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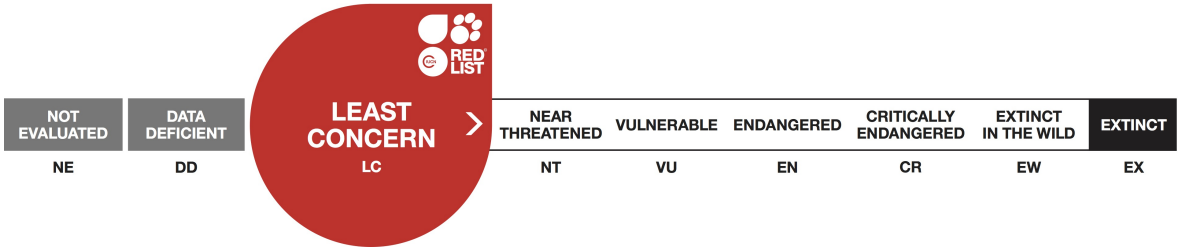
# *Lagenorhynchus obscurus*, Dusky Dolphin

**Assessment by: Alafaro-Shiguieto, J., Crespo, E., Elwen, S., Lundquist, D. & Mangel, J.**

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# Taxonomy

| Kingdom | Phylum | Class | Order | Family |
|---|---|---|---|---|
| Animalia | Chordata | Mammalia | Cetartiodactyla | Delphinidae |

**Taxon Name:** *Lagenorhynchus obscurus* (Gray, 1828)

**Common Name(s):**

- English: Dusky Dolphin
- French: Lagénorhynque Sombre
- Spanish: Delfín Obscuro

**Taxonomic Source(s):**

Committee on Taxonomy. 2017. List of marine mammal species and subspecies. Available at: www.marinemammalscience.org. (Accessed: 31 August 2018).

**Taxonomic Notes:**

The genus *Lagenorhynchus* is polyphyletic and likely an artificial genus (LeDuc *et al*. 1999, Harlin-Cognato 2010), and this species is likely to be included eventually in the genus *Sagmatias* along with *L. obliquidens* (Pacific White-sided Dolphin) (Vollmer *et al*. 2018).

Four subspecies of Dusky Dolphin (*Lagenorhynchus obscurus*) are currently recognized by the Society for Marine Mammalogy's Committee on Taxonomy (2018): African Dusky Dolphin *L. o. obscurus* off southern Africa, Fitzroy's Dolphin *L. o. fitzroyi* off eastern South America, Peruvian/Chilean Dusky Dolphin *L. o. posidonia* off western South America, and the New Zealand Dusky Dolphin (un-named) off New Zealand (Perrin 2002). The populations centered in New Zealand, the west coast of South America, and southwestern Africa are genetically and morphologically distinct (Harlin-Cognato *et al.* 2007, Cassens *et al.* 2003, Würsig *et al*. 1997, Van Waerebeek 1993a,b). There is a hiatus in distribution spanning about 1,000 km along the Chilean coast (Van Waerebeek, 1994), and the animals off Patagonia in Argentina are smaller than those off northern Chile and Peru (Van Waerebeek, 1993b), suggesting that there may be separate subspecies in western and eastern South America (Van Waerebeek, 1993a,b).

Dusky Dolphins also occur around some oceanic island groups (e.g., Tristan da Cunha, Prince Edward, Amsterdam, and St. Paul Islands). The subspecies affinities of these groups are uncertain.

# Assessment Information

**Red List Category & Criteria:** Least Concern ver 3.1

**Year Published:** 2019

**Date Assessed:** August 16, 2018

**Justification:**

The Dusky Dolphin was classified as Data Deficient (DD) on the IUCN Red List in 2008. The species remains extremely data-poor and DD was still considered potentially applicable in this assessment.


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Clarifying language in the Guidelines (Version 11, 2014) states that: “If the data are so uncertain that both CR and LC are plausible categories, the taxon can be listed as DD”. Although information is sparse, several Dusky Dolphin populations are large, seemingly stable, and not subject to high levels of anthropogenic threats, and the Critically Endangered category could not plausibly be applied to the species as it is currently defined. Therefore, DD does not apply. Given the large populations of all four subspecies and the fact that there are no current or historical major threats or signs of decline for three of the four subspecies, the Dusky Dolphin is assessed as Least Concern at the global species level.

However, the Peruvian/Chilean subspecies (*L. o. posidonia*) experiences a relatively high level of threat and likely warrants a higher risk category than the subspecies elsewhere in the species range. Although direct catching of dolphins for crab bait in southern Chile apparently has stopped, the gillnet fisheries that cause bycatch have continued, and the growth of the human population has likely increased throughout the range of the subspecies. Additional threats such as use for bait on longlines and even in drift gillnets targeting sharks and billfish continue (Van Waerebeek *et al*. 1999, Mangel *et al.* 2010). Another known source of mortality is the industrial purse seine fishery for Peruvian Anchoveta (*Engraulis ringens*) (van Oordt 2007, Garcia-Godos 2007). Environmental effects such as the El Niño Southern Oscillation could also have an impact on this subspecies since its main prey, Anchoveta, is reduced during these events (Manzanilla-Naim 2011). It is anticipated that bycatch rates will remain stable or may even increase in the future and therefore it is likely that a population decline is occurring over most of the range of the Peruvian/Chilean subspecies where fishing and dolphin distribution overlap. Separate assessment of this subspecies is a high priority.

### Previously Published Red List Assessments

2008 – Data Deficient (DD)
http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T11146A3257285.en

1996 – Data Deficient (DD)

1994 – Insufficiently Known (K)

## Geographic Range

### Range Description:

Dusky Dolphins have a discontinuous distribution in the Southern Hemisphere associated with cool temperate coastal and shelf waters (Brownell and Cipriano 1999, Van Waerebeek 1992, Cipriano and Webber 2010). They occur in apparently disjunct populations in the waters off New Zealand (including the Chatham and Campbell Islands), central and southern South America (including the Falkland Islands) (Van Waerebeek 1993b, Van Waerebeek *et al*. 1995, Crespo *et al*. 1997), and southwestern Africa (Best 2007). These populations have been assigned to four separate subspecies. Dusky Dolphins also occur around some oceanic island groups (e.g., Tristan da Cunha, Prince Edward, Amsterdam, and St. Paul Islands). The subspecies affinities of these groups are uncertain.

### Country Occurrence:

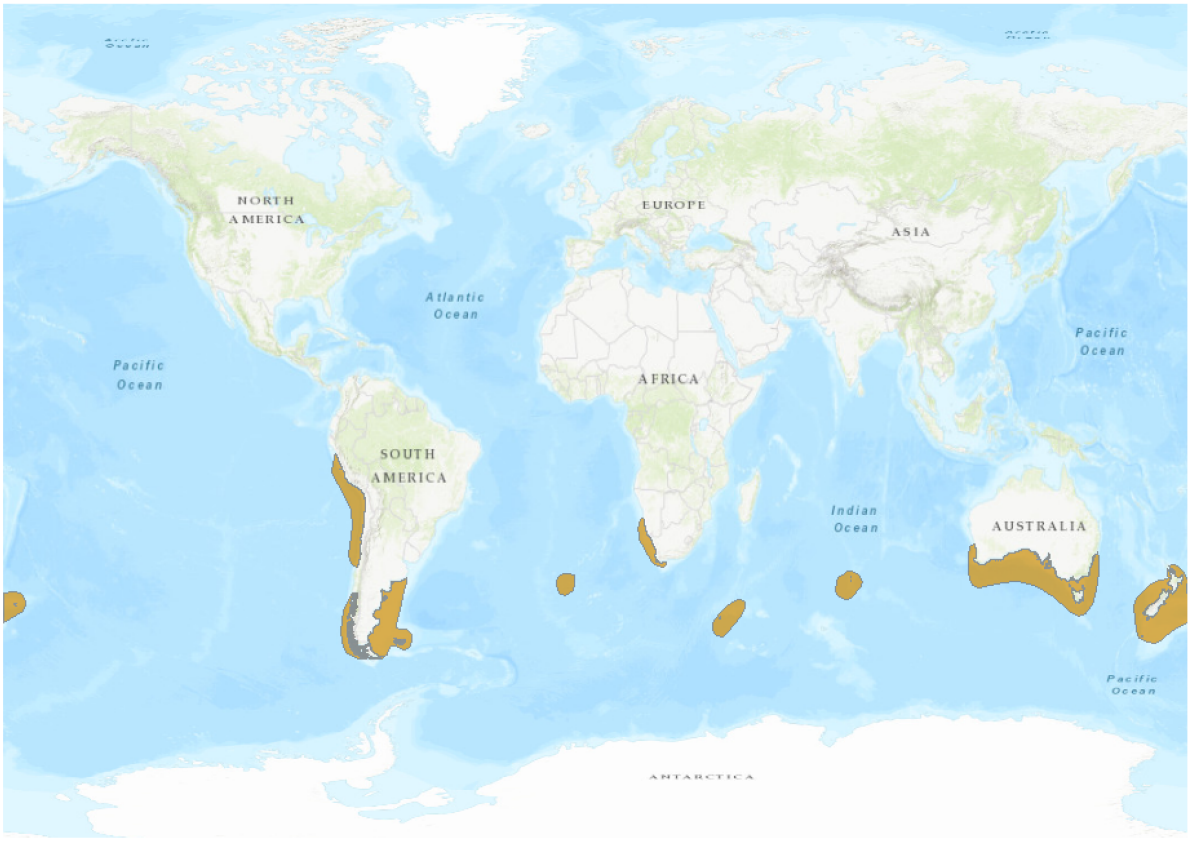
**Native:** Angola; Argentina; Australia; Chile; Falkland Islands (Malvinas); French Southern Territories (Amsterdam-St. Paul Is.); Namibia; New Zealand; Peru; Saint Helena, Ascension and Tristan da Cunha (Ascension, Saint Helena (main island), Tristan da Cunha); South Africa (Marion-Prince Edward Is.)

**FAO Marine Fishing Areas:**

**Native:** Atlantic - southwest, Atlantic - southeast, Pacific - southeast, Pacific - southwest

# Distribution Map

*Lagenorhynchus obscurus*

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Kilometer

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

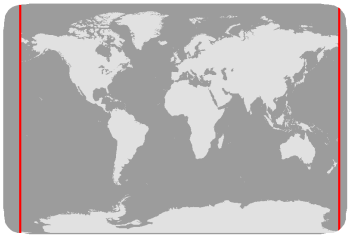
Range

Extant (resident)

Compiled by:

IUCN (International Union for Conservation of Nature)

NE DD LC LEAST CONCERN NT VU EN CR EW EX



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.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# Population

Availability of abundance and density estimates for locations throughout the range of the species are discussed below. **Peruvian/Chilean Dusky Dolphin**: No abundance estimates are available for this subspecies, but it is thought to have been seriously depleted by human activities over the course of many decades particularly off Peru (Read *et al*. 1988, Van Waerebeek 1994, Van Waerebeek *et al.* 1997, Mangel *et al.* 2010, Alfaro-Shigueto *et al.* 2018). **Fitzroy's Dusky Dolphin**: The estimated total number of Dusky Dolphins off northern and central Patagonia, from Península Valdés to Golfo San Jorge (approximately 40% of the subspecies range) was 6,628 (95% confidence interval (CI) 4,039–10,877) in a series of surveys conducted between 1993 and 1996 (Schiavini *et al*. 1999). More recently in 2003 and 2004, Pedraza *et al.* (2005) estimated 4,756 (95% CI 2,083–10,858) Dusky Dolphins in Buenos Aires Province waters and 13,438 (95% CI 5,708 -31,638) in Patagonian waters. Given that the extreme south of the species' range in Argentina was not surveyed, these results suggest that there are at least 20,000 Dusky Dolphins in Argentine waters. **African Dusky Dolphin**: No direct estimates of abundance are available for this subspecies. However, up to 0.9 groups/km were recorded during nearshore small boat surveys in the southern 400 km of the species range in South Africa, with this representing only the very coastal strip of their habitat (Elwen *et al.* 2010). There is a small hiatus in distribution between the northern and southern Benguela ecosystems (roughly 27° to 30°S) indicating that there may be some level of differentiation between these populations (Best and Meÿer 2010), although this has not been confirmed genetically. The species does not frequently come as close to shore in the northern Benguela Current (Namibia), but they were the most abundant species encountered during line transect surveys in the 400 km long x 30 km wide Namibian Islands Marine Protected Area in southern Namibia (Namibian Dolphin Project, unpublished data). It is estimated that the total number of mature animals in the African subspecies exceeds 10,000 (Elwen *et al*. 2016) **New Zealand Dusky Dolphin**: Markowitz (2004) used mark-recapture analysis of individually recognizable Dusky Dolphins off Kaikoura to estimate that 1,969 ± 815 dolphins were present in the area at any time, out of an overall abundance of 12,626 dolphins, not including juveniles. Genetic analyses by Harlin *et al*. (2003) estimated an effective female abundance of 15,700-17,500 individuals. No information is available for the abundance of Dusky Dolphins around the islands in the western South Pacific (Campbell, Auckland, and Chatham), but it is likely that these dolphins are part of the New Zealand subspecies, rather than a discrete subspecies. *Oceanic Islands*: It remains uncertain whether the groups in the South Atlantic (Gough and the Falklands) and Indian Ocean (Amsterdam, Prince Edward, and St. Paul) are discrete or regularly mix with animals in other areas (Brownell and Cipriano 1999).*Current Population Trend*: Abundance is believed to be stable in the major subspecies of southern Chile/Argentina, southern Africa and New Zealand, although quantitative data are lacking. The Peru/Chile subspecies is likely undergoing a sustained decline due to multiple decades of uninterrupted human-induced mortality. Population trend for the species as a whole is unknown.

**Current Population Trend:** Unknown

# Habitat and Ecology **(see Appendix for additional information)**

Throughout their global range Dusky Dolphins are associated with the continental shelf and shelf edge, ranging from the coastline to more than 100 km from shore and more than 2,000 m deep, although in all areas where they have been reported, the majority of animals are observed in water less than 500 m deep (Findlay *et al* 1992, Cipriano and Webber 2010). The species has been recorded to occur in cool temperate waters between 10 and 18°C (Brownell and Cipriano 1999, Würsig and Würsig 1980). Dusky


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Dolphin distribution is strongly associated with highly productive upwelling cells on either side of South America (Humboldt and Falkland) and off southern Africa (Benguela), with various cold-water currents around New Zealand (Brownell and Cipriano 1999) and in higher latitudes with several sub-Antarctic Islands. Although southeastern Australia is commonly reported as part of the species range, sightings there are very rare given the amount of survey effort in the region (Gill *et al.* 2000), suggesting that the species should be considered an occasional transient rather than resident, as noted by Cipriano and Webber (2010). Dusky Dolphins consume a wide variety of fish and cephalopod prey, including schooling fishes such as anchovy, Sardine (*Sardina pilchardus*) and Horse Mackerel (*Trachurus* sp.), and more benthic species associated with the deep scattering layer such as hake (*Merluccius* sp.), lantern fish (*Lampanyctus* sp.), hatchet fish and a number of squid species. In Peru, analysis of stomach content for 72 individuals reported Peruvian Anchoveta as the main prey, followed by Slimtail Lanternfish *Lampanyctus parvicauda* and Inca Scad *Trachurus murphyi* (Garcia-Godos *et al*., 2007). On the basis of stomach contents and stable isotope methods, Dusky Dolphins in northern and central Patagonia feed on Argentine Anchovy (*Engraulis anchoita*), Argentine Hake (*Merluccius hubbsi*), Butterfish (*Stromateus brasiliensis*), and squids (*Illex argentinus, Loligo gahi*) together with few benthic prey (Koen Alonso *et al.* 1998; Romero *et al*. 2012; Loizaga de Castro *et al.* 2015). In southern Africa, analysis of stranded, caught and bycaught dolphins showed stomach contents to consist of 34.7% Horse Mackerel, 22.9% Hake, and 12.8% lantern fish with Sardine, Arrow Squid (*Nototodarus sloanii)* and Chokka Squid (*Loligo reynaudii)* also taken occasionally (Best and Meÿer 2010). In New Zealand, Dusky Dolphins near Kaikoura primarily feed on deep scattering layer-associated species, including squids (especially *Nototodarus/Todaroides* spp.) and lanternfish (Cipriano 1992). In winter, Dusky Dolphins in Admiralty Bay, New Zealand feed on Pilchard (*Sardinops neopilchardus*), Yellow-eyed Mullet (*Aldrichetta forsteri*), and Sprat (*Sprattus antipodum*; Markowitz *et al*. 2004). To catch their prey, Dusky Dolphins use at least two different foraging strategies: forming large groups to herd and attack surface-schooling fish such as anchovies and sardines in 'bait balls' (Markowitz *et al*. 2004, Best and Meÿer 2010, Degrati *et al*. 2012) or predominantly nocturnal foraging on species associated with the deep scattering layer, which migrate closer to the surface at night (Benoit-Bird *et al.* 2004, Best and Meÿer 2010, Bernasconi *et al.* 2011). In the latter case, Dusky Dolphins appear to engage in a clearly diurnal movement pattern, returning close to shore during daylight hours when prey are too deep to access, probably to reduce the threat of predation from deep-water predators such as sharks and Killer Whales (*Orcinus orca*). Dusky Dolphins appear to modify their foraging strategy to adapt to the most abundant prey available and foraging strategy may vary over space and time. For instance, at Península Valdés, Argentina, Dusky Dolphins predominantly engage in coordinated diving during winter months (9.5% of the time) but engage in surface feeding on bait balls (diving drops to 0.1% of the time) during summer (Degrati *et al*. 2012). In both seasons, most of the groups observed diving were small (less than 10 dolphins). Similarly, in New Zealand, Dusky Dolphins predominantly forage nocturnally off Kaikoura on deep scattering layer-associated species (Cipriano 1992, Benoit-Bird *et al.* 2004), while the same animals also engage in shallow-water bait-ball feeding in the Marlborough Sounds (Markowitz 2004, Markowitz *et al.* 2004).

**Systems:** Marine

# Use and Trade

This species is the subject of a targeted fishery in Peru for use as wildmeat and bait (Read *et al.* 1988, Van Waerebeek and Reyes 1990, Alfaro-Shigueto *et al.* 2010, Mangel *et al.*, 2010). Dusky Dolphin meat was identified by molecular analysis of products obtained at three different fish markets in Peru, commercialized for human consumption (Tzika *et al.* 2010).

Van Waerebeek *et al*. (1994, 1997, 2002) reported a change in the composition of fisheries landings of this species from 77.5% in 1985-1990, to a 52.8% in 1991-1993, to 45% during 1995-1999 which was interpreted as a decline in the species due to impacts from fisheries. Continued incidental take in small-scale net fisheries in Peru, with bycaught animals either discarded or retained for use as food and bait, was reported by Mangel *et al.*, (2010) and (2013). In these studies, Dusky Dolphins were the second most frequently captured small cetacean after Common Dolphins (*Delphinus delphis*) at 29% and 20%, respectively. Information based on beach strandings (Van Waerebeek *et al*. 2018), suggests that bycatch continues in some sites of Peru, where Dusky Dolphins were the second most common species reported.

## Threats (see Appendix for additional information)

The threats facing Dusky Dolphins are most severe in western South America. The species was taken directly in the multi-species small cetacean fisheries of Peru and Chile in the 1980s, with the directed hunt for dolphins and porpoises expanding in Peru after the demise of the Anchoveta fishery in 1972 (Read *et al.* 1988, Van Waerebeek and Reyes 1990, Van Waerebeek *et al*. 1994). The fishing fleet from a single port in Peru could take over 700 Dusky Dolphins in a single year during the 1980s and 1990s (Van Waerebeek *et al.* 1997, Van Waerebeek and Reyes 1994, Read *et al*. 1988). For the port of Cerro Azul, central Peru, the total kill for a seven-month period was estimated at 1,567 cetaceans (Van Waerebeek *et al.* 1997) with total catches for the coastal waters of central Peru estimated at 10,000 small cetaceans (Read *et al*. 1988). Catches increased to 15-20,000 dolphins per year in the 1990s (Van Waerebeek and Reyes 1994), with Dusky Dolphins representing approximately 77.8% of these. Mangel *et al*. (2010) suggested that this level of take may continue to the present based on their estimated annual bycatch of more than 2000 small cetaceans from just one fishing port (including an estimated annual catch of 818 Dusky Dolphins) and the near-doubling in size of the small-scale fishery in Peru between 1995 and 2005 (Alfaro-Shigueto *et al*. 2010). Dusky dolphins continue to be taken incidentally or as bycatch in small-scale fisheries (mostly multifilament gillnets), and the practice of harpooning for bait continues (Mangel *et al*. 2010, 2013). Additionally, Tzika *et al*. (2010) reported the continued sale of dolphin meat for human consumption in fish markets in Peru. The absence of abundance data precludes any assessment of trends for Dusky Dolphins in Peru (Van Waerebeek *et al*. 1997). Incidental mortality in mid-water trawls off Patagonia in the mid-1990s was estimated at 400–600 Dusky Dolphins per year, primarily adult females, declining to 70–215 in the mid-1990s (Dans *et al*. 1997). Several hundred also died and presumably continue to die each year in various other types of fishing gear off Argentina (Crespo *et al*. 2000). Nevertheless, fisheries targeting anchovies or pelagic fish have very low effort as markets for Argentine Anchovy are not available, so at present there is no major concern related to incidental mortality. In southern Africa, by-catch levels in fisheries are relatively low (Petersen and McDonell 2007, Best and Meÿer 2010), although there is an emerging threat in the form of mid-water trawl fisheries in the southern Benguela. A recent collapse (mid 2000s) of sardine stocks in the southern Benguela (Coetzee *et al.* 2008) may threaten long-term prey availability, while harmful algal blooms caused by dinoflagellates are increasing in frequency and occurrence (van der Lingen *et al.* 2015). Dusky Dolphins are not the target species of any commercial wildlife viewing industries in southern Africa, although they are approached when encountered, notably in Walvis Bay and Lüderitz, Namibia and Table Bay, South Africa. In New Zealand, approximately 200 Dusky Dolphins were estimated to be captured in fisheries off Kaikoura in 1984 (Webber and Cipriano, unpublished data cited in Cipriano and Webber 2010). Current bycatch rates are likely to be lower due to gillnet bans put in place to protect Hector's Dolphins (*Cephalorhynchus hectori*). Dusky Dolphins off New Zealand are the target for a

number of commercial tourism industries, including swim-with and viewing operations. Threats posed by these operations have been addressed by multiple rounds of research and adaptive management response and are believed to be minimal at present (Lundquist 2014). No information is available on bycatch levels from the populations of Dusky Dolphins associated with sub-Antarctic islands.

## Conservation Actions **(see Appendix for additional information)**

The species is listed in Appendix II of the Convention on International Trade in Endangered Species (CITES). Population structure and abundance has been little studied in most areas, and intensive photo-identification, genetic and survey studies are recommended. Bycatch in gillnets occurs at high levels in south America and needs to be investigated and monitored. Pingers were tested as a mitigation measure for a small-scale gillnet fishery in Peru and showed a 37% reduction of combined dolphin and porpoise bycatch in gillnet fisheries (Mangel *et al.* 2013).

## Credits

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**Reviewer(s):** Reeves, R. & Braulik, G.

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## Disclaimer



## External Resources

For Images and External Links to Additional Information, please see the Red List website.

# Appendix

## Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

| Habitat | Season | Suitability | Major Importance? |
|---|---|---|---|
| 9. Marine Neritic -> 9.1. Marine Neritic - Pelagic | Resident | Suitable | Yes |
| 10. Marine Oceanic -> 10.1. Marine Oceanic - Epipelagic (0-200m) | Resident | Suitable | Yes |
| 10. Marine Oceanic -> 10.2. Marine Oceanic - Mesopelagic (200-1000m) | Resident | Suitable | No |
| 10. Marine Oceanic -> 10.3. Marine Oceanic - Bathypelagic (1000-4000m) | Resident | Suitable | No |

## Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

| Threat | Timing | Scope | Severity | Impact Score |
|---|---|---|---|---|
| 5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.1. Intentional use: (subsistence/small scale) [harvest] | Ongoing | - | - | - |
| 5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.2. Intentional use: (large scale) [harvest] | Ongoing | - | - | - |
| | Stresses: | 2. Species Stresses -> 2.1. Species mortality | | |
| 5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.3. Unintentional effects: (subsistence/small scale) [harvest] | Ongoing | - | - | - |
| | Stresses: | 2. Species Stresses -> 2.1. Species mortality | | |
| 5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale) [harvest] | Ongoing | - | - | - |
| 6. Human intrusions & disturbance -> 6.1. Recreational activities | Future | - | - | - |

## Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

| Conservation Actions in Place |
|---|
| In-Place Research, Monitoring and Planning |
| Action Recovery plan: No |
| Systematic monitoring scheme: No |
| In-Place Education |


*http://dx.doi.org/10.2305/IUCN.UK.2019-1.RLTS.T11146A50362028.en*

| Conservation Actions in Place |
| --- |
| Included in international legislation: Yes |
| Subject to any international management/trade controls: Yes |

## Conservation Actions Needed

**(http://www.iucnredlist.org/technical-documents/classification-schemes)**

| Conservation Actions Needed |
| --- |
| 3. Species management -> 3.1. Species management -> 3.1.1. Harvest management |
| 5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level |

## Research Needed

**(http://www.iucnredlist.org/technical-documents/classification-schemes)**

| Research Needed |
| --- |
| 1. Research -> 1.1. Taxonomy |
| 1. Research -> 1.2. Population size, distribution & trends |
| 1. Research -> 1.3. Life history & ecology |
| 1. Research -> 1.5. Threats |
| 2. Conservation Planning -> 2.1. Species Action/Recovery Plan |
| 2. Conservation Planning -> 2.2. Area-based Management Plan |
| 3. Monitoring -> 3.1. Population trends |
| 3. Monitoring -> 3.2. Harvest level trends |

## Additional Data Fields

| Distribution |
| --- |
| Continuing decline in area of occupancy (AOO): No |
| Extreme fluctuations in area of occupancy (AOO): No |
| Continuing decline in extent of occurrence (EOO): No |
| Extreme fluctuations in extent of occurrence (EOO): No |
| Continuing decline in number of locations: No |
| Extreme fluctuations in the number of locations: No |
| Lower depth limit (m): 200 |
| Upper depth limit (m): 0 |


*http://dx.doi.org/10.2305/IUCN.UK.2019-1.RLTS.T11146A50362028.en*

| |
|---|
| **Population** |
| Continuing decline of mature individuals: Unknown |
| Extreme fluctuations: No |
| Population severely fragmented: No |
| **Habitats and Ecology** |
| Continuing decline in area, extent and/or quality of habitat: No |
| Movement patterns: Unknown |

# The IUCN Red List Partnership


The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership.

The IUCN Red List Partners are: Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.