

Melon-headed Whale
Peponocephala electra Gray, 1846

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Genus and Species

Taxonomy

Until recently the melon-headed whale, a little known tropical delphinid, was called *Lagenorhynchus electra*, a name given by Gray (1846). Nakajima and Nishiwaki (1965), noting its dissimilarities with other species in the genus *Lagenorhynchus*, reassigned the species to the extant genus *Electra*, following Gray (1868). However, the name *Electra* was subsequently found to be preoccupied by a genus of bryozoans, so Nishiwaki and Norris (1966) erected a new genus, *Peponocephala*. Nishiwaki and Norris (1966) suggested that *Peponocephala electra*, as the species is now known, is closely allied to the species *Pseudorca crassidens* (false killer whale) and *Feresa attenuata* (pigmy killer whale). More recent morphological (Kasuya, 1973) and genetic (Shimura and Numachi, 1987) evidence, however, indicate that this species is most closely related to the pilot whale, *Globicephala* spp., and thus belongs in the subfamily Globicephalinae. The progression of scientific names and synonymy, reviewed by van Bree and Cadenat (1968), includes *Lagenorhynchus asia* Gray, 1846, *Delphinus pectoralis*

Peale, 1848, *Lagenorhynchus pectoralis* Cassin, 1858, *Delphinus (Lagenorhynchus) fusiformis* Owen, 1866, *Electra asia* Gray, 1868 and *Electra obtusa* Gray, 1868.

Common names

The melon-headed whale is also referred to in English as the many-toothed blackfish, electric dolphin, Indian broad-beaked dolphin, Hawaiian blackfish, and Hawaiian porpoise. It is known in France as péponocephalé, in Japan as kazuba gondo kujira, in various regions of the former USSR as shirokoflyuvyy del'in, in portions of Latin America as calderón pequeño, ballena melón, tonina negra, delfín cabeza de melón, or orca pigmeo (Gallo and Rojas Bracho, 1986; Leatherwood *et al.*, 1988), in the Philippines as pakatang (Leatherwood *et al.*, 1992), and in Lombok, Indonesia as temu kebon (Hembree, 1984).

Distribution

Range and habitat

Melon-headed whales are found throughout the world in tropical and subtropical seas (Fig. 1). Specimens from southern Japan (Nakajima and Nishiwaki, 1965; Nishiwaki and Norris, 1966; Miyazaki, 1980, 1983a,b), South Africa (Best and Shaughnessy, 1981), the UK (Mikkelsen and Sheldrick, 1992), and Maryland, USA (J. G. Mead, W. A. Walker, C. W. Potter and W. A. McLellan, unpublished manuscript) probably represent the extremes of the normal distribution for this species and may have come from populations in adjacent warm currents. 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 described by Au and Perryman (1985).

External Characteristics

Free-swimming melon-headed whales are most likely to be mistaken for pygmy killer whales or young false killer whales (Leatherwood *et al.*, 1988) (principal features distinguishing the three are outlined in Table 1). The appearance of the

FIG. 1 The distribution of specimens and sightings (x) and mass strandings (●) of melon-headed whales. Locations are taken from reviews by van Bree and Cadenat (1968), Bryden *et al.* (1977b), Leatherwood *et al.* (1991), Perrin (1976), and reports by Aurióles (1987), Barron and Jefferson (1993), Caldwell *et al.* (1976), Donaldson (1983), Eldredge (1991), Hammond and Leatherwood (1984), Hembree (1980), Kami and Hosner (1982), Leatherwood *et al.* (1984, 1988), Lodi *et al.* (1990), Mead *et al.* (unpublished manuscript), Miyazaki (1980), Miyazaki and Wada (1978), Peddemors and Ross (1988), Pilleri (1982), Pilleri and Gilir (1973), Shallenberger (1981), Siciliano *et al.* (1987), Van Waerebeck *et al.* (1988), Leatherwood *et al.* (1992), and Wade and Gerrodette (in press).

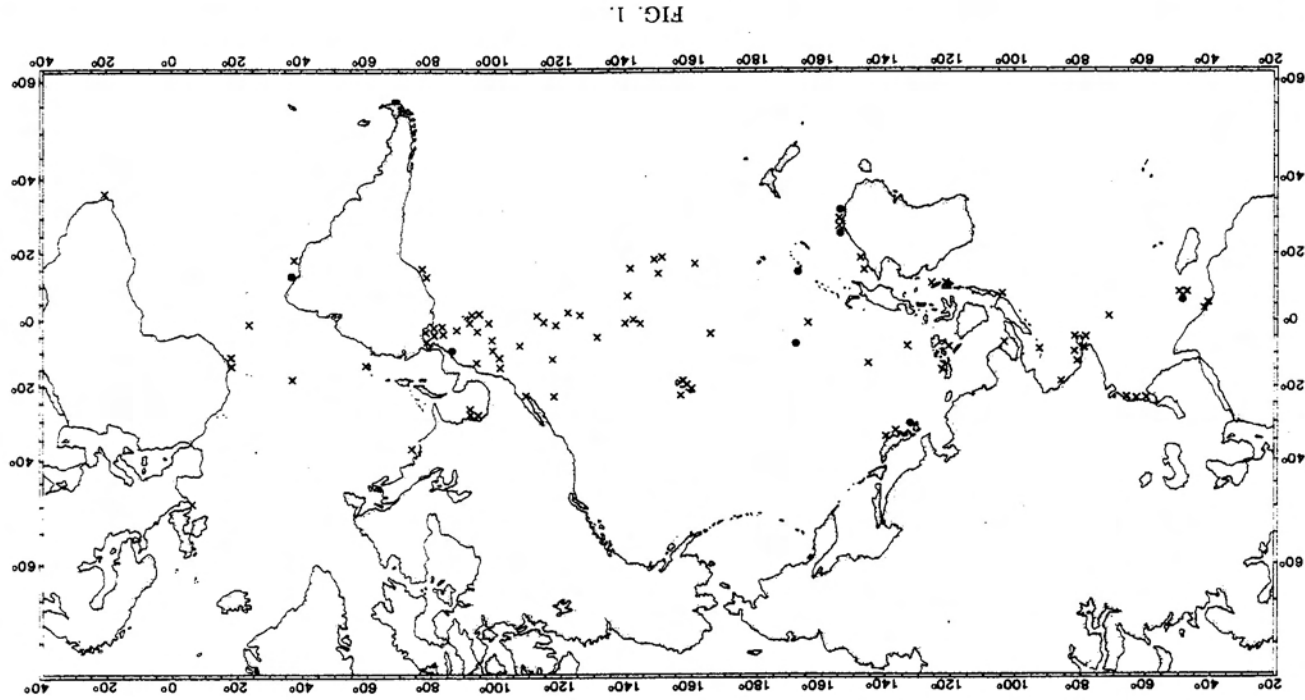


FIG. 1.



FIG. 2 Colour pattern of *Peponocephala electra*. (Illustration by P. Folkens.)

melon-headed whale (Fig. 2) is especially similar to that of the pygmy killer whale, and the differences are subtle enough that clear, close-up views from several perspectives are often necessary to prevent misidentification. The best field character for separating these two species is the shape of the head. *P. electra* has a more triangular or pointed head when seen from above (Figs 3 and 4). In contrast, the pygmy killer whale has a much shorter and more rounded head. This characteristic is only apparent when the animals are seen at very close range and is most obvious when seen from above. The flipper tips are more



FIG. 3 Stranded specimen from Itacaré, Bahia, Brazil. (Photograph by Salvatore Stefliano.)

| Character | Melon-headed whale | Pygmy killer whale | False killer whale |
|---------------|---|---|--|
| Body | To 2.7 m; relatively robust | To 2.5 m; relatively robust | To 3.5 m; long and slender |
| Cape | Present, but often subtle | Present, but often subtle | Absent |
| Dorsal fin | Tall, to 30 cm; triangular and falcate; at centre of arched back | Tall, to 30 cm; triangular and falcate; at centre of arched back | Smaller relative to body size; relatively narrow, not pointed; appears far back on long, flat back |
| Pectoral fins | Generally pointed at tip; smooth along rear margin | Generally rounded at tip; more sinuous along rear margin | Generally rounded at tip; large hump on forward margin |
| Head | Triangular and relatively narrow especially when seen from above | Rounded overall; relatively short | Relatively small and narrow, especially when seen from side; upper jaw protrudes over lower |
| Teeth | > 20 | < 15 | < 15 |
| Behaviour | Generally > 100 | Generally < 100 | Variable but often << 100 |
| Schooling | Forms tightly packed schools, travelling rapidly with frequent course changes | Schools loaf or raft at surface; when alarmed will rush away in ranked files (at surface or submerged) for only short distances | Loose grouping within schools; often approach ships at high speed |
| Associations | Forms mixed aggregations with Fraser's dolphin | Not reported associated with Fraser's dolphin | Not reported associated with Fraser's dolphin |

TABLE 1 Some features distinguishing melon-headed whales, pygmy killer whales, and false killer whales (adapted from Leatherwood *et al.*, 1976, 1988)

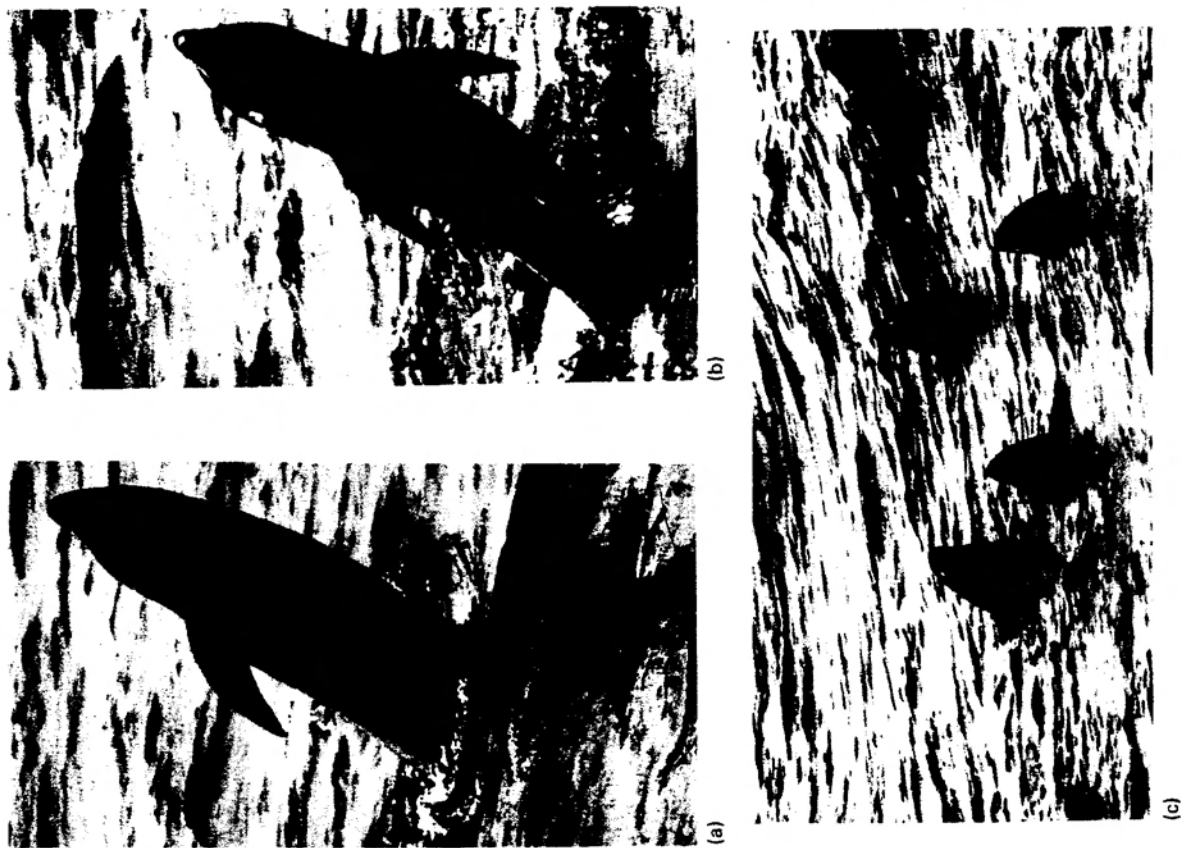


FIG. 4 Dorsal (a) and ventral (b) views of a breaching melon-headed whale, clearly showing head shape and shape of the pectoral fin (a and b) and ventral markings (b). Also, four pitchpoling animals (c) show the triangular shape of the head from several aspects. (Photographs courtesy of M. Newcomer and M. Sinclair.)

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pointed than those of the pygmy killer whale (Fig. 4a and b); however, this character is not likely to be clearly visible on free-ranging animals. Even when these distinguishing morphological features cannot be seen, experienced observers often can distinguish between these species by their behaviour.

Colour pattern

Live melon-headed whales are basically dark grey overall with a light grey or white ventral field from the throat to the genital area that varies in size and intensity (Fig. 2). This ventral blaze can be likened to the throat chevron and genital patch pattern (terminology of Mitchell, 1970) found on pilot whales, false killer whales, killer whales (*Orcinus orca*), pygmy killer whales, and Risso's dolphins (*Grampus griseus*). The lips of melon-headed whales are often unpigmented, appearing light grey, pink or white. Though no dark dorsal cape was reported on stranded animals (Bryden *et al.*, 1977b) or live animals collected off Hawaii (Best and Shaughnessy, 1981), such a cape was clearly visible on free-swimming individuals observed in the eastern tropical Pacific, Gulf of Mexico and Philippines. The cape is narrow over the head, thorax, and anterior half of the tail stock, but dips downward near the dorsal fin to form a dark triangular region, with its apex pointing ventrally.

There is also a dark area on the head which begins as a distinct eye spot and broadens as it extends forward to cover most of the side of the head on some individuals. The dark coloration narrows posteriorly, behind the eyes, giving the appearance of a mask (see Fig. 5). At about mid-gape, this mask or eye stripe meets the boundary of a pale blowhole stripe (Best and Shaughnessy, 1981). This pale stripe broadens as it extends forward to cover much of the apex of the melon.

Size and shape

As implied by the literal translation of the generic name, *Pepon* for "melon" and *lephale* for "head", the head in profile is rather rounded and essentially beakless (Figs 3 and 4). A slight beak may be detectable on smaller animals, but on larger individuals there is no apparent transition between the rounded melon and the upper jaws. The mouth is terminal to subterminal and angles slightly upward towards the eyes. The posterior segment of the gape turns slightly downward, ending just below or forward of the eye. The sides of the face in front of the eyes are somewhat "pressed in from the side" (Nakajima and Nishiwaki, 1965). Viewed from above or below, the head is distinctly triangular, as mentioned above.

The body of the melon-headed whale is moderately robust. The prominent dorsal fin, located near the midpoint of the back, is tall (to about 30 cm), falcate and pointed at the tip. The flippers, which may reach 52 cm or more in length, are generally pointed at the tips and relatively straight along the rear margins (Fig. 4a and b).

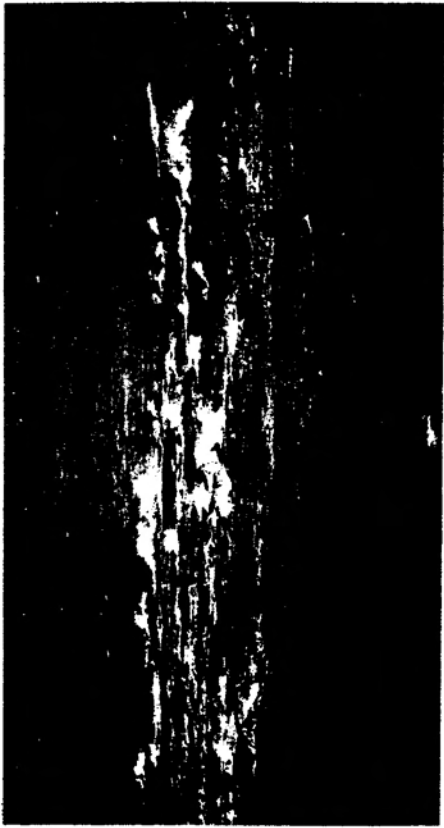


(a)



(b)

FIG. 5 Melon-headed whale porpoising (a), swimming slowly (b), and swimming rapidly in the eastern tropical Pacific (c). When swimming rapidly, splash from melon obscures all but the dorsal fin in most cases. (Photographs courtesy of R. Pitman and M. Sinclair.)



(c)

FIG. 5 Continued.

Internal Anatomy

Skull

The skull of the melon-headed whale (Fig. 6) has a proportionally broad rostrum and deep antorbital notches, but is otherwise typically delphinid. The skull roughly resembles that of the bottlenose dolphin (*Tursiops truncatus*) in size, shape and tooth count, but the teeth of the melon-headed whale are much smaller, the distance between the antorbital notch and the end of the tooth row is proportionally greater, and the premaxillaries do not converge at midlength of the rostrum. The skull of the melon-headed whale is easily distinguished from those of other beakless small whales by the much higher tooth count, 20–26 per row; other species typically have fewer than 15 per row. An anomalously low (17–17) tooth count was reported for an adult male that stranded at Inarajan Bay, Guam, but the author suggested that the condition of the teeth may have resulted in an erroneous count (Donaldson, 1983).

The antorbital notches of this species are much deeper than those in either *Feresa* or *Pseudorca* (Nishiwaki and Norris, 1966). Selected cranial measurements from a series of adult specimens are presented in Table 2 (after Best and Shaughnessy, 1981). A review of characters useful in distinguishing skulls of melon-headed whales from those of the white-beaked dolphin (*Lagenorhynchus albitrostris*) was recently published by Mikkelsen and Sheldrick (1992).

Postcranial skeleton

In adults the first three to four cervical vertebrae are fused. The four vertebral formulae published to date (Goodwin, 1945; Nakajima and Nishiwaki, 1965;

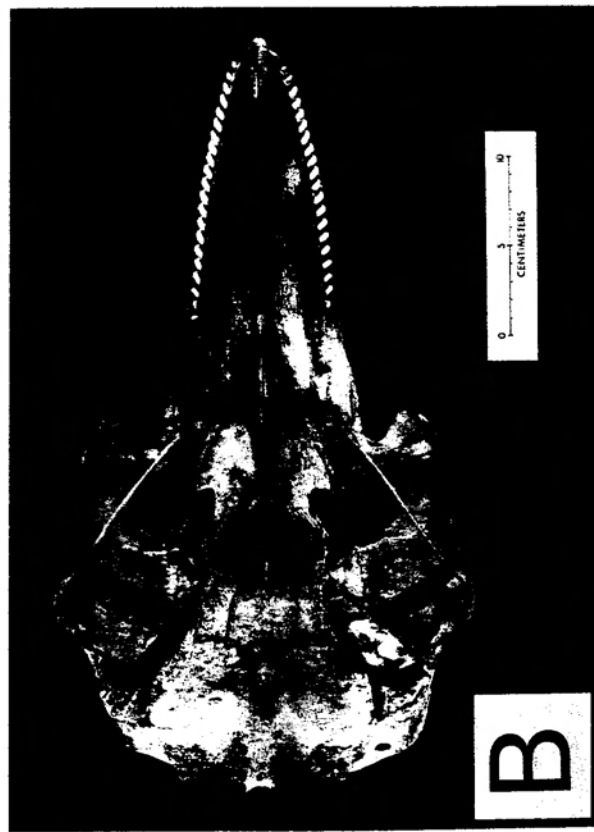
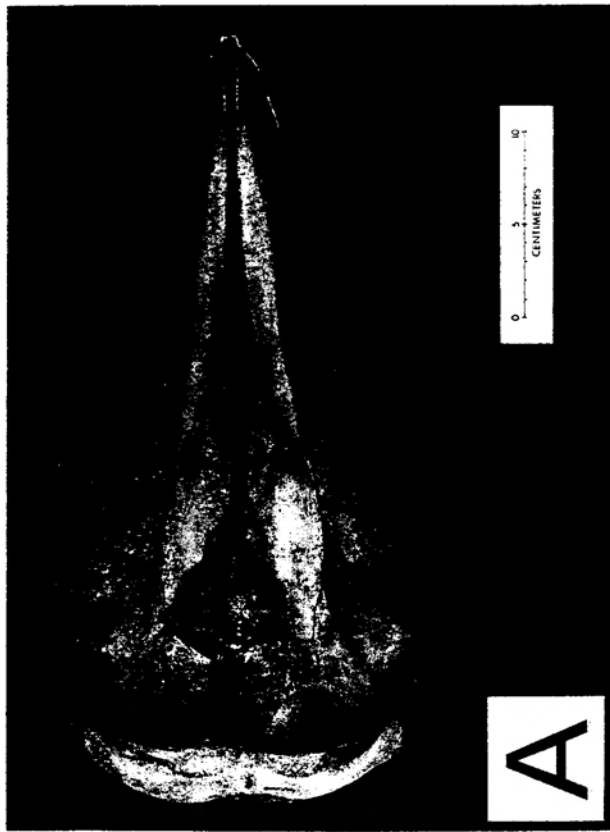


FIG. 6 Skull of a 195-cm female melon-headed whale which stranded in Palau (WFP584, in the collection of the Southwest Fisheries Science Center, La Jolla, CA). (A) Dorsal view, (B) ventral view.

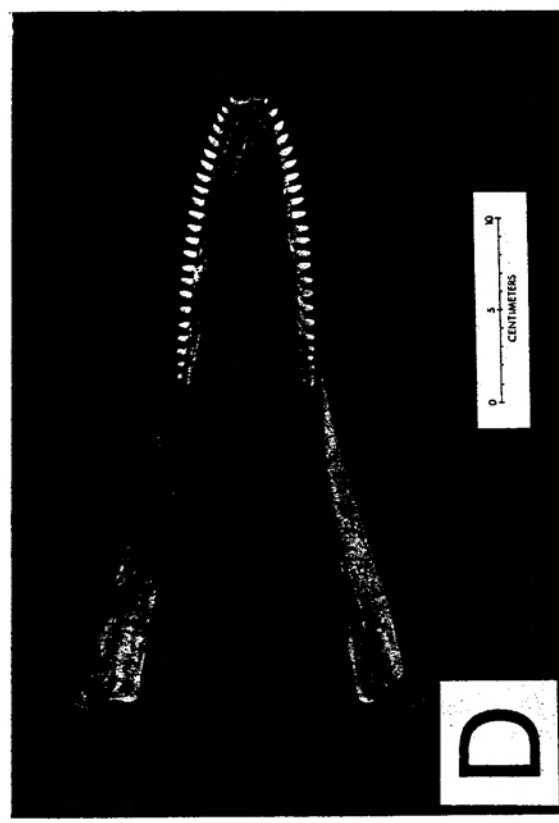
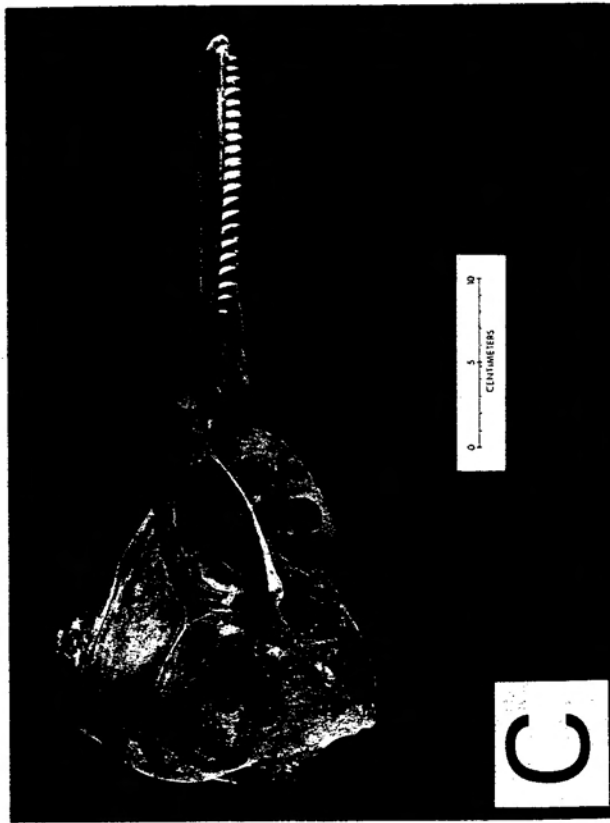


FIG. 6 Continued. (C) Lateral view, (D) dorsal view of mandible.

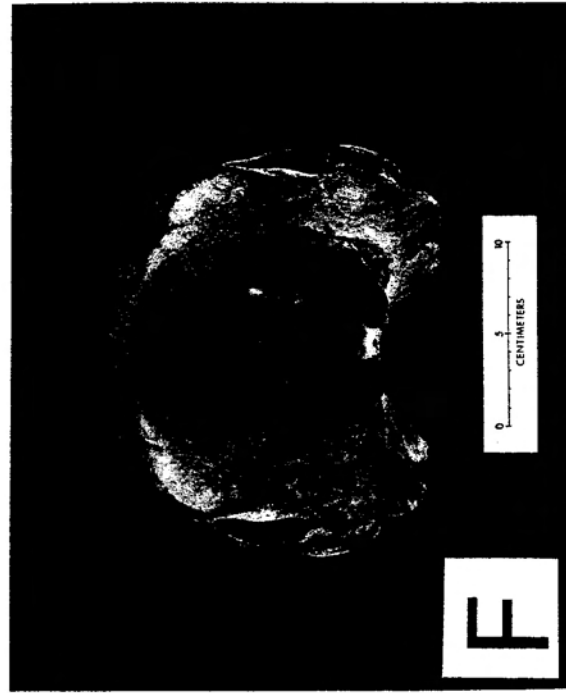
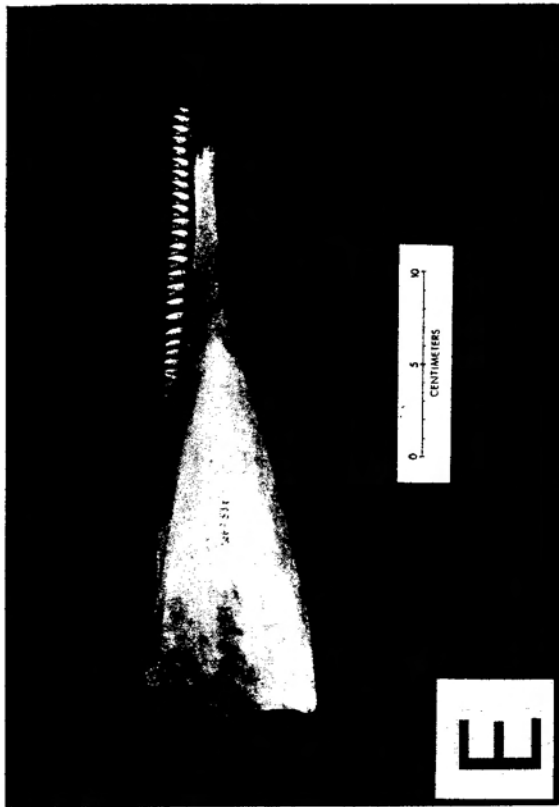


FIG. 6 Continued. (E) Lateral view of mandible, (F) posterior view of skull.

TABLE 2 Range of some cranial measurements of *Peponocephala electra* (after Best and Shaughnessy, 1981)

| Measurements | n | Percentage range of condylobasal length |
|-------------------------------------|----|---|
| Condylobasal length | | 100.0 |
| Rostrum length | 13 | 52.3-55.6 |
| Rostrum basal width | 13 | 27.6-31.0 |
| Rostrum width at middle | 12 | 17.3-25.2 |
| Tip of snout to blowhole | 8 | 67.1-70.4 |
| Preorbital width | 12 | 50.5-54.4 |
| Postorbital width | 13 | 53.6-57.6 |
| Zygomatic breadth | 12 | 54.0-57.6 |
| Greatest width of premaxillaries | 13 | 19.9-23.6 |
| Width of braincase across parietals | 11 | 37.7-44.0 |
| Length of upper tooth row | 12 | 35.3-40.9 |
| Length of lower tooth row | 9 | 33.8-39.2 |
| Mandible length | 10 | 79.4-81.8 |
| Coronoid height | 10 | 17.7-20.5 |
| Length of symphysis | 8 | 6.7-9.2 |
| Tooth counts | | |
| RU | 15 | 20-26 |
| RL | 14 | 22-25 |

Bryden *et al.*, 1977a; Best and Shaughnessy, 1981) are: C₇, T₁₃₋₁₄, L₁₇₋₁₈, C₄₀₋₄₁; total 81-82. According to the most recent reports, the phalangeal formula (Bryden *et al.*, 1977a,b; Best and Shaughnessy, 1981) is: I₂₋₃; II₈₋₉; III₆₋₇; IV₃₋₄; V₂₋₃.

Organ weights

The only complete set of organ mass measurements was published by Best and Shaughnessy (1981) for a sexually mature 206-kg male that stranded at Hout Bay, South Africa in July 1976. The weights of selected organs were as follows: heart 1025 g; lungs and trachea 5245 g; liver 3310 g; kidneys 575 g (l) and 560 g (r); spleen 75 g; intestines 3750 g; adrenals 6.8 g (l) and 9.8 g (r); bladder 130 g; stomach (including contents) 2455 g; and testes 760 g (l) and 1035 g (r). Although sexually mature, the testes for the above specimen were much smaller than those of the 273-cm male that Goodwin (1945) reported as weighing "more than 10 pounds" (4500 g). The weights of the ovaries for a 257-cm sexually mature female were reported to be 4.3 g (l) and 3.5 g (r) (Bryden *et al.*, 1977b).

Physiology

Tsuyuki and Itoh (1969) presented a detailed analysis of the fatty acid composition of a sample taken from a single specimen caught at Suruga Bay, Shizuoka

Prefecture, Japan. Little else has been reported about the physiology of this species.

Life History and Population Dynamics

Growth and reproduction

Although material is limited, some general statements can be made about reproduction in this species. The smallest sexually mature female specimen was 230 cm long (J. G. Mead, W. A. Walker, C. W. Potter and W. A. McLellan, unpublished data) and the smallest sexually mature male 248 cm (Best and Shaughnessy, 1981). Length at birth appears to be about 1 m, and the gestation period is estimated at 1 year (Bryden *et al.*, 1977b). In the Southern Hemisphere, births occur from August to December; in the Northern Hemisphere, a neonate was found in July and a near-term (80 cm) foetus was collected in October (Mead *et al.*, unpublished data). In the Philippines, new borns have been observed in April and June (Leatherwood, unpublished data).

There is no indication of sexual dimorphism in overall length for this species (Table 3, Fig. 7). From the small sample of body measurements available to Best and Shaughnessy (1981), it appeared that, in comparison with females, males had longer flippers, taller dorsal fins, and broader tail flukes. In addition, the large male specimen measured by Goodwin (1945) had a pronounced protuberant keel posterior to the anus. Similarly, there was an indication of a

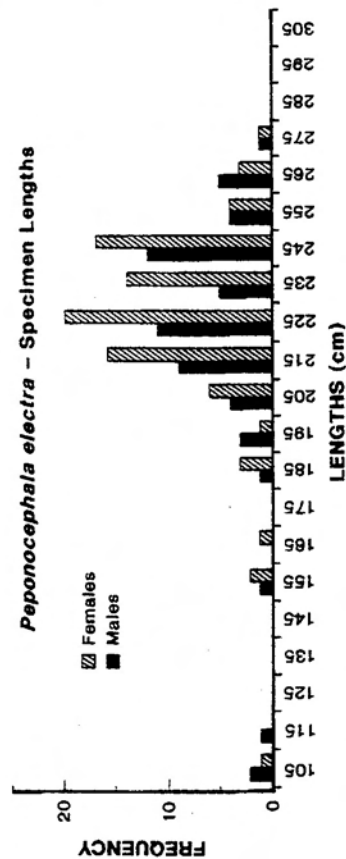


FIG. 7. Frequency distribution of reported lengths of male and female melon-headed whales. Data taken from Bryden *et al.* (1977a, 1977b), Caldwell *et al.* (1976), Goodwin (1945), Hembree (1980), Kami and Hosmer (1982), Leatherwood *et al.* (1991), Lodi *et al.* (1990), Mead *et al.* (unpublished manuscript), Miyazaki (1983a), Miyazaki and Wada (1978), Nakajima and Nishiwaki (1965), Nishiwaki and Norris (1966), Perrin (1976), and Shallenberger (1981).

TABLE 3. Selected external measurements for *Peponocephala electra* expressed as percentage of total length (after Best and Shaughnessy, 1981, Table 1; Miyazaki, 1980; Donaldson, 1983) and two new specimens from Hawaii (Con-siglieri, unpublished data)

| Measurement | Males | | | Females | | |
|-------------------------------------|-------|---------|------------------|---------|-------------|------------------|
| | n | cm | % of body length | n | cm | % of body length |
| Tip of upper jaw to notch in flukes | 8 | 223-273 | 100.0 | 6 | 171.0-259.0 | 100.0 |
| centre of eye | 8 | | 12.9-14.5 | 6 | | 12.3-14.9 |
| blowhole | 8 | | 12.6-14.9 | 6 | | 12.9-14.7 |
| angle of gape | 7 | | 9.5-11.3 | 6 | | 9.3-11.4 |
| ant. insertion of flipper | 6 | | 19.0-21.4 | 5 | | 17.5-23.4 |
| tip of dorsal fin | 5 | | 55.6-62.8 | 4 | | 56.4-58.0 |
| Flipper (R): | | | | | | |
| ant. insertion to tip | 6 | | 17.6-21.2 | 6 | | 15.8-18.9 |
| axilla to tip | 7 | | 13.3-15.8 | 3 | | 11.7-12.5 |
| maximum width | 7 | | 4.9-10.8 | 4 | | 4.1-5.1 |
| Dorsal fin: | | | | | | |
| height | 8 | | 8.4-10.9 | 6 | | 6.4-8.0 |
| length of base | 7 | | 14.0-21.0 | 3 | | 10.4-14.4 |
| Flukes: | | | | | | |
| width, tip to tip | 8 | | 20.4-27.8 | 6 | | 14.9-22.8 |

small keel on a 267.7-cm male reported by Bryden *et al.* (1977b), and a 259-cm male illustrated by Miyazaki (1983a).

Mortality

Mass strandings of melon-headed whales have been reported from Crowley Heads, Australia (Dawbin *et al.*, 1970), Malekoula Island, Vanuatu (Rancurel, 1973), Morceton Island, Queensland, Australia (Bryden *et al.*, 1977a), Seychelles (Best and Shaughnessy, 1981; Racey and Nicholl, 1984; Leatherwood *et al.*, 1991), Aoshima, Japan (Miyazaki, 1983a), Piracanga Beach, Bahia, Brazil (Lodi *et al.*, 1990), Kwajalein Atoll (Eldredge, 1991), and Tambor, Costa Rica (Mead *et al.*, unpublished manuscript). It has been noted that in several mass strandings of this species, the ratio of females to males was about 2:1 (Lodi *et al.*, 1990). This may reflect behavioural segregation.

Abundance

There is little information on migrations or sizes of populations of melon-headed whales. The only population estimate based on survey data is that of

45 000 individuals (Wade and Gerrodette, in press) for the eastern tropical Pacific. They are reported to be abundant in Philippine Seas, especially near Cebu Island (Dawbin, 1974; Hammond and Leatherwood, 1984; Leatherwood *et al.*, 1992), and are frequently seen in waters around the Hawaiian Islands (Shallenberger, 1981), in the Tuamotus-Marquesas Islands, along the east coast of Australia (Bryden *et al.*, 1977a), 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.

Behaviour

Herd of melon-headed whales are diurnally active and usually large. Most have been reported to contain between 150 and 1500 animals (Bryden *et al.*, 1977a; Shallenberger, 1981; Wade and Gerrodette, in press; authors' observations). When swimming rapidly, these animals characteristically bunch tightly and break the surface with a flat trajectory; animals rarely clear the surface completely. The head pushes a crescent of water ahead and, subsequently, over the surfacing animal. This produces a splash pattern that largely obscures the animal (Fig. 5). "Running" herds may travel in this manner for many minutes. Herds of melon-headed whales have occasionally ridden the bow wave of passing vessels in the tropical Pacific, in Hawaiian waters, off Sri Lanka (Reeves and Leatherwood, 1984; Leatherwood *et al.*, 1984, 1988, 1991), in the Gulf of Mexico (authors' observations), off Southern Indonesia (Hembre, 1984), and near Cebu, Philippines (Hammond and Leatherwood, 1984; Leatherwood *et al.*, 1992).

Association with other species

Melon-headed whales are occasionally found associated with Fraser's dolphins (*Lagenodelphis hosei*) in Philippine Seas (Dawbin, 1974; Hammond and Leatherwood, 1984; Leatherwood *et al.*, 1992), the Mindanao Sea (Hammond and Leatherwood, 1984), the western tropical Pacific (Miyazaki and Wada, 1978), the Gulf of Mexico and the eastern tropical Pacific (authors' observations and unpublished records, NMFS). These two species share similarities in "schooling" behaviour and distribution. Hammond and Leatherwood (1984) reported that melon-headed whales were frequently found around the periphery of herds of Fraser's dolphins in the southern end of Bohol Strait. They observed that melon-headed whales often displaced Fraser's dolphins from the bow wave of capture boats, a behaviour the authors interpreted as an act of dominance.

Although generally not found associated with bird flocks (Au and Pitman, 1988), in the eastern tropical Pacific over 33% of the herds of melon-headed whales sighted during research cruises have been associated with Parkinson's

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petrels (*Procellaria parkinsoni*) (Pitman and Ballance, 1992). These scavenging birds appear to depend on recovering food scraps left from small cetaceans dismembering large prey well below the surface (Pitman and Ballance, 1992).

Feeding

Stomach contents from specimens taken in the Lesser Antilles and South Africa included partially digested fish and squid, cephalopod beaks, fish bones and otoliths (Caldwell *et al.*, 1976; Best and Shaughnessy, 1981). Hembre (1984) found "fish, small red shrimp, and squid" in the stomach of a 215-cm male taken by harpoon off Lamalera, Lembata in 1979. Stomachs of specimens examined from a large stranding in Costa Rica contained large numbers of omastrephid squid beaks (primarily *Dosidicus gigas*) (Mead *et al.*, unpublished manuscript). Based on the frequency of the upper beak rostrum lengths from this sample, it can be postulated that melon-headed whales feed primarily on squids that are larger than those eaten by spotted, *Stenella attenuata*, or spinner dolphins, *S. longirostris*, from the same area (Perrin *et al.*, 1973).

Parasites and Disease

There is no published information on diseases of melon-headed whales. The role of disease in mass strandings of this and other cetacean species remains unclear. Morimitsu *et al.* (1986) examined the inner ear of one male specimen from the mass stranding at Aoshima, Japan, and found severe damage to the auditory (octavium) nerve caused by the parasite *Nasitrema gondi*. They noted that acute octavium neuropathy could disrupt equilibrium functions in cetaceans and eventually lead to stranding. Parasites found in stranded, harpooned and incidentally captured melon-headed whales are summarized in Table 4. In addition, we have observed remoras attached to free-swimming melon-headed whales in the tropical eastern Pacific. There are no data on predation on this species, though Best and Shaughnessy (1981) reported scars on a stranded specimen, probably due to bites by the cookie-cutter shark, *Isistius brasiliensis*.

Live Maintenance

Ten specimens of this species were captured near Cebu, Philippines between June 1974 and July 1985 (Hammond and Leatherwood, 1984). Four were released within 2 weeks and the remaining six survived for 30–45 days. In 1978, two female melon-headed whales were captured in Pokai Bay, Hawaii, and one of them survived for nearly 17 months (Shallenberger, 1981). Keepers at both

TABLE 4 A list of parasites reported from *Pepionocephala electra*

| Organism | Species code | Information source | Remarks |
|---|--------------|---|--|
| Internal Trematodes <i>Nastirna</i> sp. <i>Nastirna gondo</i> | O X | Dailey and Brownell, 1972 Morimitsu <i>et al.</i> , 1986 | Tissue not specified Found in tympanic cavity. Over 40 individuals in each ear |
| Cestodes <i>Monorygma</i> sp. <i>Monorygma</i> sp. | O + | Dailey and Brownell, 1972 Bryden <i>et al.</i> , 1977a | New host record, host tissue not specified Found between peritoneum and abdominal muscles |
| <i>Phyllobothrium chamissonii</i> | X | Cannon, 1977 | Found between peritoneum and abdominal muscles |
| <i>Phyllobothrium chamissonii</i> | + | Best and Shaughnessy, 1981 | Extensive infection, including abdomen, rectum, small intestine, diaphragm, muscle |
| <i>Phyllobothrium</i> sp. | + | Best and Shaughnessy, 1981 | Found in blubber |
| Nematodes Nematodes, unidentified Probably nematodes | + X | Nakajima and Nishiwaki, 1965 Dawbin <i>et al.</i> , 1970 | Located in stomach and skull air sinuses Described as "small thread-like worms" in the heads and presumed to be like those reported by Nakajima and Nishiwaki, 1965 |
| External <i>Halocercus</i> sp. | + | R. J. Harrison in Dailey and Brownell, 1972 | New host record, host tissue not specified |
| <i>Stenurus</i> sp. <i>Stenurus globicephalae</i> | + X | Bryden <i>et al.</i> , 1977a Cannon, 1977; da Silva <i>et al.</i> , 1987 | Found in tympanic cavity—reidentification of <i>Stenurus</i> sp. reported by Bryden <i>et al.</i> , 1977a |
| <i>Amtsakis simplex</i> | + | Cannon, 1977; Best and Shaughnessy, 1981 | "New host record", found in stomach. Found in oesophagus, stomach and mid-length of small intestine |
| <i>Amtsakis typica</i> | + | Cannon, 1977 | "New host record", found in stomach |
| Acanthocephalans <i>Bolbosoma</i> sp. | + | Best and Shaughnessy, 1981 | Identity "probable", found in rectum |
| Cyamids Whale lice Crustaceans Barnacles, possibly <i>Xenobalanus</i> | * X | Miyazaki and Wada, 1978 Bryden <i>et al.</i> , 1977a | Species not named Traces of attachments on tail flukes. |

*Collected at sea
+ Individually stranded.
X Mass stranded.
O Unreported origin.

sites indicated that these small whales can be extremely aggressive and should be handled with care (Reeves and Leatherwood, 1984). In the Philippines, for example, several handlers were injured when they were hit by a whale's head or raked by its teeth (Hammond and Leatherwood, 1984). In addition to the specimens noted above, two melon-headed whales from a school of 200 driven ashore at Taiji, Japan in 1980, were sent to an aquarium (Kasuya et al., 1984).

Human Effects

Directed fisheries and by-catches

Melon-headed whales have been killed in fisheries in several regions, although there is no evidence that human activities are having a significant impact on this species (Northridge and Pilleri, 1986). In 1848, 60 animals were driven ashore in Hilo Bay, Hawaii (Peale, 1848). Perrin (1976) reported that a specimen was killed during purse-seining for yellowfin tuna in the eastern Pacific. Mortalities from incidental captures in this fishery will probably continue at a very low level. This species is also taken occasionally in the subsistence fishery for small cetaceans near the island of St Vincent in the Caribbean (Caldwell et al., 1976).

Melon-headed whales are also taken in the Japanese dolphin drive fishery (Miyazaki, 1983b). A herd of 200 animals was driven into port at Taiji, Japan in 1980, but most were released after the fishermen discovered that the meat had little market value and after many local citizens wrote letters of protest (Miyazaki, 1980). These small whales continue to be taken in a long-lived and well-established harpoon fishery for sperm whales and various small cetaceans near Lamalera, Indonesia (Weber, 1923; Leatherwood et al., 1991; Barnes, 1991). Hembree (1980) reported a male specimen that was harpooned there in 1979, and cited reports from local fishermen of three additional individuals taken during the summer of 1979. Correspondence directed to the International Whaling Commission reported that four melon-headed whales were taken during the 1982 fishing season (R. Gambell, personal communication). Small-boat fisherman also occasionally harpoon or net this species near Sri Lanka and in the Philippines (Hammond and Leatherwood, 1984; Leatherwood and Reeves, 1989; Leatherwood et al., 1992).

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