

Peponocephala electra – Melon-headed Whale



Regional Red List status (2016)	Least Concern*
National Red List status (2004)	Least Concern
Reasons for change	No change
Global Red List status (2008)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing (2003)	Appendix II
Endemic	Edge of range

*Watch-list Threat

Probably extending only extremely marginally into South African waters, the Melon-headed Whale is appropriately named based on its protruding forehead.

Taxonomy

Peponocephala electra (Gray 1846)

ANIMALIA - CHORDATA - MAMMALIA -
CETARTIODACTYLA - DELPHINIDAE - *Peponocephala electra*

Synonyms: *Electra electra* (Gray 1846); *Lagenorhynchus electra* (Gray 1846)

Common names: Melon-headed Whale, Electra Dolphin, Hawaiian Blackfish, Hawaiian Porpoise, Indian Broad-beaked Dolphin, Many-toothed Blackfish (English), Bolkopdolfyn (Afrikaans)

Taxonomic status: Species

Taxonomic notes: Although this species was originally included under the genus *Lagenorhynchus* by Gray (1846), it was later prescribed to the new genus *Peponocephala* by Nishiwaki and Norris (1966), based on morphological differences. *P. electra* is closely related to, and physically resembles, *Globicephala* spp. and *Pseudorca crassidens* (Shimura & Numachi 1987). However, they can be identified by head and flipper shape, and by tooth count (Barron & Jefferson 1993).

Assessment Rationale

Abundance data for this widely-distributed species are unavailable for the assessment region. However, the population is suspected to be fairly abundant and robust in many parts of its range. For example, there are estimated to be over 45,000 animals in the eastern tropical Pacific. As this species is deep-diving, it is potentially increasingly threatened by the emerging threats of marine noise (especially military sonar and seismic surveys) and plastic pollution, the effects of which should be monitored. Competition with fisheries may also cause local declines. However, no threats are suspected to be causing net population decline currently. Therefore, in line with the global assessment, this species remains Least Concern.

Regional population effects: In South African waters, this species is believed to be at the extreme southern edge of its range. Sightings of this species have been recorded from the Mozambique Channel, and no barriers to dispersal have been identified, thus rescue effects are possible.

Distribution

Although Melon-headed Whales have a worldwide distribution across tropical, subtropical and warm temperate regions (Perryman et al. 1994), there is a general lack of knowledge surrounding the ecology of this species. This is partly due to the fact that this species is primarily distributed well offshore, thus making scientific research challenging. However, recent studies indicate that in some areas, such as French Polynesia in the South Pacific (Brownell et al. 2009), the Comoros in the Indian Ocean (Kiszka et al. 2011), the Hawaiian Islands (Aschettino et al. 2011) and Palmyra Atoll in the tropical Pacific (Baumann-Pickering 2009), Melon-headed Whales occasionally occur within shallower, nearshore regions, around oceanic islands. Generally, their distribution extends from 20°N to 20°S (Perryman 2002).

Within the assessment region, there have been no sightings of this species, however, it was first identified in South Africa from a stranding record in Hout Bay. Best and Shaughnessy (1981) suggest that the individual stranded at Hout Bay may have been at the extreme southern edge of its range. Additional possible stranding records from East London remain unconfirmed, as these specimens may be confused with *Feresa attenuata*, the Pygmy Killer Whale. Thus, this Hout Bay stranding may be the only record of this species from South Africa (Skinner & Chimimba 2005). The closest other records are sightings from the Mozambique Channel (Kiszka et al. 2006), the Seychelles (Ballance & Pitman 1998), and Tanzania (Peddemors & Ross 1988).

Population

Although, this species has been recorded as relatively common in some portions of its range (Taylor et al. 2008), it has an extralimital distribution into South African waters. Thus, this species is likely to be considerably rare within

Recommended citation: Cockcroft V, Relton C, Plön S. 2016. A conservation assessment of *Peponocephala electra*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

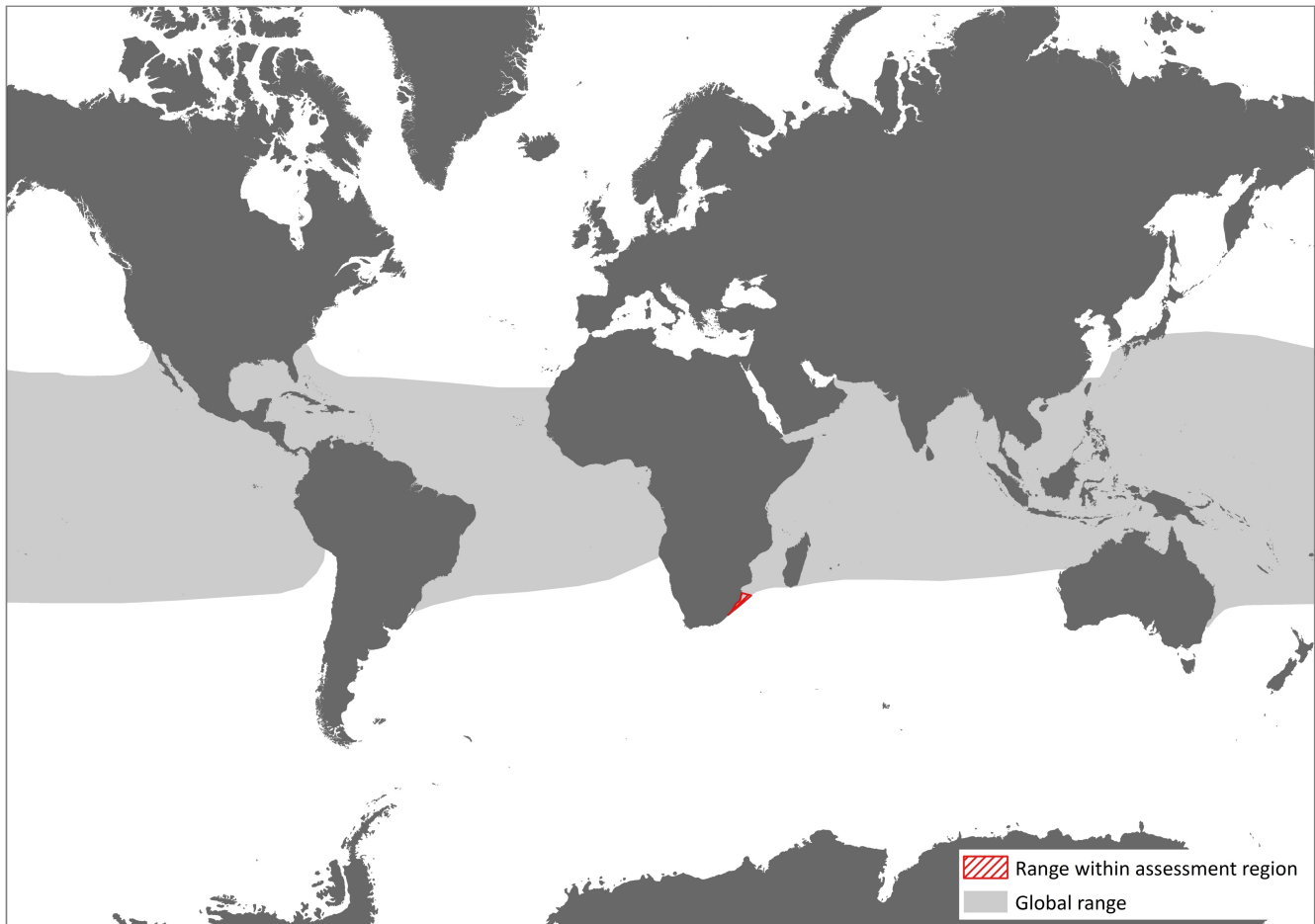


Figure 1. Distribution range for Melon-headed Whale (*Peponocephala electra*) within the assessment region (IUCN 2012)

the assessment region, and has only been confirmed from one stranding record at Hout Bay. No abundance estimates exist for this species in South African waters.

The following global population estimates are available (Taylor et al. 2008), indicating that they are fairly abundant in some regions: 45,400 (CV = 47%) animals in the eastern tropical Pacific (Wade & Gerrodette 1993); 3,451 (CV = 55%) in the Gulf of Mexico (Mullin & Fulling 2004); 2,947 animals (CV = 111%) in Hawaii (Barlow 2006); and 921 (CV = 80%) in the eastern Sulu Sea, Philippines (Dolar et al. 2006).

Current population trend: Unknown

Continuing decline in mature individuals: Unknown

Number of mature individuals in population: Unknown

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: Unknown

Severely fragmented: No

Habitats and Ecology

Melon-headed Whales primarily occur in deep waters extending from the continental shelf seaward, and around oceanic islands; usually associated with warm, oceanic waters, particularly the tropical and subtropical Agulhas Current. High-latitude strandings, e.g. the one in Hout Bay, are thought to be extralimital records (Best & Shaughnessy 1981), and are generally associated with incursions of warm water. In shallow water, they are likely

to become disoriented and strand, but do occur in nearshore regions with steep coastal gradients (Watkins et al. 1997; Wang et al. 2001a, 2001b). They occasionally, but rarely, extend into temperate regions, and are primarily associated with regions of upwelling and equatorial waters (Perryman et al. 1994).

The feeding ecology of this species is poorly known, however, in general, they are considered to consume small fish, shrimp and varying species of ommastrephid squid (Skinner & Chimimba 2005). The stomach contents of the male Melon-headed Whale stranded at Hout Bay contained squid (*Loligo reynaudi*) and fish (*Merluccius* spp.) remains (Best & Shaughnessy 1981). In other regions where this species occurs sympatrically with Spotted or Spinner Dolphins (*Stenella* spp.), the Melon-headed Whale feeds on larger squid compared to the *Stenella* spp. (Perryman et al. 1994).

Multiple populations of Melon-headed Whales may exist adjacently or in overlapping ranges, suggesting that these populations may make use of varying foraging niches and probably display differing social and behavioural patterns (Brownell et al. 2009; Aschettino et al. 2011). This species occurs in large groups, ranging from 15–500 individuals (Bryden et al. 1977), and exhibits strong social bonds (Jefferson & Barros 1997). They have also been sighted in mixed groups, associating commonly with Fraser's Dolphin (*Lagenodelphis hosei*) (Skinner & Chimimba 2005). In the southern hemisphere, Melon-headed Whales have been found to breed seasonally, giving birth between August and December after a gestation period of approximately 12 months (Skinner & Chimimba 2005).

Ecosystem and cultural services: Marine mammals integrate and reflect ecological variation across large spatial and long temporal scales, and therefore they are prime sentinels of marine ecosystem change (Moore 2008).

Use and Trade

This species is not utilised or traded within the assessment region.

Threats

No major threats to this species were identified within the assessment region. However, the threats generally associated with offshore species may also impact Melon-headed Whales, including the loss of prey base due to overfishing, incidental catches in fisheries, loud anthropogenic sounds, and ingestion of plastics. Additionally, climate change is expected to have both direct and indirect effects on prey species, which will indirectly affect the distribution, migration, population structure and reproductive success of cetacean species, and furthermore may enhance their vulnerability to disease, anthropogenic marine pollution and contaminants (Learmonth et al. 2006).

Inconclusive evidence suggests that Melon-headed Whales are vulnerable to high intensity marine noise pollution (Aschettino et al. 2011). For example, in 2004 a group of over 150 Melon-headed Whales uncommonly roamed into the shallow waters of Hanalei Bay (Hawaii); this event coincided with mid-frequency sonar operations conducted during naval training (Southall et al. 2006). As the intensity of marine noise pollution is thought to be increasing within South African waters (Koper & Plön 2012), this potentially represents an emerging threat. Similar to other deep-diving species, ingestion of marine plastic pollution may also represent an emerging threat, as it has been known to cause fatalities in sperm whales (for example, Scott et al. 2001) and similar species.

Current habitat trend: Declining in quality due to marine noise pollution and climate change.

Conservation

The Melon-headed Whale is listed in Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and is protected by the Marine Living Resources Act (No. 18 of 1998). Estimates of population size and distribution are needed to determine the status of this species in South African waters. Additionally, research is needed to assess the impacts and trends of potential threats. No specific conservation interventions are necessary at present or can be recommended until further data are available.

Recommendations for managers and practitioners:

- Sightings, strandings and bycatch data should be recorded, especially during ship-based surveys aimed at other cetacean species, as well as commercial fisheries and marine tour operators.

Research priorities:

- It is recommended that population census surveys are undertaken in South African waters to determine abundance estimates and trends.
- The severity and potential impacts of threats to this species should be investigated.

Encouraged citizen actions:

- Use information dispensed by the South African Sustainable Seafood Initiative (SASSI) to make good choices when buying fish in shops and restaurants, e.g. wwfsa.mobi, FishMS 0794998795.
- Save electricity and fuel to mitigate CO₂ emissions and, hence, the rate of climate change.
- Buy local products that have not been shipped.
- Sightings data from pelagic commercial tourism operators may be particularly valuable.
- Report any strandings to the relevant local authorities.

Table 1. Threats to the Melon-headed Whale (*Peponocephala electra*) ranked in order of severity with corresponding evidence (based on IUCN threat categories, with regional context)

Rank	Threat description	Evidence in the scientific literature	Data quality	Scale of study	Current trend
1	5.4.4 Fishing & Harvesting Aquatic Resources: incidental bycatch in pelagic fisheries. Current stresses 2.1 Species Mortality and 2.2 Species Disturbance.	-	Anecdotal	-	Ongoing
2	5.4.4 Fishing & Harvesting Aquatic Resources: competition with pelagic fisheries. Current stress 2.3.8 Indirect Species Effects on Food Resources.	-	Anecdotal	-	Ongoing
3	9.4 Garbage & Solid Waste: plastic bag ingestion. Current stresses 2.1 Species Mortality and 2.2 Species Disturbance.	Scott et al. 2001	Indirect	Local	Increasing
4	9.6 Noise Pollution: marine noise pollution through seismic surveys and navy sonar operations. Current stresses 2.1 Species Mortality and 2.2 Species Disturbance.	Southall et al. 2006	Empirical	Regional	Increasing within the assessment region.
5	11.1 Habitat Shifting & Alteration: climate change may exacerbate shifts in prey base. Current stress 2.3.8 Indirect Species Effects on Food Resources.	Learmonth et al. 2006	Simulation	Global	Increasing

Data Sources and Quality

Table 2. Information and interpretation qualifiers for the Melon-headed Whale (*Peponocephala electra*) assessment

Data sources	Field study (strandings – unpublished), indirect information (literature, expert knowledge)
Data quality (max)	Inferred
Data quality (min)	Suspected
Uncertainty resolution	Expert consensus
Risk tolerance	Evidentiary

References

Aschettino JM, Baird RW, McSweeney DJ, Webster DL, Schorr GS, Huggins JL, Martien KK, Mahaffy SD, West KL. 2011. Population structure of melon-headed whales (*Peponocephala electra*) in the Hawaiian Archipelago: Evidence of multiple populations based on photo identification. *Marine Mammal Science* **28**:666–689.

Ballance LT, Pitman RL. 1998. Cetaceans of the western tropical Indian Ocean: distribution, relative abundance, and comparisons with cetacean communities of two other tropical ecosystems. *Marine Mammal Science* **14**:429–459.

Barlow J. 2006. Cetacean abundance in Hawaiian waters estimated from a summer/fall survey in 2002. *Marine Mammal Science* **22**:446–464.

Barron GL, Jefferson TA. 1993. First records of the Melon-headed Whale (*Peponocephala electra*) from the Gulf of Mexico. *The Southwestern Naturalist* **38**:82–85.

Baumann-Pickering S. 2009. Species identification and measurement of activity in odontocete species off Palmyra Atoll by Acoustic Monitoring. Ph.D. Thesis. Eberhard Karls Universität Tübingen, Tübingen, Germany.

Best P, Shaughnessy PD. 1981. First record of the Melon-headed whale *Peponocephala electra* from South Africa. *Annals of the South African Museum* **83**:33–47.

Brownell RL, Ralls K, Baumann-Pickering S, Poole MM. 2009. Behavior of melon-headed whales near oceanic islands. *Marine Mammal Science* **25**:639–658.

Bryden MM, Harrison RJ, Lear RJ. 1977. Some aspects of the biology of *Peponocephala electra* (Cetacea: Delphinidae). I. General and reproductive biology. *Marine and Freshwater Research* **28**:703–715.

Dolar MLL, Perrin WF, Taylor BL, Kooyman GL, Alava MNR. 2006. Abundance and distributional ecology of cetaceans in the central Philippines. *Journal of Cetacean Research and Management* **8**:93.

Gray JE. 1846. Mammalia: on the cetaceous animals. Pages 13–53 in Richardson J, Gray JE, editors. *The Zoology of the voyage of H.M.S. “Erebus” and “Terror” Under the Command of the Captain Sir James Clark Ross R.M.F.R.S. During the Years 1839 to 1843. Volume I. Mammalia, Birds.* Jansen, London. UK.

IUCN (International Union for Conservation of Nature). 2012. *Peponocephala electra*. The IUCN Red List of Threatened Species. Version 3.1. <http://www.iucnredlist.org>. Downloaded on 21 February 2016.

Jefferson TA, Barros NB. 1997. *Peponocephala electra*. *Mammalian Species* **553**:1–6.

Kiszka J, Breyse O, Vely M, Boinali K. 2006. Marine mammals around the Comoros archipelago (Mozambique Channel): recent records and review of available information. Report for the International Whaling Commission SC/58/O6.

Kiszka J, Simon-Bouhet B, Martinez L, Pusineri C, Richard P, Ridoux V. 2011. Ecological niche segregation within a community of sympatric dolphins around a tropical island. *Marine Ecology Progress Series, Inter-Research*, **433**:273–288.

Koper RP, Plön S. 2012. The potential impacts of anthropogenic noise on marine animals and recommendations for research in South Africa. EWT Research & Technical Paper No. 1. Endangered Wildlife Trust, South Africa.

Learmonth JA, MacLeod CD, Santos MB, Pierce GJ, Crick HQP, Robinson RA. 2006. Potential effects of climate change on marine mammals. *Oceanography and Marine Biology* **44**:431.

Moore SE. 2008. Marine mammals as ecosystem sentinels. *Journal of Mammalogy* **89**:534–540.

Mullin KD, Fulling GL. 2004. Abundance of cetaceans in the oceanic northern Gulf of Mexico, 1996–2001. *Marine Mammal Science* **20**:787–807.

Nishiwaki M, Norris KS. 1966. A new genus *Peponocephala* for the odontocete cetacean species *Electra electra*. *Scientific Reports of the Whales Research Institute, Tokyo* **20**:95–99.

Peddemors VM, Ross GJB. 1988. First record of the melon-headed whale *Peponocephala electra* (Gray, 1846) for the East African coast. *African Journal of Ecology* **26**:345–346.

Perryman WL. 2002. Melon-headed whale *Peponocephala electra* Gray, 1846. Pages 733–734 in Perrin WF, Würsig B, Thewissen JGM, editors. *Encyclopedia of Marine Mammals*. Academic Press, San Diego, California, USA.

Perryman WL, Au WK, Leatherwood S, Jefferson TA. 1994. Melon-headed whale *Peponocephala electra* Gray, 1846. Pages 363–386 in *Handbook of Marine Mammals. Volume 5: The First Book of Dolphins*. Academic Press, New York, New York, USA.

Scott MD, Hohn AA, Westgate AJ, Nicolas JR, Whitaker BR, Campbell WB. 2001. A note on the release and tracking of a rehabilitated pygmy sperm whale (*Kogia breviceps*). *Journal of Cetacean Research and Management* **3**:87–94.

Shimura E, Numachi K. 1987. Genetic variability and differentiation in toothed whales. *Scientific Reports of the Whales Research Institute, Tokyo* **38**:141–163.

Skinner JD, Chimimba CT. 2005. *The Mammals of the Southern African Subregion*. Third edition. Cambridge University Press, Cambridge, UK.

Southall BL, Braum R, Gulland FMD, Heard AD, Baird RW, Wilkin SM, Rowles TK. 2006. Hawaiian melon-headed whale (*Peponocephala electra*) mass stranding event of July 3–4, 2004. Page 78. NOAA Technical Memorandum NMFS OPR-31.

Taylor BL, Baird R, Barlow J, Dawson SM, Ford J, Mead JG, Notarbartolo di Sciarra G, Wade P, Pitman RL. 2008. *Peponocephala electra*. The IUCN Red List of Threatened Species 2008: e.T16564A6077027.

Wade PR, Gerrodette T. 1993. Estimates of cetacean abundance and distribution in the eastern tropical Pacific. *Reports of the International Whaling Commission* **43**:477–493.

Wang JY, Yang SC, Liao HC. 2001a. Records of melon-headed whales, *Peponocephala electra* (Gray, 1846), from the waters of Taiwan. *Bulletin of the National Museum of Natural Science* **14**: 85–92.

Wang JY, Yang SC, Liao HC. 2001b. Species composition, distribution and relative abundance of cetaceans in the waters of southern Taiwan: Implications for conservation and eco-tourism. *Journal of the National Parks of Taiwan* **11**:136–158.

Watkins WA, Dahier MA, Samuels A, Gannon DP. 1997. Observations of *Peponocephala electra*, the Melon-headed Whale, in the Southeastern Caribbean. *Caribbean Journal of Science* **33**:34–40.

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Details of the methods used to make this assessment can be found in *Mammal Red List 2016: Introduction and Methodology*.