endangered (CR) on the IUCN Red List (Collins et al. 2017, Assessment Information). Collins et al. (2017, Assessment Information) is based on criteria A2cd +4cd; C2a(i), and assumes a reduction of more than 80% in the total population over three generations (~75 years). While there is much uncertainty, the designation is supported by the expansion of western African coastal fisheries in the 1980s (Collins et al. 2017, Assessment Information). *Sousa teuszii* is the only extant species of small cetacean, other than the vaquita (*Phocoena sinus*), that currently has this most dire CR listing (the only other small cetacean species that shares it, *Lipotes vexillifer* or baiji, has been considered functionally extinct for about 15 years)¹. A CR listing indicates “an extremely high risk of extinction in the wild”.

PART II. THE ATLANTIC HUMPBACK DOLPHIN SATISFIES THE CRITERIA FOR LISTING AS AN ENDANGERED SPECIES

Under the ESA, NMFS “shall . . . determine whether any species is an endangered species or threatened species because of any of the following factors:”

- (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) the inadequacy of existing regulatory mechanisms; or
- (E) other natural or manmade factors affecting its continued existence.

16 U.S.C. § 1533(a). The agency's review and determination must be based solely on the best scientific and commercial data available. *Id.* § 1533(b)(1)(A).

Major threats to the Atlantic humpback dolphin are considered to be bycatch in fisheries, depletion of prey through fisheries, coastal development, and various sources of anthropogenic noise. Minor threats include environmental contamination and oil and chemical spills (Collins 2015, p. 64; Collins et al. 2017, Threats). Each of these threats is discussed below.

A. Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range and Other Natural and Anthropogenic Factors

¹ The Taiwanese white dolphin (a subspecies, *S. chinensis taiwanensis*) also has this designation.

The negative effects of climate change on this species, while largely unknown at present, must be considered. Although there has been no direct study of this potential threat on *S. teuszii*, it is likely that climate change will affect all species of marine mammals and the impacts are likely to be primarily negative (Dutton 2010, p. 3). One particularly worrisome prospect is the possibility of global warming increasing the occurrence and intensity of infectious disease outbreaks, in turn causing mass mortality events (Sanderson and Alexander 2020, p. 4284). Such a scenario is quite possible for the Atlantic humpback dolphin, which is a social species, and could be devastating given its small overall population size.

See above for discussion of the current threats facing this species.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

There is no known recreational, scientific, or educational use of the Atlantic humpback dolphin at the present time.

Deliberate capture of Atlantic humpback dolphins occurs in several parts of the range (Van Waerebeek et al. 2004, p. 78; Collins 2015, p. 65), although such events appear to be rare. There is no evidence of any organized, directed fisheries for the species, but there is a concern that accidental bycatch can turn into “directed entanglement” or even “non-target-deliberate acquisition” (Collins 2015, p. 66). In other words, fishermen may intentionally try to catch dolphins in nets originally intended for other species, especially if they find there is a market for such catches. The “marine wildmeat” (also known as “bushmeat”) trade in West Africa provides such a potential market (Clapham and Van Waerebeek 2007, p. 2608). Sale of *S. teuszii* meat has been documented in the following countries: Mauritania, Senegal, The Gambia, Guinea Bissau, Guinea, Sierra Leone, Togo, Nigeria, Cameroon, and Republic of the Congo.

The future potential for dolphin watching activities to grow into a recreational use of the species exists, especially as it is an exotic species of charismatic megafauna, which is found nearshore.

C. Disease and Predation

Due to a lack of detailed studies, there is not much information available on disease or predation in this species. The type specimen of *S. teuszii* apparently showed evidence of shark bite wounds, but it is not certain if these were made while the animal was alive or after death (Kükenthal 1892, p. 446). However, it is probable that large sharks do prey on Atlantic humpback dolphins. There are no records of killer whale (*Orcinus orca*) predation on this species, though it is likely that this happens at least occasionally.

Similarly, work on disease and pathology of this species is largely lacking. However, one recent study found evidence of various types of spinal column anomalies (including lordosis, kyphosis, and vertebral indents) in several individual Atlantic humpback dolphins (Weir and Wang 2016, p. 181).

D. Inadequacy of Existing Regulatory Mechanisms

Although the Atlantic humpback dolphin has without a doubt benefitted from the establishment of general marine protected areas, and some other more broad-based measures (such as legislation in certain countries that protect marine mammals), there are virtually no laws or legal instruments in place that specifically provide protection for this species (Collins 2015, p. 68). Regulatory mechanisms that currently exist are woefully inadequate to protect the species and prevent its continued decline in numbers.

Concerns about the status of the species have been raised repeatedly within such international bodies as the International Whaling Commission, IUCN Cetacean Specialist Group, and Convention on Migratory Species (see Reeves et al. 2003, p. 45; Minton et al. 2020, p. 3). Despite this attention, little seems to have changed for the better within the species' range and the inferred population decline is likely to continue.

Among the needs for stabilizing (and eventually recovering) the populations of the Atlantic humpback dolphin are the following:

- a. Studies of population structure using morphometric and molecular methods,
- b. Research on population assessment of those management stocks that have been identified, leading to statistically-defensible and accurate estimates of abundance,
- c. Monitoring of bycatch in fisheries, through the use of fisheries observer programs,
- d. Laws that prohibit the direct capture of this species, where they do not already exist, and regulate bycatch,
- e. Coastal zone management to protect the coastal habitat of the species and preserve its integrity, and
- f. The establishment of marine protected areas in those areas where the species is known to have important habitat.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

There are no known natural factors that have a detrimental effect on the continued existence of this species. All of the factors that are threatening the species' survival are anthropogenic, as discussed herein. These include fisheries bycatch and prey depletion, deliberate capture, coastal development, and anthropogenic noise impacts.

Bycatch in fisheries is almost certainly the major threat to this species at present (Collins 2015, p. 64; Collins et al. 2017, Threats). Artisanal gillnet fisheries occur all along the coast, and this type of fishing gear is known to be particularly dangerous to dolphins and porpoises (Brownell et al. 2019, p. 285). Catches in gillnets have been reported in much of the species' range, though there are no quantitative estimates of the annual mortality from observer data (Collins et al. 2017, Threats).

Collins (2015, p. 64) raised the issue of the spread of migrant fishermen, which can bring conservation problems to areas where they did not previously exist. Depletion of prey species may also result from local fisheries, as well as from larger-scale mechanized fisheries (Collins et al. 2017, Threats). The latter threat, although mostly speculative at present, needs to be considered.

Coastal development is another serious concern, as the various activities that are associated with it (e.g., physical loss of habitat, vessel traffic, construction noise, runoff of chemicals, and associated cumulative impacts) can cause disturbance to dolphins, or in more severe cases, injuries, deaths, and even the abandonment of important habitat areas. Oil and gas exploration and extraction activities occur in the central and southern parts of the species' range, and partly as a result, port facilities and other coastal developments are on the rise in the area (Collins 2015, p. 68; Collins et al. 2017, Threats).

Related to the above, anthropogenic noise is a serious concern for this species, which is strongly dependent on passive hearing and active echolocation for navigation, food finding, predator avoidance, and social communication. Vessel traffic, oil and gas drilling, dredging, and various types of marine construction activities are the major sources of such noise, but there are certainly others as well (Collins 2015, p. 67; Collins et al. 2017, Threats).

Minor threats to the species include environmental contamination from organochlorines, heavy and trace metals, as well as other toxins that are associated with human activities (Collins 2015, p. 68; Collins et al. 2017, Threats). The degree of contamination by pollutants has been virtually unstudied in this species, and nothing is known about the effects on the animals. However, based on extensive work on the related species *S. chinensis*, it appears likely that some heavy metals (such as mercury) and some organochlorines (such as DDT and PCBs) would have negative impacts on the animals, assuming they are being ingested by Atlantic humpback dolphins, which seems likely (see Jefferson et al. 2006, p. 181). With oil drilling being such an important activity in the area, the threat of an oil or chemical spill is always a strong concern, and if it happens, could have devastating consequences for this coastal species.

Recently, the Consortium for the Conservation of the Atlantic Humpback Dolphin (CCAHD) has been established. This group consists of researchers and conservationists from range states and other countries, who have an interest in this species, and want to participate in, and contribute to, its conservation. The immediate goals of the consortium were to: 1) establish the consortium and to engage appropriate people, so that the group is representative and effective, 2) produce a report evaluating the short- and medium-term priorities for conservation of the species, and 3) develop a trilingual website (English, French, Portuguese) on the species, which provides resources for stakeholders and others wanting to be involved in the conservation of the species. All three of these initial objectives have been achieved in 2020 and 2021 (see Minton et al., 2020, p. 5 and

<https://www.sousateuszii.org/>). The CCAHD will now move forward with further objectives and intends to take an active role in coordinating research and conservation of the Atlantic humpback dolphin. One of the authors of this petition (T. A. Jefferson of VIVA Vaquita) is an active member of the CCAHD and leads the working group on Threats from Coastal Development.

The Atlantic humpback dolphin is one of the most poorly understood species of small cetaceans. Research on the species has been minimal and most aspects of its biology and ecology are not well known. However, what little is known at present suggests that the species is in serious danger of extinction in the next two or three decades. The 13 known range states in western Africa are not providing adequate protection to the species to avoid continued population declines. It has been identified as the cetacean species most likely to be facing extinction, after the vaquita, which currently is thought to number less than 15 individuals (see Jefferson 2019, p. 471).

PART III. REQUESTED DESIGNATION

The petitioners hereby request that the National Marine Fisheries Service list the Atlantic humpback dolphin (*Sousa teuszii*) as “endangered” or “threatened” under the Endangered Species Act (ESA). Listing is warranted, given the formidable threats facing the species, which is already relatively rare and in decline, with small and fragmented populations. The Atlantic humpback dolphin is threatened by at least four listing factors under the ESA: the present destruction or modification of habitat due to pollution and development; overutilization via bycatch; inadequate existing regulatory mechanisms; and other natural or manmade factors affecting its continued existence. The extinction of this species would represent a significant loss of biodiversity, as it is one of only four species of humpback dolphins (*Sousa* spp.).

Federal listing of this species under the ESA would help ensure prohibition on import, export, or possession of this species by U.S. individuals and corporations. Listing this species could also increase awareness, incentivize research, and/or provide financial, technical and law enforcement assistance for international and local conservation efforts under Section 8. The protections provided by the ESA can help reverse population declines in the Atlantic humpback dolphin and support recovery of the species.

PART IV. 4(d) RULE

Should NMFS determine that a “threatened” listing of the Atlantic humpback dolphin is warranted, we hereby petition the agency to simultaneously issue a 4(d) rule outlining necessary and advisable regulations for the species’ conservation. 16 U.S.C. § 1533(d). We urge NMFS to extend all prohibitions of ESA Section 9, including the bans on taking, imports, exports, sale in interstate or foreign commerce, and transport (applying the existing limited exceptions to promote science and

restoration as provided in ESA Section 10) and to promulgate additional protective regulations needed for survival and recovery of the species.

All references cited may be [found here](#) as electronic documents. Following submission of this petition, the petitioners will mail electronic versions of the references cited via thumb drive.

LITERATURE CITED

Brownell, R. L., R. R. Reeves, A. J. Read, B. D. Smith, P. O. Thomas, K. Ralls, M. Amano, P. Berggren, A. M. Chit, T. Collins, R. Currey, M. L. L. Dolar, T. Genov, R. C. Hobbs, D. Krebs, H. Marsh, M. Zhigang, W. F. Perrin, S. Phay, L. Rojas-Bracho, G. E. Ryan, K. E. W. Shelden, E. Slooten, B. L. Taylor, O. Vidal, W. Ding, T. S. Whitty and J. Y. Wang. 2019. Bycatch in gillnet fisheries threatens Critically Endangered small cetaceans and other aquatic megafauna. *Endangered Species Research* 40:285-296.
<https://doi.org/10.3354/esr00994>

Busnel, R. G. 1973. Symbiotic relationship between man and dolphins. *Transactions of the New York Academy of Sciences* 35:113-131.

Cadenat, J. 1956. Un Delphinidae encore mal connu de la cote occidentale d'Afrique: *Sotalia teuszii* Kükenenthal 1892. *Bulletin de l'Institut Francais d'Afrique Noire* 18:555-566.

Cadenat, J. and F. Paraiso. 1957. Nouvelle observation de *Sotalia* (Cetace, Delphinide) sur les cotes du Senegal. *Bulletin de l'Institut Francais d'Afrique Noire* 19:324-332.

Cadenat, J. 1959. Rapport sur les petits cetaces ouest-africains. Resultats des recherches enterprises sur ces animaux jusqu'au mois de mars 1959. *Bulletin de l'Institut Francais d'Afrique Noire* 21A:1367-1409.

Clapham, P. and K. V. Waerebeek. 2007. Bushmeat and bycatch: the sum of the parts. *Molecular Ecology* 16:2607-2609.

Collins, T. 2015. Re-Assessment of the Conservation Status of the Atlantic Humpback Dolphin, *Sousa teuszii* (Kükenenthal, 1892) Using the IUCN Red List Criteria. Pages 47-78 in T. A. Jefferson and B. E. Curry eds. *Humpback Dolphins (Sousa spp.): Current Status and Conservation, Part 1: Advances in Marine Biology*. Elsevier.

Collins, T., G. T. Braulik and W. F. Perrin. 2017. *Sousa teuszii* (errata version published in 2018). The IUCN Red List of Threatened Species: e.T20425A123792572.

Dutton, I. 2010. Climate Change: Challenges to Cetacean Conservation. Pages 37 pp. Whalewatcher.

Jefferson, T. A. 2019. Endangered odontocetes and the social connection: Selected examples of species at risk. Pages 465-481 in B. Würsig ed. *Ethology and Behavioral Ecology of Odontocetes*. Springer Nature.

Jefferson, T. A. and K. Van Waerebeek. 2004. Geographic variation in skull morphology of humpback dolphins (*Sousa* spp.). *Aquatic Mammals* 30:3-17.

Jefferson, T. A. and H. R. Rosenbaum. 2014. Taxonomic revision of the humpback dolphins (*Sousa* spp.), and description of a new species from Australia. *Marine Mammal Science* 30:1494–1541.

Jefferson, T. A., S. K. Hung and P. K. S. Lam. 2006. Strandings, mortality and morbidity of Indo-Pacific humpback dolphins in Hong Kong, with emphasis on the role of environmental contaminants. *Journal of Cetacean Research and Management* 8:181-193.

Kükenthal, W. 1891. Porpoises in African rivers. *Nature* 44:175.

Kükenthal, W. 1892. *Sotalia teuszii* n. sp. ein pflanzenfressender (?) delphin aus Kamerun. *Zoologische Jahrbucher, Abteilung für Systematik* 6:442-446.

Maigret, J. 1980. Donnees nouvelles sur l'ecologie du *Sousa teuszii* (Cetacea, Delphinidae) de la cote ouest africaine. *Bulletin de l'Institut Francais d'Afrique Noire* 42A:619-633.

Mendez, M., T. A. Jefferson, S. O. Kolokotronis, M. Krützen, G. J. Parra, T. Collins, G. Minton, R. Baldwin, P. Berggren, A. Sarnblad, O. A. Amir, V. M. Peddemors, L. Karczmarski, A. Guissamula, B. Smith, D. Sutaria, G. Amato and H. C. Rosenbaum. 2013. Integrating multiple lines of evidence to better understand the evolutionary divergence of humpback dolphins along their entire distribution range: a new dolphin species in Australian waters? *Molecular Ecology* 22:5936-5948.

Minton, G., C. Weir and T. Collins. 2020. Consortium for the Conservation of the Atlantic Humpback Dolphin. Short- and medium-term priority actions to conserve the Atlantic humpback dolphin *Sousa teuszii*. 145 pp. Report of the Consortium for the Conservation of the Atlantic Humpback Dolphin.

Ross, G. J. B., G. E. Heinsohn, V. G. Cockcroft, E. C. M. Parsons, L. Porter and A. Preen. 1996 (1995). Review of the taxonomic status of humpback dolphins, genus *Sousa*. Working Paper UNEP/SEA95/WP19 from the Workshop on the Biology and Conservation of Small Cetaceans and Dugongs of Southeast Asia. 25 pp.

Sanderson, C. E. and K. A. Alexander. 2020. Unchartered waters: Climate change likely to intensify infectious disease outbreaks causing mass mortality events in marine mammals. *Glob Chang Biol*. <https://doi.org/10.1111/gcb.15163>

Van Waerebeek, K., L. Barnett, A. Camara, A. Cham, M. Diallo, A. Djiba, A. Jallow, E. Ndiaye, A. O. S. Ould-Bilal and I. L. Bamy. 2004. Distribution, status, and biology of the Atlantic humpback dolphin, *Sousa teuszii* (Kükenthal, 1892). *Aquatic Mammals* 30:56-83.

Van Waerebeek, K., P. K. Ofori-Danson and J. Debrah. 2009. The cetaceans of Ghana, a validated faunal checklist. *West African Journal of Applied Ecology* 15:61-90.

Weir, C. R. 2009. Distribution, behaviour and photo-identification of Atlantic humpback dolphins *Sousa teuszii* off Flamingos, Angola. *African Journal of Marine Science* 31:319-331.

Weir, C. R. and T. Collins. 2015. A Review of the Geographical Distribution and Habitat of the Atlantic Humpback Dolphin (*Sousa teuszii*). Pages 79-118 in T. A. Jefferson and B. E. Curry eds. *Humpback Dolphins (Sousa spp.): Current Status and Conservation, Part 1: Advances in Marine Biology*. Elsevier.

Weir, C. R. and J. Y. Wang. 2016. Vertebral column anomalies in Indo-Pacific and Atlantic humpback dolphins *Sousa* spp. *Diseases of Aquatic Organisms* 120:179-187.

Appendix A. Fact sheet on the Atlantic humpback dolphin, produced by the Consortium for the Conservation of the Atlantic humpback dolphin.

The Atlantic humpback dolphin is one of the least understood coastal dolphin species. It is found in the nearshore waters of the tropical and subtropical Atlantic coast of Africa



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CRITICALLY ENDANGERED:
FEWER THAN 3,000 THOUGHT TO REMAIN



© Tim Collins/WCS

DESCRIPTION

Defining feature: a pronounced hump under the small dorsal fin

Adult males have a more pronounced dorsal hump than females

Slightly rounded forehead



Illustrations by Mark Casardine

A long slender beak

Maximum length of 2.8 m

Bottlenose dolphins (*Tursiops truncatus*) can occur in the same areas, but do NOT have a hump under their dorsal fin



ATLANTIC HUMPBACK DOLPHIN

(Sousa Teuszii)

Sightings, strandings and bycatch records confirm the species' current or recent presence in the following countries:

1 Western Sahara	11 Togo
2 Mauritania	12 Benin
3 Senegal	13 Nigeria
4 The Gambia	14 Cameroon
5 Guinea-Bissau	15 Equatorial Guinea
6 Guinea	16 Gabon
7 Sierra Leone	17 Republic of the Congo
8 Liberia	18 Democratic Republic of the Congo
9 Côte d'Ivoire	19 Angola
10 Ghana	

■ Presence confirmed
 ■ Presence unconfirmed
 ■ Expected range

Without conservation action, this species may become extinct.

Actions required:

- Raise awareness
- Reduce threats
- Build capacity

IMMEDIATE THREATS REQUIRING ACTION

- Bycatch (incidental capture) in fishing gear
- Poaching
- Habitat loss and degradation

THREATS IN NEED OF ASSESSMENT

- Overfishing
- Disturbance from tourism
- Disturbance from noise
- Vessel strikes
- Climate change

THE CONSORTIUM FOR THE CONSERVATION OF ATLANTIC HUMPBACK DOLPHINS

CCAHD - Working towards the long-term sustainability of Atlantic humpback dolphin populations and their habitats through research, awareness, capacity-building and action




HOW TO HELP?

Everyone has a role to play in protecting this species. Find out how you can help. Visit www.sousateuszii.org for more information.

