

## NOTES

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### A Stranded Sperm Whale, *Physeter catodon*, at Cayo Santiago, Puerto Rico

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The carcass of a 11.27 m sperm whale, *Physeter catodon* (Field Number 068501AMG) was discovered on Cayo Santiago, Puerto Rico. It was first seen on 25 June 1985, at 11:30 a.m. by a census-taker at the Caribbean Primate Research Center located on the cay. Photos taken by the resident scientist allowed for identification. The whale was found floating on its side in a small rocky inlet on the southern part of the small cay, located on the northeastern part of Cay. Santiago (18°09'37"N, 65°43'39"W). The inlet, a shallow water entrance surrounded by rocks, formed a cave above the left side of its edge. Four to seven tiger sharks, *Galeocerdo cuvieri*, were feeding on the carcass.

The following day, five fishermen were on-site trying to remove the mandible and the teeth of the whale. The high waves and continuous pounding of the specimen on the rocks rendered the attempt unsuccessful. An axe-chopped, higher portion of the mandible was left in the cave by the fishermen since it did not contain any teeth.

By 28 June the remains were already badly decomposed and the gas produced by decomposition had inflated the body into two big gas bulges instead of its normal torpedo shape. Its outer skin had eroded away, exposing the white under-skin. At this time, the animal was unidentifiable, and no sharks were seen. The part of the lower jaw that had been chopped by the fishermen and a newly washed-up rib were recovered. The remainder of the carcass was now almost out of reach.

Recovery of the whale's bones continued on 13 and 20 July after many of them appeared on the isthmus beach between the two cays. A floating rib, one unfused cervical vertebra, two thoracic vertebrae, five caudal vertebrae, thirteen intervertebral growth plates, six miscellaneous bones, and one, probably vestigial, worn tooth (Fig. 1) were recovered. The skull of the animal was never found. The materials collected were donated to the Department of Biology Museum at the University of Puerto Rico (Catalog Number UPR-RP-209), and to the Department of Biology Mammalogy Collection at Colorado State University (Catalog Number CSU13376).

Estimates based on the length of the animal, the worn tooth (5.85 cm long, 1.90 cm wide, and 6.0 cm in base diameter), and the unfused intervertebral growth plates, indicate that the animal may have been a relatively young individual. To determine age, the tooth was bisected longitudinally on an Isomet low speed saw with a diamond wafering blade. One cut face of the tooth was etched for 17 hours in a five

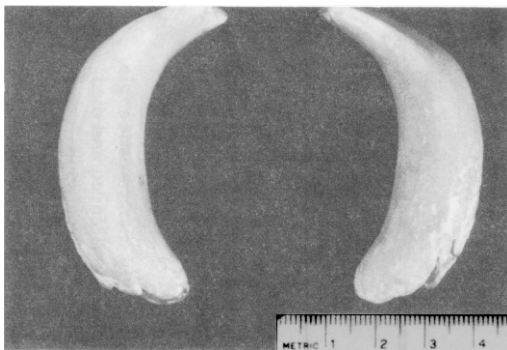


FIG. 1. Lateral views of the worn tooth collected from *Physeter catodon*. Metric scale in centimeters.

percent solution of formic acid to determine the number of growth layer groups (GLG's) within the dentine. Two 20  $\mu$  sections were cut from the other half, to assess the number of GLG's in the cementum. Dentine layer counts of 15 to 22 were obtained by three individual readers. Counts of 11 to 17 layers were obtained from the cementum. Since one GLG is deposited annually (Mikhalev, 1982) this whale must have been approximately 15 to 22 years of age. Mikhalev (1982) and Rice et al. (1986) both obtained longer dentinal counts (above 31) for females of the same size as the whale of Cay. Santiago. Both authors also obtained age approximations between 16 and 21 years of age for male sperm whales with lengths from 11.3 to 11.5 m. Therefore, the specimen found in Puerto Rico probably was a male. The unfused nature of the intervertebral growth plates collected indicates the immaturity of the animal.

The cause of death could not be determined since the animal's advanced state of decomposition did not allow for a postmortem examination. The animal did not show any signs of external injuries other than two holes in its side described by the initial discoverer as "shotgun wounds." These might have been produced by the sharks which were feeding on it. Whatever the explanation for death, shallow passages between islands, and late seasonal occurrence may have played roles in the appearance of the whale on shore. Sperm whales — at least in the Caribbean-seem only to be found in waters over 100 fathoms in depth (Taruski and Winn, 1976). The Vieques Passage, the body of water in which Cayo Santiago lies, is not deeper than 15 fathoms in most parts.

"*Physeter* are least often seen in summer" (Erdman et al., 1973). Analysis of reports since 1761 in the Eastern Caribbean obtained from Townsend (1935), Erdman (1970), Rathjen and Sullivan (1970), Caldwell et al. (1971), Erdman et al. (1973), Caldwell and Caldwell (1975), Taruski and Winn (1976), Watkins and Moore (1982), and Watkins et al. (1985), show that sperm whales have never been reported previously near Puerto Rico between June and September (Table 1). The only exception to this is a sighting of three animals at the edge of the drop, south of Islo de Vieques on 5 July 1952 (Erdman et al., 1973). Even during

TABLE 1. Records of occurrence of sperm whales in Puerto Rico.

Date	Location	Occurrence	No. of ani- mals	Size	Observer	Source	Comments
7 Jul 1952	Edge of drop off S of Isla de Vieques	Sighting	3		Harms	Erdman et al., 1973	
12 Oct 1962	24.1 km E of Isla de Mona	Sighting	1		Erdman	Erdman et al., 1973	Large tail straight up and sound- ing
6 Mar 1966	8 km N of Loiza Aldea	Sighting	1	12.2 m	Erdman	Erdman et al., 1973	
26 May 1966	W of Punta Cadena, N of Mayagüez	Stranding	1	10.5 m	Erdman	Erdman, 1970	Spouting in characteristic angle. It became stranded and died during the afternoon. It was then towed out to sea. Presum- ably a female
1 Feb 1969	SW of Isla de Mona	Acoustic	1+			Taruski and Winn, 1976	410 fathoms in depth
5 Feb 1969	SW of Isla de Mona	Acoustic	1+			Taruski and Winn, 1976	280 fathoms in depth
8 Feb 1969	NE of Isla de Mona	Acoustic	6-8			Taruski and Winn, 1976	100 fathoms in depth
30 Mar 1970	S of Isla Desecheo	Acoustic	1+			Taruski and Winn, 1976	
11 Mar 1971	Playa Tortuga, Isla Culebrita	Stranding	1	10 m	Erdman	Erdman et al., 1973	On 14 Mar, Erdman saw this whale on a lee shore coral reef where it was inaccessible dur- ing a strong east wind in the late afternoon
15 Nov 1971	12.9 km N of San Juan	Sighting	1		Benítez	Erdman et al., 1973	Photographs showing spout with forward angle
23 May 1972	4 km N of Punta Salinas	Sighting	1	13.7 m	Bisson	Erdman et al., 1973	8 km W of San Juan
? ? 1982	Off Cabo Rojo	Sighting			Jiménez	J. C. Jiménez, pers. comm.	
20 Dec 1983	2 km S of Playa de Ponce	Sighting	1		Jiménez	J. C. Jiménez, pers. comm.	
25 Jun 1985	N Cay of Cayo Santiago	Stranding	1	11.27 m	Mignucci	Present paper	

the month of May sperm whales are rare in Puerto Rico, having been documented only twice: a stranding west of Punta Cadenas in 1966 (Erdman, 1970) and a sighting north of Puntos Salinas in 1972 (Erdman et al., 1973).

Records of sperm whales in the Virgin Islands closely follow Puerto Rico's seasonal pattern with two exceptions: the sighting of an attack on nine sperm whales by a pod of 13 killer whales, *Orcinus orca*, between St. Croix and St. Thomas on 21 June 1980 (S/A M. Christian, pers. comm.), and a recent stranding of an 15.24 m animal on 18 May 1987 near Hams Bluff, St. Croix (Otto Transberg, pers. comm.).

The sperm whale is less seasonal in its appearance than the humpback whale (Erdman et al., 1973). Still, according to the recorded sightings, acoustical contacts, and strandings of sperm whales, its occurrence by Puerto Rico seems to occur in two general seasons: (1) during the spring, as early as mid-January, increasing in February and March, declining in April and rarely seen in May; and (2) during autumn, only in October and November.

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