

Consequences of Injuries on Survival and Reproduction of Bottlenose Dolphins in Sarasota Bay, Florida

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Research initiated in 1970 and continuing today on bottlenose dolphins along the central west coast of Florida has led to the development of several long-term datasets of relevance to examining the effects of serious injuries. Data have come from photographic identification studies, capture-release operations, and from Mote Marine Laboratory's Stranding Investigations Program. The sighting database compiled since 1975 includes 32,347 dolphin group sightings, with 91,059 identifications of distinctive individual dolphins, derived from a photographic identification catalog of 3,958 individually-identifiable dolphins. The capture-release database, compiled since 1984, includes veterinary examination records and health data in 676 sets of measurements from 214 individuals (some sampled up to 14 times). Exams include examination of the oral cavity, and in some cases stomach tubing. The stranding program, operating since 1985, responds in three counties including and extending beyond the Sarasota Bay dolphin range. To date, Level A data have been obtained from 413 bottlenose dolphins, with 319 necropsies. Sixty-seven of the examined dolphins have sighting histories in our database. Data from these sources have been used to investigate the effects of gear ingestion, entanglement, vessel strikes, and amputations from unknown causes. Details of specific cases will be presented.

Gear Ingestion: Our records include 12 cases in which gear or severe scarring from gear were related to ingestion. One dolphin is still alive, with extensive healed scarring at the angle of the gape; she has produced multiple calves subsequent to the injury. Seven apparently died directly from gear: 4 with embedded hooks in the mouth, throat, or goosbeak, and 3 with line wrapped around the goosbeak (perhaps from regurgitation?). In 2 cases, gear was considered to have contributed to mortality, but shark attack or a stingray barb were identified as the primary causes of death. In 4 cases, non-embedded small hooks were found in the stomach, but these were not identified as the cause of death. Embedded gear has only been found in carcasses, never during more than 600 health assessment examinations, suggesting that embedded hooks are frequently fatal. In cases when embedded hooks were implicated as cause of death, the animals had lost 22-36% of their body weight, suggesting that mortality was delayed following hooking.

Gear Entanglement: Of 49 cases of entanglement in gear by well-known dolphins, most were based on scars, but 12 dolphins were observed with gear, including 8 in monofilament, 3 in crab trap float lines, and one in a bathing suit. Two of these died from entanglement, one died as a probable complication of entanglement, 7 others might have died without intervention, and two shed the gear on their own and survived. Most injuries involved lines cutting through appendages, a process that occurred over periods of weeks to months. Nine of 10 adult females observed with entanglement wounds or scars subsequently produced calves.

Vessel Strikes: Ten cases of apparent vessel strikes have been recorded, involving mothers with calves, dependent calves, independent juveniles, and a compromised adult. Only two of these have resulted in death, and one of these involved an already-compromised juvenile. Propeller cuts on the backs or dorsal fins have been observed to heal in most cases, although permanent disfigurement is common. The surviving mother has produced and successfully reared 3 calves since the injury.

Amputations of Unknown Origin: Cases involving major disfigurement or loss of significant dorsal fin (n=34) or fluke (n=3) tissue were monitored over time. On average, individuals survived a minimum of 8 years with these wounds. All identified females with these injuries (n=8) produced calves.