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### STRANDING OF THE PILOT WHALE, *GLOBICEPHALA MACRORHYNCHUS*, IN FLORIDA AND SOUTH CAROLINA

An opportunity to observe the behavior of stranding pilot whales occurred in February 1977. Before dawn on the 6th, 175-200 pilot whales moved with the rising tide into the Fort George River, 1.5 km north of the mouth of the St. Johns River (lat. 30°25' N, long. 81°29' W), near Jacksonville, Fla. The weather was clear, calm, and cold; minimum air temperature was 0° C at Jacksonville Beach (Environmental Data Service 1977:6). Once inside the river mouth, the animals turned south into a small, shallow embayment (Figure 1). A chronology of the events that followed is presented below. Events of 6 February were summarized by Willard Patrick.<sup>1</sup>

**6 February 1977.**—Sometime prior to dawn the whales began moving onto the southeast shore (Figure 1, Site A), where they were stranded either by their movements or by the falling tide. Throughout the day, many of the whales were refloated repeatedly by Florida Marine Patrol (FMP) officers and local volunteers, but many were immediately stranded again. Some whales thrashed vigorously during attempts to refloat them. By 2100 h, 21 whales were dead on the beach

and the remainder were milling around near the middle of the bay in water 1-2 m deep. During the night of 6-7 February, what was thought to be the remainder of the herd approached the surf zone at high tide and an estimated 25 whales moved into the ocean. Those whales not exiting through the surf are believed to have returned to the embayment although some may have stranded and died, then drifted out to sea.

**7 February 1977.**—At 0845 h, 23 whales, including the 21 from the previous day, were dead on the beach, most near Site A (Figure 1). Two groups of 40 to 60 whales were milling around in the bay, one group approximately in the center and one near Site B (Figure 1). Several smaller groups of up to five animals each were also sighted.

At about 1030 h, the large groups restranded at Sites A and B. Many of the animals near Site A were pushed off by volunteers; approximately 40 whales near Site B died within an hour.

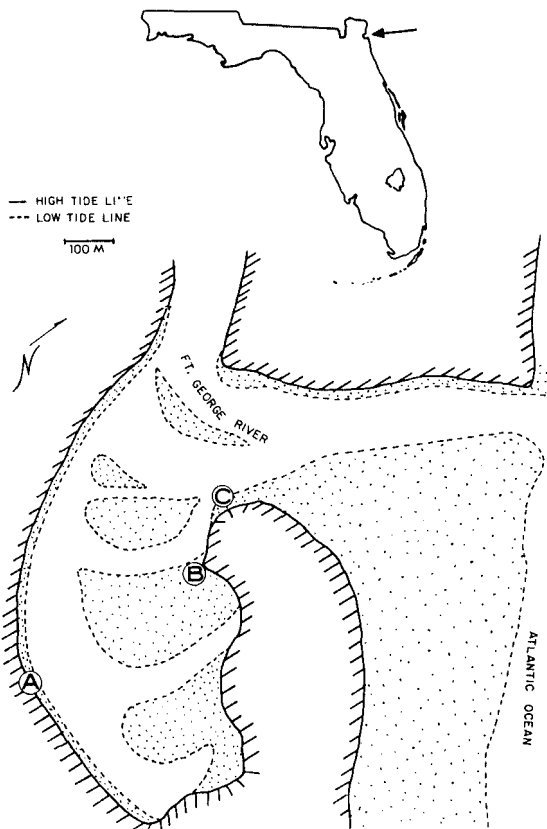


FIGURE 1.—Pilot whale stranding sites (A-C) in the Fort George River, Duval County, Fla., lat. 30°25' N, long. 81°24' W.

<sup>1</sup>Willard Patrick, Sergeant, Florida Marine Patrol, District 8, 4124 Boulevard Center Drive, Jacksonville, FL 32207, pers. commun. March 1977.

The whales appeared disoriented and lethargic, but moved steadily ashore. Their behavior and movements appeared similar to the responses of trained dolphins in a strange environment (Irvine 1971). Most animals offered little resistance when pulled by their flukes and turned away from the beach, but they usually turned and again moved slowly toward shore. Some whales grounded on shoals in the bay and either floated off on the rising tide, or died there when the tide ebbed.

The whales pushed off from Site A were prevented from moving toward shore by a FMP motorboat moving around the pod. The whales were herded towards the river mouth and by late afternoon, using the combined action of two FMP boats, the volunteers helped 20-30 whales move past the surf line. Another 10 were counted in the river at dark, and an additional 20-35 whales re-stranded and died at various locations between Site A and the outer surf zone, including 10-15 at Site C. Other whales apparently moved out to sea without human assistance, or died and drifted out.

Between 0930 and 1440 h, we measured, sexed, and tagged 17 whales (9 males and 8 females) with 16 roto tags (Jumbo Size, Nasco Inc., Ft. Atkinson, Wis.)<sup>2</sup> and three spaghetti tags (Model FH69A, Floy Tag & Manufacturing, Inc., Seattle, Wash.).

We worked opportunistically on animals close enough to deep water to be refloated. Seven tagged whales (4 females, 3 males) eventually stranded and died in the Fort George River area. Total lengths of the tagged whales that re-stranded and died were males: 308, 450, and 468 cm; females: 277, 350, 380, and 385 cm. Total lengths of unrecovered whales were: males 375, 443, 440, 446, 478, and 547 cm; females: 353 and 374 cm. Two females were tagged but not measured.

**8 February 1977**—At 0800 h, 1 whale was alive near Site A, as were 10-15 whales near Site C, but all died within a few hours. The whales near Site C apparently drifted inland with the rising tide.

**Aftermath**—Between 8 and 16 February, about 40 dead whales were recovered from adjacent areas, including river branches and tidal creeks as far as 6-8 km northwest of the principal stranding sites. Several groups of 5-10 whales traveled north up the river on 6 February, but we know neither how many animals stranded and died there, nor

how many carcasses were moved to their recovery location by currents. Single whales stranded at Anastasia State Park (lat. 29°53' N, long. 81°16' W), 56 km to the south on 9 February, and at Jacksonville Beach (lat. 30°18' N, long. 80°12' W), 10 km to the south on 11 February. A total of 135 dead whales were ultimately recovered (Figure 2) and examined by Mead. The size and sex composition of this group is similar to that of other mass strandings of this species (Mead unpubl. data) and probably represents a normal social aggregation. On the same morning (6 February) that the initial stranding took place on Fort George Island, a group of 15 pilot whales stranded on the south end of Cumberland Island, Ga. (lat. 30°45' N, long. 81°28' W) 40 km to the north. This group may have separated from the larger school prior to stranding.

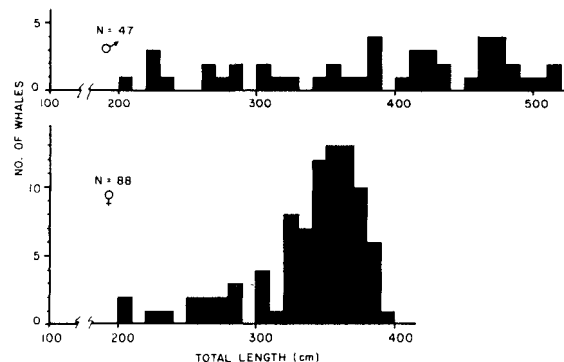


FIGURE 2.—Length-frequency distributions of male and female pilot whales stranded at Fort George River, Duval County, Fla.

Three decomposed carcasses, thought to be *G. macrorhynchus*, were seen, but not recovered, near Mayport (lat. 30°23' N, long. 81°29' W) at the mouth of the St. Johns River in June 1977 (D. Gicca<sup>3</sup>).

Two whales stranded on 13 February on Wadamalaw Island (lat. 32°35' N, long. 80°11' W) near Charleston, S.C., some 220 km (straight-line distance) to the northeast. Interestingly, the animals entered the mouth of the North Edisto River and moved into Bohicket Creek before stranding at Rockville, 7.5 km from the coast. One was a 478 cm male, tagged near Site C with spaghetti and

<sup>2</sup>Reference to product names does not imply endorsement by the National Marine Fisheries Service, NOAA.

<sup>3</sup>D. Gicca, Biological Technician, Gainesville Field Station, National Fish and Wildlife Laboratory, 412 NE 16th Avenue, Room 250, Gainesville, FL 32601, pers. commun. June 1977.

roto tags. The other was an untagged 406 cm female that later died. After both tags were removed from the male, it was refloated by local residents. The whale was followed by P. Laurie<sup>4</sup> for 15-20 min and reported to be respiring without difficulty as it moved seaward.

As with most mass strandings of marine mammals, the cause was not clear. A cold weather frontal system passed through the area on the day prior to the stranding, but was not unusual for that time of year and probably was not related to the stranding. None of the whales were obviously injured and none appeared to follow a lead individual ashore. A combination of the passage through the surf into the river and the shallows in the bay may have confused and disoriented the animals, thus increasing the probability that they would strand. The whales appeared to tire with time, as evidenced by their less vigorous response to being pulled off the beach on 7 February; but why some animals died quickly after stranding on 7 February while others remained alive for hours on the beach or stranded repeatedly is unknown.

On the west coast of Florida, groups of *G. macrorhynchus* (Fehring and Wells 1976) and *Pseudorca crassidens* (Odell et al.<sup>5</sup>) have re-stranded at different locations, but this is the first report of restrandings at different locations on the Atlantic coast. Until now identification of previously stranded individuals has been based on rope marks and dorsal fin shapes. The use of tags on stranded cetaceans would facilitate the identification of individuals on the shore and the study of herd structure of refloated animals at the stranding site, and would also help identify resighted or re-stranded individuals.

Motor boats seemed effective for herding the whales and may be a means to keep refloated animals together and prevent immediate beachings at future strandings. Boats have been used effectively to herd *P. crassidens* (Odell et al. see footnote 5), although attempts to drag whales up to 1 km offshore at other strandings have not been totally effective because the animals often immediately re-stranded.

More data are needed to determine why mass strandings occur and how to deal with the animals

once they are on the beach. If efforts to save mass stranding victims prove futile because the animals immediately restrand, euthanasia may be the most humane alternative. As shown by this report, however, some animals may survive a mass stranding and potentially can be a source of valuable data if resighted elsewhere. It would also seem that the spirit of the Marine Mammal Protection Act of 1972 obligates American citizens to save stranded marine mammals if practical. An effort is therefore needed to get experienced people to a mass stranding site quickly so the rescue techniques can be evaluated and data collection can be maximized.

#### Acknowledgment

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<sup>4</sup>P. Laurie, Information Specialist, South Carolina Wildlife and Marine Resources Department, Charleston, SC 29412, pers. commun. February 1977.

<sup>5</sup>Odell, D. K., E. D. Asper, J. Baucom, and L. H. Cornell. A summary of information derived from the recurrent mass stranding of a herd of false killer whales, *Pseudorca crassidens* (Cetacea: Delphinidae). Unpubl. manusc.