



ARTICLE

Sexually dimorphic characteristics of short-finned pilot whales, false killer whales, pygmy killer whales, and melon-headed whales assessed using fin and body morphometrics from photographs taken at sea

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Abstract

Adults of many free-ranging delphinid species cannot be reliably sexed at sea. Sexually mature, known-sex adult short-finned pilot, pygmy killer, melon-headed, and false killer whales were profiled from at-sea photos to assess proportional fin and body dimorphism. Males of all four species had larger dorsal fins proportional to anterior body length. False killer whales showed no further dimorphism, while melon-headed whales showed subtle dimorphism in dorsal fin overhang. Pygmy killer whales showed subtle dimorphism in lateral positioning of the top-most point and overhang. Lastly, short-finned pilot whales showed strong dimorphism in the leading edge, lateral positioning of the top-most point, and height of the overhang. Generalized linear models showed strong predictive accuracy for pilot and false killer whales, and moderate accuracy for pygmy killer and melon-headed whales. Results indicate that adult short-finned pilot and false killer whales can be accurately sexed in the field or via morphometrics. Adult pygmy killer and melon-headed whales have subtle sexual dimorphism that can be detected using morphometrics. The presence of dimorphism gives insight into potential reproductive strategies and social structure. Further analysis is needed to explore morphometric differences between inshore and pelagic populations of these species, as well as ontogenetic growth between life stages.

Supporting Information



Filename	Description
mms12963-sup-0001-TableS1.pdf PDF document, 85.2 KB	<p>TABLE S1 The social communities and clusters of the individual animals analyzed for this study, and their corresponding localities obtained from tag data and cluster movements. Individual false killer whales analyzed for this study are from the main Hawaiian Islands (MHI) population, the Northwestern Hawaiian Islands (NWHI) population, and the pelagic population. MHI Cluster identities determined following the methods of Baird et al. (2019). See Van Cise et al. (2017) and Baird (2016) for information on short-finned pilot whale communities.</p> <p>TABLE S2 Selected GLM models for each species with the top four competitive models and their respective AICs. The difference between competitive model AICs and the chosen model AIC is listed under ΔAIC. Models within 2 ΔAIC are considered highly competitive (*). See Figure 1 for definitions of measurements for models</p>

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