REPORT OF TWO ORCA ATTACKS ON CETACEANS IN GALÁPAGOS

By: Bernard Brennan and Patricia Rodriguez

The Research Vessel *Odyssey* studied sperm whales (*Physeter macrocephalus*) and other cetaceans in the Galápagos Archipelago from February 1993 to April 1994. During the tenth cruise around the islands, from 17 October to 6 November 1993, orcas (killer whales, *Orcinus orca*) were observed attacking Bryde's whales (*Balaenoptera edeni*) and sperm whales on two consecutive days.

Orcas are regularly seen in the Galápagos Archipelago (Day, 1994). However, only one orca attack on another cetacean (sperm whales) in Galápagos has been reported (Arnbom et al., 1987). Two other unpublished incidents have been noted by local naturalists: one involving bottlenose dolphins (*Tursiops truncatus*) and the other, common dolphins (*Delphinus delphis*).

THE ATTACKS

At 0830 h on 25 October 1993, a group of at least five Bryde's whales was observed being pursued by ten orcas in Banks Bay, north of Fernandina Island (initial sighting: 0°08.8S, 91°32.8W). The orcas were spread out in small groups of one to three individuals, following and flanking the Bryde's whales. Half the orcas soon disappeared from sight leaving two males, a mother and calf, and another female. Individuals were distinguished by size, dorsal fin shape and behavior. While being pursued, the Bryde's whales traveled as a closely knit group, made mostly short dives and increased their blow rate. One individual breached twice. On several occasions, the two male orcas converged from opposite sides of a Bryde's whale and then the three animals submerged, preventing further observations of any interactions. No physical contact, open flesh wounds or carcasses were seen. However, blood was observed at the surface and the orcas were seen feeding on pieces of flesh and intestines. Therefore, we believe that a Bryde's whale may have been killed. No sounds were heard on our hydrophones other than an orca squeal and some clicks on two occasions. The interaction between the two species was observed for two and a half hours until the Bryde's whales left the area.

The second attack occurred the following day at 1530 h while the *Odyssey* was following a dispersed group of 12 sperm whales, 8.5 miles southwest of Fernandina (0°28.9S, 91°45.5W). An orca was observed to porpoise out of the water and bite a sperm whale behind the dorsal fin. Two more orcas were seen immediately behind the attacked sperm whale before all the animals submerged. A large expanse of blood subsequently formed at the surface. Several minutes later a group of five orcas (a large male, a mother and calf, and two females or immature males) were sighted. They circled the expanse of blood at high speed, then left the area. The interactions lasted less than seven minutes. Meanwhile, the remaining sperm whales tightened their group at the surface and made frequent direction changes. They ceased making deep or long dives and were mostly silent. This behavior was observed until nightfall (1835 h) when it became impossible to follow the whales. As far as it could be determined, only one sperm whale was attacked.

The proximity of these two attacks in space and time, and the similar composition of the two orca groups, suggested that some of the orcas were involved in both incidents. However, analysis of photographs of the dorsal fins and white "saddle" markings of each individual has revealed that the two groups were distinct.

The Bryde's and sperm whales demonstrated marked behavioral responses to the presence of orcas. Both species formed tighter groups than normal, made frequent directional changes as a group and ceased making long dives. These responses and particularly the breaching of one of the Bryde's whales

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

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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.