Evidence of Fishery Interactions in Small Cetaceans in the Mid-Atlantic

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In North Carolina, records of stranded marine mammals with signs of interactions with fisheries date to 1992, when a database of strandings was established. Since 1997, strandings have routinely and systematically have been examined for signs of interactions with fisheries. Since 1992, there have been six species of small cetaceans identified with signs of fishery interactions (*Delphinus delphis, Globicephala macrorhynchus, Grampus griseus, Phocoena Phocoena, Stenella coeruleoalba, and Tursiops truncatus*) comprising 237 animals. Of these, 88% were *Tursiops*. Most of the identified marks were fresh rather than healed. Both *Phocoena* (n=1) and *Tursiops* (n=35) have been found with gear still attached. Marks found on carcasses are primarily from monofilament line, including recreational line and monofilament gillnet. Other gear types include braided line from unidentified sources, crab pot line, and trawl lines. Along other mid-Atlantic states, the primary gear types associated with strandings are gillnets and crabpot lines.

Four species of whale (*Balaenoptera acutorostrata, Balaenoptera edeni, Eubalaena glaciales, and Megaptera novaeangliae*) have been identified with marks or gear from fishery interactions. The majority (13 of 17 events) have been humpback whales.

In January 2005, there was a mass stranding on 33 pilot whales north of Cape Hatteras, NC. Of those, 27 were examined for signs of human interaction. Nine had well-healed scars (8 deep, 1 superficial) indicative of possible longline interactions, including five of the 21 (23.8%) females and four of six (66.7%) males. All of the females with scars were adults (16 of the 21 female were adults) while males of all age classes had scars (1 adult, 2 juveniles, 1 calf with scars, and one calf and one juvenile without). With one exception, the scars were limited to areas around the mouth, including broken teeth for three animals. The exception was a large female with healed scars around the leading and trailing edges of the dorsal fin. It is possible there were other healed scars post-cranially, however conditions during the stranding response prevented full evaluation of the animals for fishery interactions.

The mass stranding of pilot whales in January 2005 was the first in NC in 10 years; three prior mass strandings occurred in 1994-1995, albeit comprising only 2-3 animals during each event. Thus, is no comparative record for evaluating possible longline entanglements. None of the individually stranded pilot whales were noted to have healed scars; it is reasonable to suggest that they weren't examined for scars. However, including individual strandings, there has been a seasonal component to the strandings, with pilot whale strandings occurring in January - March consistent with the highest levels of take in the pelagic long-line fishery off of North Carolina.

Healed line marks are rare. We identified a *Tursiops* and a *Stenella coeruleoalba* with deep, healed scars around the mouth, included broken teeth. A *Grampus griseus* showed a healed lesion on the right side of dorsal fin, cut through 1.5cm deep at the deepest point thought to be from trailing gear, and 1-2mm lesion at insertion of flukes partially healed.

The paucity of healed scars due to monofilament from gillnets suggests low survival of animals entangled in that gear, while the 2005 mass stranding of pilot whales indicates that some interactions in, presumably, longline gear can be survived. The current sample size is too low and earlier observations not sufficiently detailed to drawing conclusions about rates.