Commercial Whaling and "Whale Killers": A Reanalysis of Evidence for Sequential Megafauna Collapse in the North Pacific

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Springer *et al.* (2003) hypothesize that sequential declines in North Pacific populations of seals, Steller sea lions, and sea otters were due to increased predation by killer whales, following the removal by commercial whaling of baleen whales as the killer whales' primary food source. Regardless of whether or not killer whales have caused or contributed to the decline of species such as sea otters, we conclude there is little evidence to suggest this would have occurred due to a lack of available cetacean prey. We re-examined trends in abundance and biomass of potential marine mammal prey of killer whales in 3 regions (Aleutians/Bering Sea, Gulf of Alaska, and S.E. Alaska to California). We suggest that top-down forcing by killer whales is an unlikely explanation for the reported declines, for several reasons. First, the spatial and temporal patterns of regional population trends are more complex than Springer *et al.* suggest and in many cases are inconsistent with their killer whale hypothesis. Many pinniped and sea otter populations are stable or increasing in areas where extensive whaling occurred and large numbers of transient killer whales exist. In addition, gray whales have increased steadily since the 1940s, populations of humpback and fin whales have increased substantially, and minke whales have likely always been abundant. Thus, to suggest that baleen whales have been unavailable as potential prey during much of the period concerned is not correct. The hypothesis also ignores small cetaceans that are known killer whale prey but have remained abundant in much of the eastern North Pacific (notably Dall's porpoise). Finally, we question the assumption that adult large whales were ever a significant prey item for killer whales in the high-latitude habitats in which the purported declines have occurred. Evidence from field observations, stomach contents, and from scarring on baleen whales strongly suggests that when killer whales in these regions attack whales, they prey primarily upon minkes and on calves of species such as gray and humpback whales.

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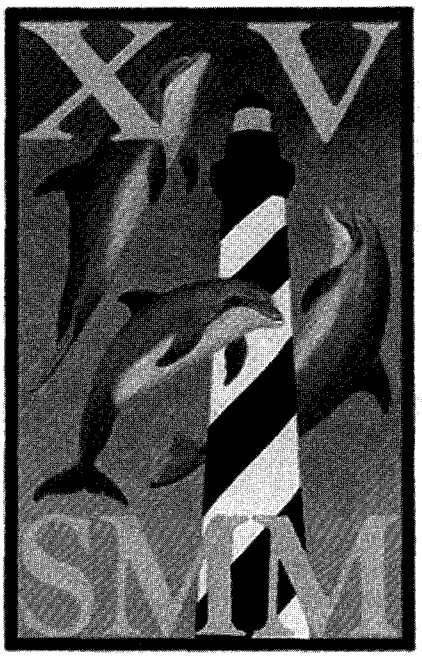

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