

Incidental Ingestion of Cassin's Auklets by Humpback Whales

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During 1979–1981, we observed the foraging strategies and predator-prey relationships of humpback whales (*Megaptera novaeangliae*) in Frederick Sound, Alaska, (58°N, 134°W). This area is the summer feeding grounds for approximately 120 humpbacks. The main prey of the whales were krill (*Euphausia pacifica*), herring (*Clupea harengus*), and capelin (*Mallotus villosus*). Seabirds were excellent indicators of the local presence of prey, and, therefore, we monitored and recorded bird identity, abundance, location, and behavior.

Associations between whales and birds have been reported by a number of authors (Nemoto 1968, Brown et al. 1979, Overholtz and Nicolas 1979, Brown 1980). In our study many birds, the Bonaparte's Gull (*Larus philadelphia*) and Herring Gull (*L. argentatus*) most conspicuously, cued on surface-feeding whales, with flocks of substantial size ($n = 100$) repeatedly moving to where humpbacks surfaced. We suggest here that subsurface feeding associations also occur between diving birds and whales.

On 27 August 1981, 20 humpbacks were feeding in an area of about 9 km². Acoustical scanning equipment detected a dense scattering layer at a depth of 27–35 m. This was most probably a large shoal of plankton, with euphausiids being a major constituent. Breath patterns and surface behaviors indicated that the whales were feeding at a depth corresponding to this layer (Dolphin in prep.). A large concentration of birds ($n \approx 2,500$) was observed on the surface in this area. Cassin's Auklets (*Ptychoramphus aleuticus*) and Marbled Murrelets (*Brachyramphus marmoratus*) constituted the majority of birds (68% and 20% of the total number, respectively); Kittlitz's (*B. brevirostris*) and Ancient murrelets (*Synthliboramphus antiquus*), Herring Gulls, Bonaparte's Gulls, and Red-necked Phalaropes (*Phalaropus lobatus*) were also observed. The feeding bout was monitored from 1740 until 2020, when darkness and inclement weather forced us from the area. The whales were not observed to employ surface feeding behaviors (e.g. lunges), nor were there euphausiids on the surface (determined by sonar scans and plankton tows).

The next day some of the same whales (identified by fluke pigmentation patterns) were sighted in an area 14.5 km distant. At 1537 one defecated at the surface while initiating a dive. Scat samples were

collected and consisted primarily of euphausiid exoskeletons. Also included were the remains of two birds, identified by general size and bill shape as Cassin's Auklets. Feathers were largely lacking and the eyes were missing but otherwise the epidermis was intact and exhibited only superficial signs of digestion. Stomach contents of the auklets contained carapaces of euphausiids (*E. pacifica*). The relatively good condition of the bodies would seem to indicate a short period of residence in the whale's intestinal tract and to preclude any purposeful capture of the birds for nutritional purposes. It is noteworthy that the birds were defecated, not regurgitated, and measured approximately 12 cm in diameter.

We suggest that the Cassin's Auklets were ingested incidentally by a humpback whale while both species were feeding in close association on patches of euphausiids at depths of about 30 m. For the auklets this was simply a case of being in the wrong place at the wrong time.

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