

Peponocephala electra (Gray, 1846)

English: Melon-headed whale
German: Breitschnabeldelphin
Spanish: Calderón pequeño
French: Péponocéphale

Family Delphinidae

1. Description

The melon-headed whale is mostly dark grey, with a faint darker grey cape that narrows at the head. A faint light band extends from the blowhole to the apex of the melon. A distinct dark eye patch, broadening as it extends from the eye to the melon, is often present. The lips are often white, and white or light grey areas are common in the throat region and urogenital region. At sea, the melon-headed whale is difficult to distinguish from the pigmy killer whale (*Feresa attenuata*), but it has a more pointed head and sharply pointed pectoral fins. The largest female was 2.78 m long and the largest male 2,64 m, weighing 228 kg (Perryman, 2009).

2. Distribution

<http://www.iucnredlist.org/apps/redlist/details/16564/0/rangemap>

Distribution of Peponocephala electra: tropical and subtropical offshore waters around the world (Taylor et al. 2008; © IUCN).

Melon-headed whales have a pantropical distribution. They range north to the Gulf of Mexico, Senegal, Arabian Sea, Bay of Bengal, South China Sea, Taiwan, southern Honshu, Hawaiian Islands, and Baja California Sur; and south to Espiritu Santo in Brazil, Timor Sea, northern New South Wales, and Peru (Rice, 1998).

Specimens from southern Japan, Cornwall in England, Cape Province in South Africa, and Maryland, USA are probably from the extremes of the normal distribution for this species and likely came from populations in adjacent warm currents (Perryman et al. 1994; Rice, 1998).

3. Population size

The most recent abundance estimate for melon-headed whales is for the northern Gulf of Mexico. Data from line-transect surveys were pooled from 2003 to 2004, and yielded an estimate of 2,283 (CV=0.76) animals (Mullin 2007). This value is not statistically different from the 1996-2001 estimate of 3,451 (CV=0.55) for the same region (Waring et al. 2008). In the US EEZ around Hawaii, the 2002 estimate is 2,947 animals (CV = 111%) (Barlow 2006).

In the Philippine region, Dolar et al. (2006) reported 921 (CV=0,83) in the eastern Zulu Sea, as opposed to an earlier estimate of 1,200 (Dolar, 1999). They estimated 1,383 in Tañon Strait between Cebu and Negros Islands (Dolar et al. 2006).

For the eastern tropical Pacific the most recent population estimate is 45,000 (CV = 0.47) individuals (Wade and Gerrodette, 1993). They are frequently seen in waters around the Hawaiian Islands, in the Tuamotus-Marquesas Islands, along the east coast of Australia, and in the oceanic, equatorial Pacific. The lack of reports on this species from many other areas may reflect a preference for offshore habitats where survey effort is generally lowest (Perryman et al. 1994 and refs. therein).

For the Indian Ocean, there are only a few accounts: Kiszka et al. (2007) reported observing 5 melon-headed whales off Mayotte, Comoros Archipelago in 2004-2005 during 284 hours at sea. Anderson (2005) observed cetaceans in Maldivian waters between 1990 and 2002 and found melon-headed whales to be particularly common in the south of the Maldives but rare in the centre and north.

During a dedicated survey of the cetacean population of the Marquesas Islands in French Polynesia, covering 2,255 km in 1998-99, 14 melon-headed whales were identified at sea. During a total effective effort of 6,482 km conducted off the Society Islands (French Polynesia) between 1996-1999, melon-headed whales were also observed, but less frequently (Gannier, 2000, 2002).

4. Biology and Behaviour

Habitat: Most sightings are from the continental shelf seaward and around oceanic islands. They are rarely found in temperate waters (Carwardine, 1995). In the eastern tropical Pacific, the distribution of reported sightings suggests that the oceanic habitat of this species is primarily in the upwelling modified and equatorial waters (Perryman et al. 1994). When they are observed near the coast, it is generally in areas where deep oceanic waters occur nearby (Perryman, 2009).

Behaviour: The animals make low, shallow leaps out of the water when travelling fast, often creating a lot of spray as they surface and making it difficult to see any detail. Slow swimmers may lift the head right out of water on surfacing. They are usually wary of boats, but many observations are in areas where tuna boats regularly chase dolphins, so their behaviour may differ elsewhere. They are known to bow-ride for short periods, and breaching has occasionally been recorded. Sometimes they spyhop (Carwardine, 1995; Perryman et al. 1994).

Schooling: Melon-headed whales are highly social and more likely to be seen in large pods than the pygmy killer whale. They occur usually in pods of 100 to 500 (with a known maximum of 2,000 individuals). Animals in a pod are often tightly packed and make frequent course changes (Jefferson et al. 1993).

P. electra may associate with Fraser's dolphins and sometimes other cetaceans such as spinner dolphins and spotted dolphins (Carwardine, 1995). In Hawaiian waters a group of 30 melon-headed whales was seen interacting with a group of 15 short-finned pilot whales (*Globicephala macrorhynchus*). The interactions involved behaviours that suggest the encounter was unrelated to feeding symbioses, but it may have involved an inquisitive and/or protective response by the pilot whales (Migura and Meadows, 2002). Off the island of Rota in the Northern Mariana Islands, a group of about 500-700 melon-headed whales was observed at the surface and extensively underwater for several hours. An unidentified number of rough-toothed dolphins (*Steno bredanensis*) were also part of this sighting. Bottom depths ranged from about 77 to 1,100 m over the course of the sighting (Jefferson et al. 2006).

Mass strandings of melon-headed whales have been reported from Moreton Island and Crowdy Heads, Australia; Malekoula Island; Vanuatu; the Seychelles; Aoshima, Japan; Piracanga Beach, Brazil; the Kwajalein Atoll; and Tambor, Costa Rica. It has been noted that in several mass strandings of this species, the ratio of females to males was about 2:1. This may reflect behavioural segregation (Perryman et al. 1994 and refs. therein).

Reproduction: Females reach sexual maturity at about 11.5 years and males at 15 years (Perryman, 2009). There is some evidence to indicate a calving peak in July and August, but this is inconclusive (Jefferson et al. 1993). In the southern hemisphere, calving may peak between August and December (Klima, 1994).

Food: Melon-headed whales are known to feed on squid and small fish (Jefferson et al. 1993; Perryman et al. 1994; Clarke and Young, 1998).

5. Migration

No migrations are known (Carwardine, 1995), although the fact that the species follows warm currents may lead it through coastal waters of a variety of countries.

6. Threats

Direct catch: This species has been taken occasionally in the subsistence fishery for small cetaceans near the island of St Vincent in the Caribbean and in the Japanese dolphin drive fishery. They continue to be taken in a long-lived and well-established harpoon fishery for sperm whales and various small cetaceans at Lamalera, Indonesia. Small-boat fisherman also occasionally harpoon or net this species near Sri Lanka and in the Philippines (Jefferson et al. 1993; Perryman et al. 1994). Dolar et al. (1994) investigated the fisheries for marine mammals in central and southern Visayas, northern Mindanao and Palawan, Philippines, and reported that hunters at several sites took melon-headed whales for bait or human consumption. They are taken by hand harpoons or, increasingly, by togglehead harpoon shafts shot from modified, rubber-powered spear guns. Around 800 cetaceans of various species are taken annually by hunters at the seven sites, mostly during the inter-monsoon period of February–May. These catches may be ongoing, although their extent is unknown (Perryman, 2009).

Incidental catch: Mortality from incidental captures in the purse-seine fishery for yellowfin tuna in the eastern Pacific will probably continue at a very low level (Perryman et al. 1994; Perryman, 2009). For US Gulf of Mexico waters, there has been no reported fishing-related mortality of melon-headed whales during 1998-2006 (Waring et al. 2008).

Pollution: Concentrations of polychlorinated biphenyls (PCBs), DDTs, and hexachlorobenzole (HCB) in melon-headed whales stranded on Japanese coasts were lower after the year 2000 than in specimens stranded in 1982, whereas polybrominated diphenyl ethers (PBDE) and CHL levels showed a temporal increase during the past 20 years, suggesting that the peak of their usage and contamination occurred recently (Kajiwara et al. 2008). Specimens stranded on these shores also showed substantial concentrations of mercury and cadmium (Endo et al. 2008).

Noise pollution: In 2004, 150 - 200 melon-headed whales occupied the shallow waters of Hanalei Bay, Kauai, Hawaii for over 28 hours. The usually pelagic animals stayed in the shallow, confined bay and returned to deeper water only with human assistance. This event was coincident with military training exercises in the Hawaiian Islands, suggesting that military sonar might have been the cause (Southall et al. 2006; Taylor et al. 2008).

7. Remarks

Range states (Taylor et al. 2008):

American Samoa; Anguilla; Antigua and Barbuda; Aruba; Australia; Bahamas; Bangladesh; Barbados; Belize; Benin; Bermuda; Brazil; Brunei Darussalam; Cambodia; Cameroon; Cayman Islands; Cocos (Keeling) Islands; Colombia; Congo; Congo, The Democratic Republic of the; Cook Islands; Costa Rica; Côte d'Ivoire; Cuba; Djibouti; Dominica; Dominican Republic; Ecuador; El Salvador; Equatorial Guinea; Fiji; French Guiana; French Polynesia; Gabon; Gambia; Ghana; Grenada; Guadeloupe; Guam; Guatemala; Guinea; Guinea-Bissau; Guyana; Haiti; Honduras; India; Indonesia; Iran, Islamic Republic of; Jamaica; Japan; Kenya; Kiribati; Liberia; Madagascar; Malaysia; Maldives; Marshall Islands; Martinique; Mauritania; Mayotte; Mexico; Micronesia, Federated States of; Mozambique; Myanmar; Namibia; Nauru; Netherlands Antilles; New Caledonia; Nicaragua; Nigeria; Niue; Northern Mariana Islands; Oman; Pakistan; Palau; Panama; Papua New Guinea; Peru; Philippines; Pitcairn; Puerto Rico; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Samoa; Senegal; Sierra Leone; Singapore; Solomon Islands; Somalia; South Africa; Sri Lanka; Suriname; Taiwan, Province of China; Tanzania, United Republic of; Thailand; Timor-Leste; Togo; Tonga; Trinidad and Tobago; United States of America; Vanuatu; Venezuela; Viet Nam; Virgin Islands, British; Virgin Islands, U.S.; Wallis and Futuna; Western Sahara; Yemen.

Classified as “Least Concern” by the IUCN (Taylor et al. 2008). Not listed by CMS. The species is listed in Appendix II of CITES.

This is a poorly known oceanic species which probably follows oceanographic features such as currents and upwellings near coasts. This behaviour might bring it into coastal waters of a variety of range states in tropical and subtropical waters. Data on abundance, behaviour at sea and by-catch rates are very sparse.

For South American stocks, see further comments and recommendations in Hucke-Gaete (2000) in Appendix 1, and regarding Southeast Asian populations, please see Perrin et al. (1996) in Appendix 2.

8. Sources

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