



# Notes

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## FIRST SIGHTINGS OF MELON-HEADED WHALES (*PEPONOCEPHALA ELECTRA*) IN THE GULF OF MEXICO

Little is known about the distribution of the melon-headed whale (*Peponocephala electra*). It is thought to be distributed worldwide in subtropical and tropical waters (Perrin 1976, Leatherwood and Reeves 1983, Perryman *et al.* 1994). The distribution of melon-headed whales in the eastern tropical Pacific is reasonably well documented (Perrin 1976, Wade and Gerrodette 1993, Perryman *et al.* 1994). However, there are only 16 records from the Atlantic Ocean.

Atlantic records include five animals captured near the Caribbean island of St. Vincent (Caldwell *et al.* 1976, Mead *et al.* 1986), one animal captured offshore in the tropical Atlantic (03°03'N, 24°40'W) (Goodwin 1945), and one sighting from the tropical Atlantic (17°N, 38°W) (Pilleri 1982). All of the other records are of strandings: South Africa, one (Best and Shaughnessy 1981); Senegal, two (van Bree and Cadenat 1968); Brazil, two (Siciliano *et al.* 1987, Lodi *et al.* 1990); Maryland, USA, one (Potter 1984, Mead *et al.* 1986); and the United Kingdom, one (Mikkelsen and Sheldrick 1992). Barron and Jefferson (1993) reported the first two records from the Gulf of Mexico. These were strandings of single animals in Texas in 1990 and in Louisiana in 1991. Here, we report the first eight sightings of melon-headed whales in the Gulf of Mexico (Table 1).

All of the sightings were made during marine mammal assessment surveys conducted during 1992 and 1993 by the Southeast Fisheries Science Center (SEFSC) from NOAA Ship *Oregon II* (six sightings) and by Texas A&M University (TAMU) from R/V *Pelican* (two sightings) (Fig. 1). The surveys covered waters deeper than 100 m in the U.S. Gulf (the area approximately north of a line between Key West, Florida and Brownsville, Texas). Surveys were conducted using line transect sampling methods, aided by the use of 25 × binoculars (see Holt and Sexton 1989). At sea melon-headed whales can potentially be confused with false killer whales (*Pseudorca crassidens*) and pygmy killer whales (*Feresa attenuata*). Both of these species were also sighted during the surveys. We are confident in our ability to distinguish between *P. electra*, *F. attenuata*, and *P. crassidens*, based on size, dorsal cape pattern, lip pigmentation, facial coloration, and the shape and size of the head and flippers (Leatherwood and Reeves 1983, Perryman *et al.* 1994) (Fig. 2).

*Table 1.* Summary of melon-headed whale sightings in the Gulf of Mexico.

Date	Estimated herd size	Surface temperature (°C)	Depth (m)	Position	Associated cetaceans
20 May 1992	73	25.2	1,100	27°08.9'N, 93°00.9'W	33 Fraser's dolphins
04 Jun 1992	101	26.5	2,057	26°22.3'N, 91°00.1'W	
05 Jun 1992	73	26.7	1,262	27°28.4'N, 89°59.4'W	
19 Aug 1992	250	29.8	2,403	26°12.4'N, 93°09.4'W	17 Rough-toothed dolphins
12 Jan 1993	60	22.1	1,737	26°36.4'N, 93°03.0'W	
20 May 1993	35	28.1	3,201	26°41.7'N, 85°59.1'W	44 Fraser's dolphins
01 Jun 1993	30	25.1	1,006	26°01.3'N, 95°59.8'W	
01 Jun 1993	156	25.3	832	27°26.0'N, 94°10.0'W	13 Rough-toothed dolphins & 17 Fraser's dolphins
15 May 1993 <sup>a</sup>	175	—	669	27°41.8'N, 91°47.9'W	
16 May 1993 <sup>a</sup>	400	—	835	27°47.4'N, 90°19.9'W	

<sup>a</sup> Sightings were made from aircraft. Animals could not be unequivocally distinguished from pygmy killer whales.

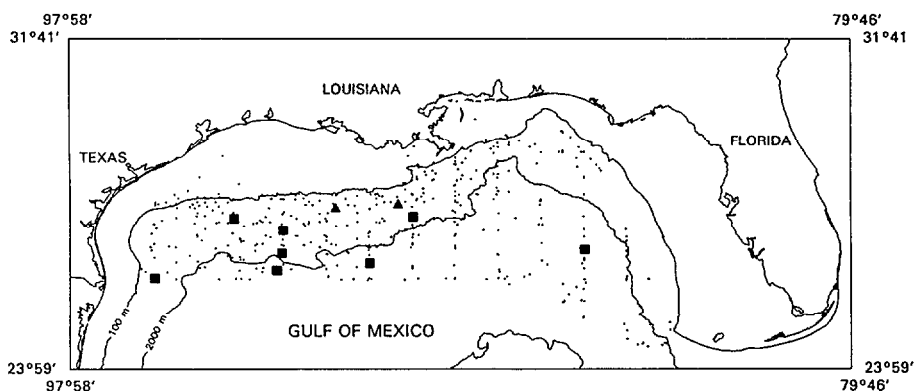
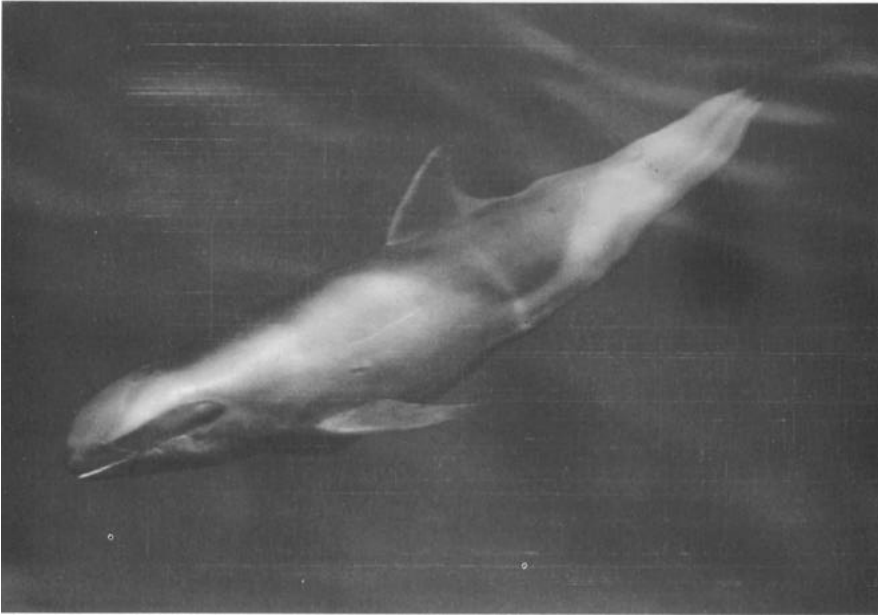


Figure 1. Locations of melon-headed whale herds sighted in the Gulf of Mexico (squares—sightings from ships, triangles—sightings from aircraft, small dots—daily 0800, 1200, and 1600 h positions of NOAA Ship *Oregon II* and R/V *Pelican* during cetacean surveys).

The first three sightings were made during the spring of 1992. The first herd of melon-headed whales sighted was initially in a broad front about 1 km long, made up of tight subgroups of 3–8 animals each. The ship approached within 10 m and many juveniles animals and several calves were noted. The second sighting was of a mixed herd of melon-headed whales and Fraser's dolphins (*Lagenodelphis hosei*; see Leatherwood *et al.* 1993). The occurrence of melon-headed whales and Fraser's dolphins in mixed groups is well documented in other areas (Leatherwood and Reeves 1983, Perryman *et al.* 1994). The herd was traveling very fast, about 4 km from the ship. As the ship approached, the melon-headed whales avoided the ship, whereas some of the Fraser's dolphins came to the ship and rode the bow wave. Subgroups of tightly bunched single-species groups were scattered throughout the herd. However, the melon-headed whale subgroups always trailed those of the Fraser's dolphins. The ship approached within 75 m of the herd. The third herd was sighted traveling slowly in a long parade line of whales two or three abreast. As the vessel approached, the herd started moving fast and some animals approached and rode the bow wave. Several adult/calf pairs were again noted.

The fourth sighting, made during August 1992, was composed of subgroups. About 80% of the animals were originally traveling fast in a broad front that was about 10 times wider than deep. The remaining animals were in a tight subgroup about 200 m away. As the ship approached, the two subgroups merged. The fifth sighting was made in January 1993. The animals in this herd were traveling in subgroups of 2–4 abreast.

Three herds were sighted during May and June 1993. One herd of 35 animals rode the bow wave of the *Oregon II* for nearly one hour. Another, a herd of 30 animals, avoided the *Oregon II* by swimming low in the water and sounding frequently. While the melon-headed whales in this latter group were within 100 m of the ship, a herd of rough-toothed dolphins (*Steno bredanensis*) appeared and rode the bow wave. However, the rough-toothed dolphins did not intermix



*Figure 2.* Melon-headed whale from the Gulf of Mexico (20 May 1993, 26°41.7'N, 85°59.1'W, photo by R. L. Pitman).

with the melon-headed whales. The final sighting was of a herd which also included Fraser's dolphins. The herd was running, arranged in subgroups, in a line longer than wide. The Fraser's dolphins were located near the rear of the melon-headed whale herd.

Three herds of whales that were either melon-headed whales or pygmy killer whales were also sighted during aerial surveys of continental slope waters of the northwestern Gulf. The herds contained an estimated 12, 175, and 400 whales, respectively. While melon-headed whales cannot be easily distinguished from pygmy killer whales from aircraft, we believe that the two large herds were melon-headed whales. Fraser's dolphins and rough-toothed dolphins were associated with the herd of 400. In the eastern tropical Pacific, Fraser's dolphin was not found to be associated with pygmy killer whales, and the pygmy killer whale herds averaged only 27.9 animals, whereas melon-headed whale herds averaged 199.1 animals (Wade and Gerrodette 1993).

Similar vessel surveys of shorter duration in the northern Gulf were conducted in 1990 and 1991, but no melon-headed whales were sighted (SEFSC, unpublished data). The absence of melon-headed whales from these surveys could be attributed to sampling variation, as opposed to an irruptive pattern of melon-headed whale occurrence in the Gulf. In the eastern tropical Pacific melon-headed whales were found to occur in low densities relative to other species of small cetaceans (Wade and Gerrodette 1993). Densities in the Gulf are probably also low; herds of melon-headed whales made up less than 1% of all the cetacean

herds sighted. Therefore, it is possible that they could be missed during any particular year.

The distribution of melon-headed whales in the Gulf, Pacific (Perrin 1976, Wade and Gerrodette 1993), and elsewhere (Perryman *et al.* 1994) is oceanic. All the sightings reported here were in deep water (>500 m), away from the continental shelf edge (Fig. 1). Three of the sightings, each from a different season, were within a 50-km radius.

Herd sizes of melon-headed whales were highly variable in the northern Gulf ranging from 35 to 400 ( $\bar{x} = 135.3$ ,  $SE = 36.66$ ,  $n = 10$ ). Similarly, Leatherwood *et al.* (1991) summarized sighting and stranding information for the Indian Ocean and reported herds of 3, 36, 120, and 200–300 whales. Some of the smaller herds reported above may have been parts of larger herds. In the Atlantic Ocean over 240 melon-headed whales mass-stranded on the northeastern coast of Brazil (Lodi *et al.* 1990), and Pilleri (1982) reported a sighting of 80–100. Herds sighted in the eastern tropical Pacific were, on average, larger than the Gulf herds ( $\bar{x} = 199.1$ ; Wade and Gerrodette 1993).

The two Gulf stranding records reported by Barron and Jefferson (1993) extended the known range of melon-headed whales in the western North Atlantic to include the Gulf of Mexico. However, the ecological implications of the strandings were not clear. The stranded whales could have been strays from a primary range outside of the Gulf. Prior to our Gulf sightings, the nearest nonstranding records of melon-headed whales were from near St. Vincent, over 3,200 km to the southeast (Caldwell *et al.* 1976, Mead *et al.* 1986). Our sightings suggest that the melon-headed whale is a regular inhabitant of the Gulf of Mexico.

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