INTERGENERIC BEHAVIOR BY A CAPTIVE PACIFIC PILOT WHALE

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Editor
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ABSTRACT: Intergeneric behavior is described in which a captive male Pacific pilot whale, Globicephala scammoni Cope, attended a dead female Pacific striped dolphin, Lagenorhynchus obliquidens Gill, which had lived with him for three years. The same pilot whale had acted in a similar manner with a female of his own species which died after sharing his tank for over a year; but did not do so with another female pilot whale which died after an association of only about ten days.

It was thought that primarily the behavior had a sexual basis, but that elements of epimeletic (care-giving) behavior were involved in which length of time of association was a major factor as a stimulus.

Intergeneric behavior has been reported for captive cetaceans of the family Delphinidae on three occasions. Norris and Prescott (1961: 294) noted that on two successive days a freshly-captured adult male Dall porpoise, Phocoenoides dalli (True), was supported by two female striped dolphins, Lagenorhynchus obliquidens Gill, when it injured itself by running into the wall of the tank. Essapian (1962: 215) reported that a male Atlantic bottlenose dolphin, Tursiops truncatus (Montagu), supported a dead female common dolphin, Delphinus delphis Linnaeus, with which it had been closely associated in life. Brown (1962: 62) discussed possible homosexual behavior between living captive female individuals of L. obliquidens and the Pacific pilot whale, Globicephala scammoni Cope. Various genera of the Delphinidae often associate closely in nature (see Brown and Norris, 1956; Norris and Prescott, 1961), and intergeneric behavior in the wild also should be expected.

We now report another instance of intergeneric behavior in a captive environment.

On March 28, 1962, the whale tank at Marineland of the Pacific oceanarium, near Los Angeles, California, contained three Pacific pilot whales (G. scammoni) and three striped dolphins (L. obliquidens). On this day, an interesting case of intergeneric behavior was observed. All of the captives were highly trained and several of the animals had been living together for over three years.

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These two species, both Delphinidae, are often found closely associated in nature (Brown, 1960; Norris and Prescott, 1961) and live well together in captivity.

Observation windows at three levels afforded good underwater vision of the entire tank. In addition, the animals could be observed from a fourth level, above the surface.

The pilot whales in the tank were a large male (about 3500 pounds, 18 feet in length), a large female (about 1500 pounds, 15 feet in length), and a smaller female (about 1200 pounds, 12 feet in length). Respectively they were known as Bimbo, Bubbles and Squirt.

On the above date, at 11:00 a.m., we were notified that the large male pilot whale was carrying a dead striped dolphin (Debbie) around in the whale tank. The behavior had been noted shortly after 9:00 a.m.

At 10:10 a.m., when notes were first made, the male was resting near the bottom of the tank at a point near the main inlet pipe below his usual resting area near the surface. He was holding the dead dolphin in his mouth by one of its tail flukes (Fig. 1A and 5) with the body resting between his pectoral fins. The male’s eyes were open to approximately twice normal size, giving him a “startled” expression (Fig. 2A). After an exceptionally long interval of about 10 minutes, he rose to the surface carrying the dead animal with him. His next dive also was clocked and again the underwater interval was 10 minutes.

At 11:20 a.m. the personnel of Marineland made an attempt to retrieve the dolphin. A diver entered the tank with a spear gun. Although it could not be seen from our vantage point, other observers stated that the two female pilot whales in the tank initially assumed a position between the descending diver and the male pilot whale.

Having entered the tank, the diver knelt waiting behind one of the large water inlet pipes, and when the male pilot whale approached, succeeded in spearing the dead dolphin and quickly passed the line to other personnel on the top deck. Upon pulling on the line, they succeeded in drawing the dolphin to the surface, but the whale forcibly retrieved the body in his mouth before it could be removed from the tank. In lunging for the dolphin, the male pilot whale struck the heavy stainless steel gate in the upper part of the tank that seals the flumeway into which the personnel were attempting to maneuver the dead animal. In his excitement, the whale damaged the gate and inflicted a large abrasion on his left side about two feet long and one foot wide. At the same time, he scraped the leading edge of his dorsal fin. The diver, not having time to leave the tank, was, in the confusion, also struck a glancing blow. However, he escaped injury, and it generally was believed by onlookers that the blow was not deliberate on the part of the whale.

The pilot whale snapped the ¼-inch nylon line, bent the harpoon sharply, and returned to the bottom of the tank with the dolphin. After about 10 minutes, he surfaced to breathe carrying it with him (Fig. 3A). On surfacing he again commenced to carry the dolphin, once by grasping the still-embedded
Fig. 1. Interspecific behavior by a captive male *Globicephala scammoni* toward a dead female *Lagenorhynchus obliquidens*. Line drawings, indicating various methods of carrying carcass, prepared from photographs. A: By means of the tail flukes. B: By means of an embedded harpoon. C: By means of a pectoral flipper. D: By means of the caudal peduncle. E: By means of the dorsal fin.
Fig. 2. Line drawings, prepared from photographs, of the eye of a captive male Globiceps cephalus scammoni. A: Size of eye opening when initially carrying carcass of dead female Lagenorhynchus obliquidens. B: Size of eye opening after carrying carcass for several hours. B is the usual state of the eye opening for this animal.
harpoon in his mouth (Fig. 1B). During this period, after an attempt was made to snare the dead animal at the surface, the pilot whale then began dropping the dolphin before he surfaced for air (Fig. 3B). Upon recovery, he always took it in his mouth very gently, usually by the pectoral flipper (Fig. 1C and 6). On two occasions he made unsuccessful attempts to take it by the snout. He also made fruitless efforts to grasp the body. On several occasions he took the caudal peduncle in his mouth and succeeded in carrying the dolphin (Fig. 1D). Once he carried the body by the dorsal fin (Fig. 1E).

![Image A](image1.png) ![Image B](image2.png)

Fig. 3. Interspecific behavior by a captive male *Globicephala scammoni* toward a dead female *Lagenorhynchus obliquidens*. Line drawings prepared from photographs. A: Initially carrying carcass to surface when rising to breathe. B: Leaving carcass below when rising to breathe (after attendants had attempted to remove carcass from above).

At 12:00 noon, the management decided to continue the scheduled whale performance. Both large whales refused to feed. The smaller female pilot whale and the remaining dolphins performed as usual. The male pilot whale was now surfacing every half to two minutes, as opposed to the ten-minute period noted above.

When approached by a diver, the male pilot whale avoided him by circling the tank carrying the dolphin in his mouth, but he usually remained in the area of the inlet pipe. Once, when the pilot whale surfaced for air, the dead animal was suctioned toward the outlet pipe in the center of the tank; the pilot whale quickly retrieved the body and returned to the inlet pipe.

At 12:40 p.m., the divers again harpooned the dolphin, this time using a 3/8-inch nylon line. The dead animal was drawn to the surface once more. Again the large pilot whale seized the body before it could be removed from the tank, easily snapping the extremely strong line in the process.
At 12:50 p.m., the male pilot whale began leaving the dolphin for two or three seconds longer than necessary to breathe. Also, he left the body on the bottom and did not attempt to carry it toward the surface. The smaller female pilot whale approached the body but left when the large male returned. The other striped dolphins in the tank also approached the dead animal, but quickly swam away on the male's return. The male pilot whale now frequently rubbed his cephalic melon against the dead body, and also left the dolphin to rub his melon on the inlet pipe. By this time his eye had closed to a normal attitude (Fig. 2B). During this period he also rubbed his body slowly against the dead animal.

Both larger pilot whales refused to perform for the 1:30 p.m. show, but the small female whale and the surviving dolphins performed as usual. At 1:45 p.m., the male pilot whale attempted to lift the body with his pectoral flippers, but did not succeed.

From a small boat held in position above the dead animal, Marineland personnel lowered a modified swordfish harpoon into the water near the dead body of the dolphin. The pilot whale tried to push the harpoon away with his head. However, after several attempts, while the male whale surfaced to breathe the dolphin was harpooned, brought to the surface, and quickly removed from the tank. The pilot whale made a great flurry to recapture it, and this time failed. The time of removal was 2:00 p.m.

The male pilot whale gave several shrill cries immediately after this that could be heard clearly at the first level of viewing windows below the surface.

Members of the Lockheed Aircraft Corporation staff lowered a hydrophone into the tank at about 11:00 a.m., but reported no unusual vocalizations during the behavioral sequence prior to these calls. Unfortunately, the final cries were not recorded.

At 2:15 p.m., the male pilot whale seemed completely normal. He was resting at or near the surface with his eyes half closed in his normal attitude. However, both he and the larger female whale again refused to perform at the 3:30 p.m. show, but both readily took food from the attendant’s hand.

The following day they both performed as usual, and, other than the abrasions sustained by the male whale, no ill effects were noted from the experience.

On March 8, 1960, the same male pilot whale had carried a dead female pilot whale at the surface for about four hours (Brown, 1962: 62). The two animals had lived together since January, 1959. The male whale was said to have effected intromission with the dead animal several times, and the behavior discussed above also may have had a sexual connotation although no attempts at intromission were observed by the numerous onlookers.

On another occasion, a female pilot whale died in the same male pilot whale’s tank and he ignored the body. The period of their exposure to each other had been only 10 days. McBride (1940: 26) reported a case wherein two male Tursiops truncatus that had been contained in a tank together for a long time were separated for a period of three weeks. When brought back together,
McBride stated, "No doubt could exist that the two recognized each other. ..." They played together in a frenzied fashion for several hours and were inseparable for several days thereafter and neither paid any attention to a female in the tank with them. These observations seem to indicate that individual recognition and attachment may then well play a major role in cetacean behavior which involves more than one individual. This is probably true for any cooperative behavior by cetaceans.

The behavior detailed above is especially significant because it was shown by a male, for whom incidents of long-term aiding behavior are less frequently reported than for females. The behavior also was constantly performed for a minimum of four hours until forcibly terminated. Again, the interaction was between different genera, the important factor probably being apparent affection for a recognized individual.

The great variety of responses made to a situation also is significant. There was no stereotyped method of carrying the dolphin, and both the area of the body held at the time, and the position assumed either at the surface or at the bottom of the tank varied with circumstances. The gentle handling of the body was particularly striking and showed the most careful deliberation. The deep scratches on the flukes and flippers (Fig. 4) of the dead animal were made when the pilot whale successfully retrieved the dolphin from the men attempting to remove it from the tank, and are evidence for the forceful efforts he was exerting in retaining possession of the body.

The wideness of the eye opening was important in that it gave an indication of the emotional state of the animal. Best and Taylor (1955: 836) suggested that emotional manifestations in man and various animals are sympathoadrenal effects, and that a startled expression is due to the involuntary action under emotional stress of Mueller's orbital muscle, which retracts the upper eyelid. The wideness of the eye, coupled with the refusal of the pilot whale to feed after an abstinence of some 22 hours, despite strong conditioning to do so, together with persistence of the behavior in the face of injury, rules out likelihood of play.

The striped dolphin involved in the sequence with the male pilot whale was captured on August 28, 1958, and after introduction into the circular tank some three months later, had adapted well to the captive environment and with the exception of a five-day period of partial inappetence in January, 1961, had demonstrated no signs of abnormal behavior or symptoms of disease. Some eight weeks prior to her death, a swelling of the mammary had been observed, together with a generalized edema of the entire posterior ventral region. The animal's feeding behavior remained normal in spite of a gradual increase in abdominal size. The progressive swelling, together with a marked tendency to avoid the more rigorous play behavior of her companions, indicated a possible pregnancy—a contention further supported by the considerable reproductive activity noted in the striped dolphin colony during the spring and autumn of 1960.
Fig. 4. Left pectoral flipper of dead *Lagenorhynchus obliquidens* showing deep lacerations, caused by teeth of captive male *Globicephala scammoni*, made when attempts were made to remove the dead animal from the pilot whale. The hole in the side of the body was caused by the harpoon used to retrieve the dead animal.

After death and subsequent removal from the tank, the dolphin was necropsied by veterinary pathologists of the Los Angeles County Livestock Department. Gross examination revealed a large tumor-like tissue in the right lung. However, subsequent histologic studies showed this not to be neoplastic. An extensive abscess was found throughout the posterior ventral abdominal wall. This, however, appeared secondary to the lesions found in the lung.

Some months before, the animal had been observed to fall and strike her body on a metal platform, after leaping clear of the water at a feeding performance. While at the time a cursory examination of the dolphin failed to
Fig. 5. Captive male *Globicephala scammoni* carrying dead *Lagenorhynchus obliquidens* by tail fluke. Photograph by Cliff Brown, Marineland of the Pacific.

Fig. 6. Captive male *Globicephala scammoni* carrying dead *Lagenorhynchus obliquidens* by pectoral flipper. Photograph by Cliff Brown, Marineland of the Pacific.
detect injury, it is conceivable the impact of the fall resulted in trauma, which initiated and eventually ended in toxemia and the pathologic condition described.

Many still and motion picture photographs were made during the demonstration of the pilot whale’s behavior and these are on permanent file with us. However, for clarity, line drawings for the most part were used in this paper. These drawings were prepared from certain of the photographs by Mary V. Butler of the Los Angeles County Museum.

We would like to thank the Los Angeles County Livestock Department, and particularly Drs. Rankin W. McIntyre and C. A. Delli Quadri for the skillful post-mortem examination of the striped dolphin.

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