and the prolonged silence of the sperm whales, differ from anything that has been observed in Galápagos during the past years' work on board the *Odyssey*.

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Bernard Brennan and Patricia Rodriguez, Whale Conservation Institute, 191 Weston Road, Lincoln, MA 01773, USA.

NOTES ON THE CUVIER'S BEAKED WHALE (*ZIPHIUS CAVIROSTRIS*), WITH OBSERVATIONS OF A DEAD SPECIMEN

By: Daniel M. Palacios, Patricia Rodriguez, Bernard Brennan and Kim Marshall

The Cuvier's beaked whale (*Ziphius cavirostris*) is a poorly known member of the cetaceans found in Galápagos. During research cruises aboard the R/V Odyssey in 1993 and 1994 we only saw this species about 15 times during 13 months. However, we were lucky to find a dead individual which prompted the writing of this note. Our observations on this individual follow a brief description of Cuvier's beaked whales paraphrased from Leatherwood et al. s (1988) identification guide to whales.

The Cuvier's beaked whale, or goose beaked whale, belongs to an interesting and diverse, but poorly known, group of odontocete cetaceans, the family Ziphiidae. Most of what is known about this group comes from individuals stranded on shore. Since Ziphiids tend to be shy and relatively inconspicuous at the surface, they are infrequently seen at sea.

Cuvier's beaked whales grow to about 7 m, becoming sexually mature at about 5.4 m. Length at birth is 2 to 3 m. The head is relatively small and the beak is short and poorly demarcated. The profile of the head and jaw appears similar to a goose's beak. A single pair of conical teeth is located under the gum, at the tip of the lower jaw. These teeth emerge only in males and visibly protrude from the closed mouth. The throat has two long, anteriorly convergent creases. The dorsal fin, located well behind the central dorsal region, tends to vary in size and shape. Unlike in other cetaceans, the flukes of Cuvier's beaked whale are usually not divided by a distinct notch and their trailing edge is somewhat concave.

Coloration appears to be related to both age and sex. Calves and juveniles are tan or light brown. As they age, they becomes marred with scratches and white or cream-colored oval blotches, especially on the abdomen. In older animals the head becomes distinctively lighter than the rest of the body. Old males may appear all white.

Cuvier's beaked whales are probably deep divers since they prey mostly on squid and deepwater fish.

Occasionally groups of individuals will surface unexpectedly near a vessel and seem startled by its presence. After a series of respirations between shallow dives, the pod will sound, disappear below the waves and not be seen again.

This species appears to be a year-round inhabitant of at least portion of its geographic range in the eastern North Pacific. It is known to occur in the Galápagos Archipelago (Leatherwood et al., 1988; Day, 1994), where it was first reported in 1975 (MacFarland, 1977). However, it is rarely seen perhaps because its preferred habitat, deep off-shore water, is not often visited by local boats.

In 1983 six live animals were stranded on Baltra Island (Robinson et al., 1983). Two of these animals died, and their skulls were placed in the Charles Darwin Research Station museum reference collection. Over the years, local residents of the islands have found additional remnants of at least four dead animals washed up on beaches (D.M. Palacios, unpublished data). These observations suggest that Cuvier's beaked whales may be more common in Galápagos waters than previously thought.

OBSERVATIONS OF A DEAD SPECIMEN

It is rare to find corpses of whales. As aquatic animals their bodies decompose rapidly, sink to the ocean floor or are eaten by scavengers soon after death. Occasionally bodies are washed ashore but they are usually in poor condition to study.

On 4 March 1994, during a research cruise aboard the *R/V Odyssey*, we found a recently dead Cuvier's beaked whale floating in the open sea. We encountered the whale approximately 28 miles WNW of Cabo Berkeley, Isabela Island (0°10.7'N; 92°02.0'W), while watching a pod of 10 to 15 killer whales (*Orcinus orca*). After retrieving the body, we organized a complete necropsy using standardized protocols for dissecting small cetaceans (e.g. Hohn et al. 1986). The carcass was affixed to the side of the vessel while two of us collected samples of various tissues.

The specimen was a young female, 4.2 m in length. Her ovaries were visually inspected for the presence of corpus albicans (scars from previous ovulations which indicate sexual maturity), but none were observed. From the small body size and absence of corpus albicans on the ovaries we concluded that this was an immature animal.

The stomach was full and contained mostly undigested squid beaks and shrimp exoskeletons. These prey items remain to be identified to species.

Approximately 40 sessile barnacles, probably *Xenobalanus globicipitis*, were attached to the trailing edge of the flukes. These barnacles form a relationship with cetaceans known as phoresia, i.e. the carrying of one organism by another without parasitism. This relationship has been recorded on at least 19 species of cetaceans, including the Cuvier's beaked whale, from temperate, warm-temperate, and tropical waters (Rajaguru and Shanta, 1992).

An impressive 56 cm long wound, severing two ribs, was found on the right side of the animal. Parallel teeth rakes emanated from the wound and extended 1 m posteriorly. These wounds appear to have been caused by killer whales. Killer whales have been observed feeding on fur seals (Trillmich, 1987), sperm whales (Arnbom et al., 1987), dolphins, and Bryde's whales (see Report of Two Orca Attacks on Large Cetaceans in the Galápagos Islands, this issue) in Galápagos. It is likely that this Cuvier's beaked whale was the victim of one of such attack, perhaps by the pod of killer whales that we had originally been observing.

Interestingly, Robinson et al. (1983) suggests that the pod of Cuvier's beaked whales that was stranded on Baltra in 1983 may have entered the shallow waters of the port while trying to escape from killer whales. One of the two animals that died, a large male, had sessile barnacles attached to the teeth on the lower jaw. Since *X. globicipitis* has only been found attached to skin (Rajaguru and Shanta, 1992), these barnacles may have been a different species, probably *Conchoderma auritum*.

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Daniel Palacios, Patricia Rodriguez, Bernard Brennan and Kim Marshall, Whale Conservation Institute, 191 Weston Road, Lincoln, MA, 01773, USA.

BOOK REVIEW: CLINKER ISLANDS: A COMPLETE HISTORY OF THE GALÁPAGOS ARCHIPELAGO

Authored By: Lillian Otterman

Reviewed by: John Woram

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It seems that every book on Galápagos flora and fauna begins with an obligatory historical chapter, in which the adventures of every visitor since Tomas de Berlanga are recounted. Such accounts are often brief, since the author's expertise lies elsewhere, usually in natural rather than human history. It is no bad thing for such introductory chapters to end quickly, for the author cannot do justice to the enchanting human history of the islands in one chapter. Thus, the history of human occupation in Galápagos rarely gets the serious attention it deserves.

Does Lillian Otterman's book 'Clinker Islands: A Complete History of the Galápagos Archipelago' finally put matters right? Her publisher describes the book as "The most complete single-volume history of the Galápagos Islands ever written", and the author has clearly done her homework. The last half of the book is the best, with a complete timetable of ship traffic in Galápagos from the days of Allan Hancock and *Velero III* to the visit of Irving Johnson's *Yankee* in 1964. Although this edition of 'Clinker Islands' was published in late 1993, it only covers the history of Galápagos up until her own visit to the islands in December, 1964. Other than a few brief paragraphs on the status of Galápagos tourism in 1975, the past 30 years are neglected. We learn of the mysterious disappearance of Sarah [sic, actually Saydee] Reiser early in 1964, but not of the discovery of her remains some fifteen years later.