MARINE MAMMAL SCIENCE, 14(1):146–149 (January 1998)

A HEAVILY PARASITIZED HUMPBACK WHALE (*MEGAPTERA NOVAEANGLIAE*)

On 21 January 1996 a research team carrying out a photoidentification study on humpbacks responded to a radio call advising of a whale in distress off the coast of Maui at 20°49.236′N, 156°38.561′W. Upon arrival the team was informed by the U.S. Coast Guard that the whale had been lying almost motionless just below the surface and that a large shark had been sighted in the vicinity. Underwater inspection revealed that the animal, a humpback whale, was almost totally covered in what appeared to be a thick layer of whale lice. Samples of the lice were not collected, but *Cyamus boopis*, Lütken 1870, is the only species of whale louse found on humpback whales (Leung 1967), and it is assumed that this was the species observed (Fig. 1). The covering of whale lice was very extensive, including the entire head region and most of the body. The only areas which appeared to be free of infestation were the outer portions of the pectoral fins and the dorsal and ventral sides of the tail flukes.

The whale was approximately 11–12 m long. It was positively identified as female, having a prominent hemispherical lobe (Glockner 1983). The dorsal surface of the animal was concave on both sides of the vertebral column, with an overall appearance of emaciation. An extreme spinal anomaly was observed, consisting of a marked horizontal displacement in the vertebral column (Fig. 2). No external wounds were observed, although the extensive covering of whale lice would have made them difficult to detect. The right side of the caudal peduncle presented three protrusions. The skin appeared to be unbroken, and the protrusions extended approximately 20–30 cm from the body (Fig. 2). The flukes of the animal were intact, but the animal appeared to be incapable of actively moving its peduncle.

Throughout the period of contact the whale exhibited few active signs of movement. Small amounts of forward movement did occur; this involved the use of the pectoral fins. While the animal was stationary, the pectoral fins generally hung loosely. Approach by a diver resulted in no apparent behavioral change. The eyes of the whale could be seen clearly, and they alternated between being open and closed for varying periods. A small stream of bubbles emanated from the blowhole for much of the period the whale was submerged.

Small concentrations of whale lice on humpback whales have regularly been observed (Leung 1976; Roundtree 1983, personal communication). They aggregate in areas of reduced water flow, such as the skin folds of the ventral grooves, eyes, pectoral fins, and blowholes, the margins of the lips, and around barnacles (Leung 1976, Roundtree 1983). Observations of other injured or physically affected humpbacks in which the swimming speed of the animal was reduced showed markedly increased concentrations of whale lice (V. Roundtree, personal communication; P. Clapham, personal communication).

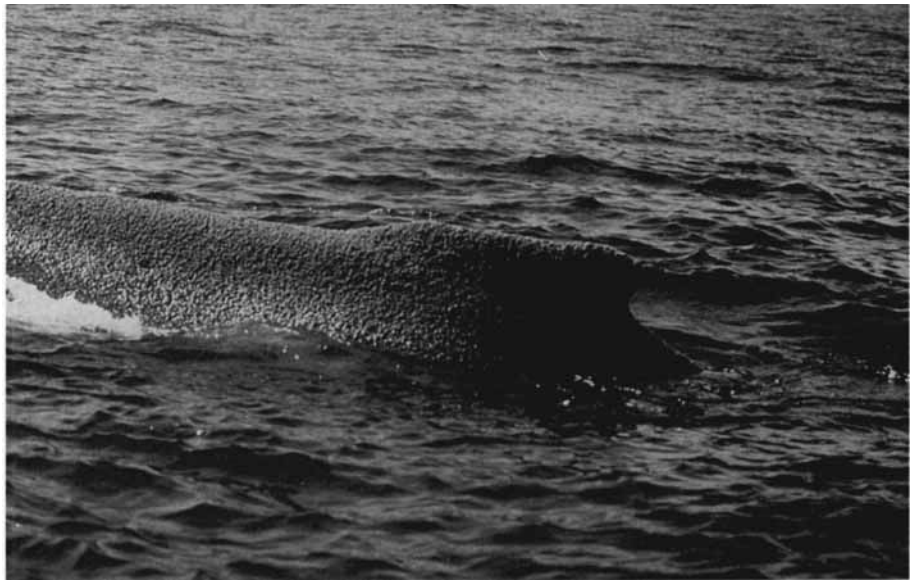

Figure 1. An extensive covering of lice was visible on the humpback whale's body.

Examination of the intestinal contents of *Cyamus boopis* has shown that it feeds on the skin of humpback whales (Roundtree 1983). Reduced water flow across the whale's body may open up greatly increased feeding sites (Roundtree 1996), encouraging an increase in louse reproduction.

The origin of the spinal anomaly is unknown. The possibilities include a congenital deformity disease, such as kyphoscoliosis, or injury as a result of impact, either with another whale or a vessel. An impact injury could account for the lateral protrusions on the animal's right flank. The protrusions may represent displaced vertebrae or fractured lateral processes of the vertebral column.

During the period of observation, the number of large tiger sharks (*Galeocerdo cuvier*) in the immediate vicinity increased to four. The passes made by the sharks gradually became closer. At the completion of observations, the sharks were approaching within 1–2 m. A search of the area was undertaken the following day, and the animal was not located. No further sightings of this animal have been reported. Underwater fluke-identification photographs of this animal were obtained, and copies were sent to the National Marine Mammal Laboratory (NMML) in Seattle for matching in their data base.

ACKNOWLEDGMENTS

We extend our appreciation to supporters of Pacific Whale Foundation for making it possible to continue to undertake research.

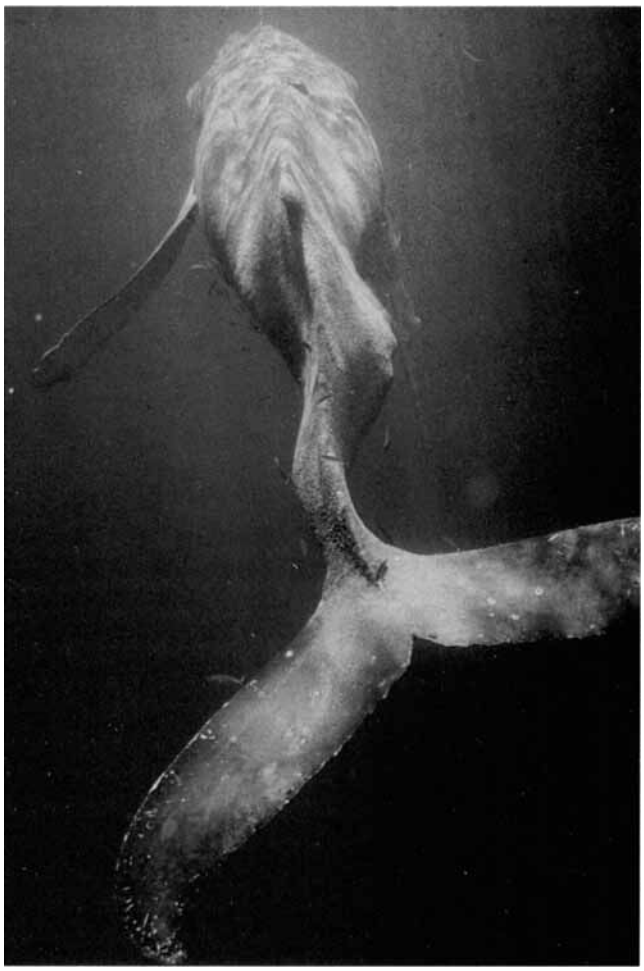

Figure 2. The animal's spine presented an anomaly.

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GRAY WHALE MORTALITY AT OJO DE LIEBRE AND GUERRERO NEGRO LAGOONS, BAJA CALIFORNIA SUR, MEXICO: 1984–1995

Gray whales migrate annually from their northern feeding grounds in the Bering and Chukchi Seas to their winter breeding and calving grounds along the coast of Baja California, Mexico. Swartz and Jones (1983) estimated that 5.4% of gray whale calves of the year die near or in the lagoons, and an additional 31% of calf mortality occurs by the time they reach central California in the first part of their northward migration. This increase in calf mortality outside the lagoons emphasizes the apparent advantage of the coastal lagoon habitats to reproductive success of this species. Calf survival may be enhanced by the combination of factors found in the breeding and calving lagoons (Rice and Wolman 1971, Jones and Swartz 1984, Sanchez 1991).

The objectives of this study were to (1) identify stranding locations within and adjacent to the lagoons, (2) determine periods of peak mortality during the winter reproductive season, (3) determine the sex ratio of stranded whales, (4) determine the age and sex class of stranded whales, and (5) identify and describe key factors that may influence the mortality of gray whales in and adjacent to the lagoons.

The outer coasts from the southern end of the entrance to Ojo de Liebre Lagoon north along Arena Island to the northernmost portion of Manuela Lagoon were surveyed each winter from 1984 to 1995 except for 1986 and 1994. We photographed, measured, sexed and noted the location of each dead whale encountered. In addition, we estimated date of death from the state of the decomposing carcass, location on the shore, and time elapsed since our previous search. Any unique markings or scars were noted. Each carcass was marked with a line tied around a flipper to prevent double counting.

A total of 191 whales were found. Length was determined for 176 whales, sex was determined for 146, and time of death was estimated for 117.

The southwest coast of Arena Island had the highest incidence (34%) of stranded dead whales (Fig. 1). Interactions among ocean currents, prevailing northwest winds, and tidal flow into and out of the lagoon are likely responsible for depositing floating carcasses in the area. Similar abundance of stranded whales at this same location was noted by Rice *et al.* (1981). These authors