

Cetacean Abundance in the Eastern Tropical Pacific

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Abstract: Cetacean abundance in the eastern tropical Pacific is based on large-scale line-transect surveys covering 6% of the world ocean. Cruises using 2 vessels for 4 months each were carried out in 8 years between 1986 and 2000. Thirty cetacean species were recorded, over 1/3 of the world total. Abundance is estimated with a modified line-transect analysis, using covariates to model the detection process, with precision evaluated by bootstrap. Aerial photography from a ship-based helicopter is used to improve estimates of school sizes. Based on the most recent estimates, the most abundant dolphins are short-beaked common dolphins (2.86 million) followed by spotted (1.62 million), spinner (1.06 million), and striped (1.04 million) dolphins. Spotted and spinner

dolphins were formerly the most abundant, but populations have been reduced by incidental catch in the yellowfin tuna fishery. The most abundant baleen whales in this tropical area are Bryde's whales (11,900). Among the larger toothed cetaceans, the most abundant are short-finned pilot whales (430,000) and sperm whales (minimum of 17,000). Sperm whales have been reduced in abundance by whaling in the past. Killer whales occur evenly throughout the area, while migratory blue and humpback whales are clumped at certain locations. The abundance of pilot and Bryde's whales increased significantly over the period 1986-2000; the abundance of other species did not change significantly.