

Cetacean Diversity, Encounter Rates, and Behavior in Whale-Watching Waters off Southern Sri Lanka

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Data on the diversity, encounter rates, and behavior of cetaceans is vital to the conservation and the management of whale-watching activities. The southern coast of Sri Lanka is distinguished with a continental shelf, extremely steep slope, and deep submarine canyons. Though cetaceans are known to be abundant in these waters, there is a dearth of up-to-date data pertaining to the relative abundance, and species occurring in the whale-watching waters off Mirissa. Data collected during rapid boat-based cetacean surveys following the random line transects from January to May 2017 were analyzed to investigate the diversity, encounter rates, and behavior of cetaceans in the waters off Mirissa, covering a total of 788.9 km² survey area. During the 55 survey days, nine species were recorded: *Balaenoptera musculus*, *Balaenoptera omurai*, *Balaenoptera edeni*, *Stenella longirostris*, *Physeter macrocephalus*, *Tursiops truncatus*, *Globicephala macrorhynchus*, *Peponocephala electra*, and *Orcinus orca*. The Simpson diversity index for the entire study area was 0.5 and the encounter rate for the entire study area was 16.5 sightings per 100 km. Traveling and foraging behavioral states were frequently observed in large whales while socializing was observed in small toothed whales and the dolphins in the present study. Additionally, it is noteworthy that the temporal changes of the sightings of small toothed whales and the large whales were inverse, reflecting sequential use of the Mirissa waters by different species to reduce interspecies competition. However, the study also found differential regional preferences among cetaceans as common bottlenose and spinner dolphins being sighted mostly in inshore waters (< 500 m isobaths), while large whales (blue whales and sperm whales) being more frequently sighted along the continental slope (> 500 m isobaths). It was also observed that blue whales were feeding along the outer shelf and high slope waters where a major shipping route is crossing. This study further recommends that implication of proper management strategies for conservation and sustainable whale-watching activities are needed.

Keywords: cetaceans; encounter rates; diversity; Sri Lanka; diversity index