

Mehta et al 2007_MEPS

Certain populations of killer whales *Orcinus orca* feed primarily or exclusively on marine mammals. However, whether or not baleen whales represent an important prey source for killer whales is debatable. A hypothesis by Springer et al. (2003) suggested that overexploitation of large whales by industrial whaling forced killer whales to prey-switch from baleen whales to pinnipeds and sea otters, resulting in population declines for these smaller marine mammals in the North Pacific and southern Bering Sea. This prey-switching hypothesis is in part contingent upon the idea that killer whales commonly attack mysticetes while they are in these high-latitude areas. In this study, we used photographic and sighting data from long-term studies of baleen whales in 24 regions worldwide to determine the proportion of whales that bear scars (rake marks) from killer whale attacks, and to examine the timing of scar acquisition. The results of this study show that there is considerable geographic variation in the proportion of whales with rake marks, ranging from 0% to >40% in different regions. In every region, the great majority of the scars seen were present on the whales' bodies when the animals were first sighted. Less than 7% (9 of 132) of scarred humpback whales with multi-year sighting histories acquired new scars after the first sighting. This suggests that most killer whale attacks on baleen whales target young animals, probably calves on their first migration from low-latitude breeding and calving areas to high-latitude feeding grounds. Overall, our results imply that adult baleen whales are not an important prey source for killer whales in high latitudes, and therefore that one of the primary assumptions underlying the Springer et al. (2003) prey-switching hypothesis (and its purported link to industrial whaling) is invalid.