

Palmyra Atoll IMMA

Criterion B: Distribution and Abundance Sub-criterion B2: Aggregations

Melon-headed whales have been regularly recorded in aggregations of several hundred individuals in inshore areas around Palmyra Atoll (Fig. 1) (Brownell et al., 2009). The whales display a distinct daily activity pattern of unusual near-shore habitat use, and stay close to the reef during morning to mid-day to rest. They can be observed resting along the north and south shore in the vicinity of land, never around the open eastern or western terrace. They remain in waters at least 100 m deep but never enter the atoll's lagoon (Brownell et al., 2009).

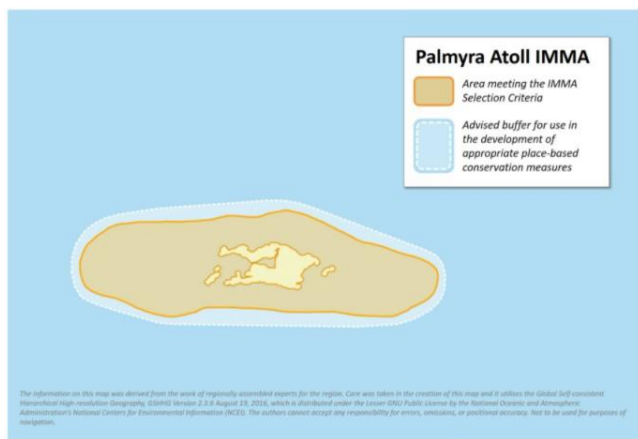
Criterion D: Special Attributes Sub-criterion D1: Distinctiveness

Based on mtDNA control region haplotypes and nuclear microsatellites, melon-headed whales from Palmyra Atoll were differentiated from all other sampled populations in the central Pacific and from most other sampled populations (Martien et al., 2017). There is high confidence in this assessment of differentiation because of the relatively large number of samples from Palmyra (n=56).

Supporting Information

Brownell Jr, R.L., Ralls K., Baumann-Pickering, S. and Poole, M.M. 2009. Behavior of melon-headed whales, *Peponocephala electra*, near oceanic islands. *Marine Mammal Science* 25:639-658.

Martien, K. K., Hancock-Hanser, B. L., Baird, R. W., Kiszka, J., Aschettino, J. M., Oremus, M. and Hill, M. C. 2017. Unexpected patterns of global population structure in melon-headed whales (*Peponocephala electra*). *Marine Ecology Progress Series* doi: 10.3354/meps12203



Area Size

93 km²

Qualifying Species and Criteria

Melon-headed whale- *Peponocephala electra*

Criteria B2, D1

Summary

Melon-headed whales (*Peponocephala electra*) around Palmyra Atoll in the Central Pacific Ocean display an unusual, distinct, daily activity pattern of nearshore habitat use similar to the regular daily cycles of inshore resting and socializing shown by spinner dolphins. The IMMA includes the nearshore waters of the atoll along the north and south coasts which are important for the resting and socializing of the melon-headed whale aggregations.

Description

Palmyra Atoll is located in the Pacific Remote Islands Marine National Monument in the Central Pacific Ocean. The seven atolls and islands included within the Monument are farther from human population centers than any other U.S. area. They comprise the most widespread collection of coral reef, seabird, and shorebird protected areas on the planet under a single nation's jurisdiction (as described by the World Database on Protected Areas (WDPA).

The melon-headed whale, *Peponocephala electra*, occurs worldwide in tropical and sub-tropical waters from roughly 20°S to 20°N. Although they are most often seen far from shore over deep water, they sometimes frequent nearshore waters as evidenced by occasional mass strandings throughout their range and observations around various island groups.

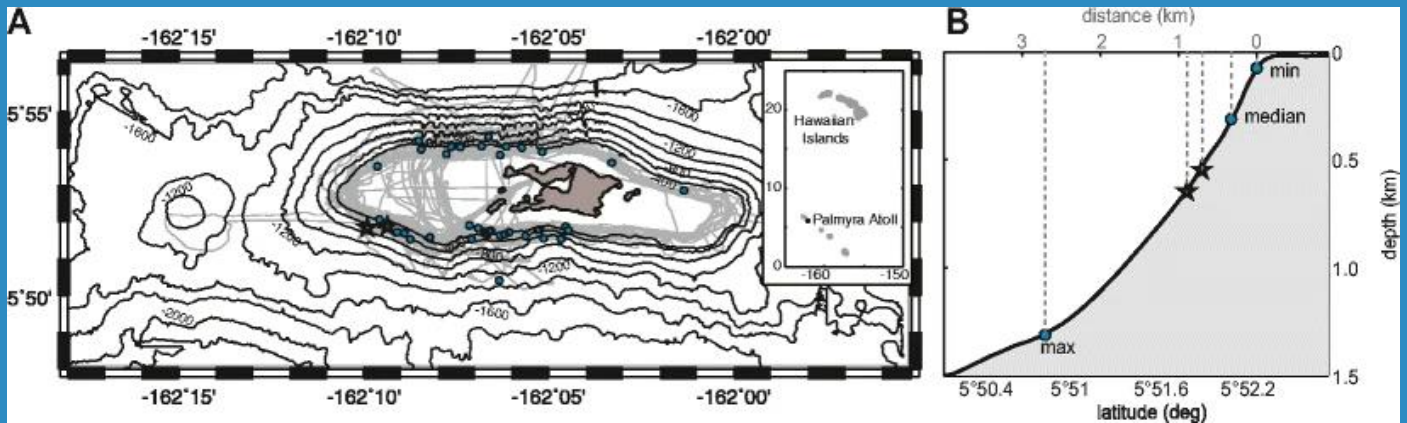


Figure 1: Bathymetric map of Palmyra Atoll, with positions of High-frequency Acoustic Recording Packages (HARPs) (stars), visual survey tracklines (gray), and melon-headed whale sightings (blue circles). Top right inset shows approximate location of Palmyra Atoll in relation to the Hawaiian Islands. **b** Schematic approximation of the slope near the HARP locations (stars). Depth of melon-headed whale daytime sighting locations (minimum, median, maximum) is indicated with circles. From Brownell et al., 2009.

Acknowledgements

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based on a decision of the German Bundestag

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