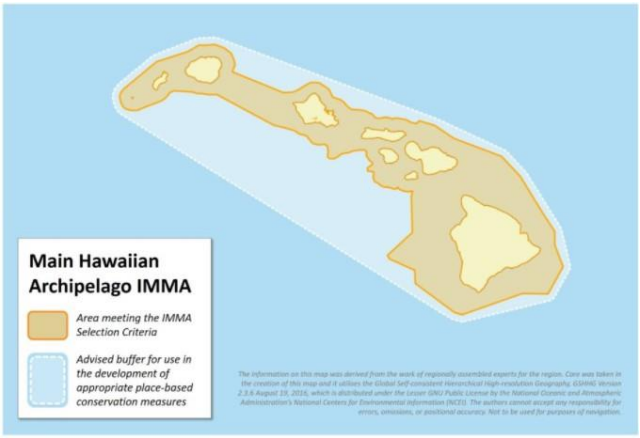

Area Size

61,950 km²

Qualifying Species and Criteria

Spinner dolphin – *Stenella longirostris*

Criterion B1

Common bottlenose dolphin – *Tursiops truncatus*

Criterion B1

Pygmy killer whale – *Feresa attenuata*

Criterion B1

Short-finned pilot whale – *Globicephala macrorhynchus*

Criterion B1

Dwarf sperm whale – *Kogia sima*

Criterion B1

Blainville's beaked whale – *Mesoplodon densirostris*

Criterion B 1

Melon headed whales – *Peponocephala electra*

Criterion B1

Pantropical spotted dolphin – *Stenella attenuata*

Criterion B1

Rough toothed dolphin – *Steno bredanensis*

Criterion B1

Cuvier's beaked whale – *Ziphius cavirostris*

Criterion B1

False killer whale – *Pseudorca crassidens*

Criteria A, B1

Humpback whale – *Megaptera novaeangliae*

Criterion C1

Main Hawaiian Archipelago IMMA

Marine Mammal Diversity

Neomonachus schauinslandi, Stenella coeruleoalba, Steno bredanensis, Grampus griseus, Kogia breviceps, Physeter macrocephalus, Indopacetus pacificus, Balaenoptera physalus, Balaenoptera acutorostrata, Balaenoptera borealis, Stenella longirostris, Tursiops truncatus, Feresa attenuata, Globicephala macrorhynchus, Kogia sima, Mesoplodon densirostris, Peponocephala electra , Stenella attenuata, Steno bredanensis, Ziphius cavirostris, Pseudorca crassidens, Megaptera novaeangliae

Summary

There is evidence of resident populations of at least 11 cetacean species within the Main Hawaiian Archipelago IMMA. Most of the key habitats for each of these species have been designated as Biologically Important Areas (BIAs) (Baird et al., 2015), with humpback whales separately protected in the Hawaiian Islands Humpback Whale Marine Sanctuary. The IMMA encompasses the home ranges for the following small, resident, island-associated cetacean species: *Tursiops truncatus, Feresa attenuata, Globicephala macrorhynchus, Kogia sima, Mesoplodon densirostris, Peponocephala electra, Stenella attenuata, Stenella longirostris, Steno bredanensis, Ziphius cavirostris, Pseudorca crassidens*, and includes important reproductive habitat for the humpback whale, *Megaptera novaeangliae*.

Description

Many islands in tropical and sub-tropical regions represent oases of marine life, exhibiting higher levels of primary productivity, secondary productivity and enhanced communities of top predators than the oligotrophic pelagic background around the islands (Wolanski and Hamner, 1988). In many situations, the cetacean top predators that have evolved to exploit

island-associated productivity in these regions represent resident, isolated populations, often with high site fidelity and restricted gene flow with nearby island regions (Aschettino et al., 2012; Martien et al., 2012; Baird et al., 2013; Baird, 2016). Furthermore, many island-associated small cetacean populations exhibit specialized behaviours and social dynamics that have evolved to facilitate their survival (Norris et al., 1994; Baird et al., 2013; Tyne et al., 2015; Tyne et al., 2017). The main Hawaiian archipelago is one of these isolated oases that facilitate the survival of a number of top predator communities (Baird et al., 2013; Baird, 2016; Carretta et al., 2016). Many of the marine mammals that inhabit the IMMA forage at night on prey that migrate vertically from the mesopelagic layer, and they therefore display predictable behavioural patterns (Benoit-Bird and Au, 2003; Benoit-Bird and Au, 2009; Tyne et al., 2015; Tyne et al., 2017). However, due to their specialised demography and behavioural ecology, it is becoming increasingly clear that island-associated populations of small odontocetes can be particularly susceptible to anthropogenic impacts.

Criterion A: Species or Population Vulnerability

The main Hawaiian Islands insular false killer whale (Fig. 1) population is listed as Endangered under the US Endangered Species Act (Carretta et al., 2016).

Criterion B: Distribution and Abundance

Sub-criterion B1: Small and Resident Populations

There are one or more small, resident, island-associated cetacean populations, recognised as U.S. BIAs, around the main Hawaiian Islands for each of the following 11 species: *Tursiops truncatus*, *Feresa attenuata*, *Globicephala macrorhynchus*, *Kogia sima*, *Mesoplodon densirostris* (Fig. 2), *Peponocephala electra* (Fig. 3), *Stenella attenuata*, *Stenella longirostris*, *Steno bredanensis*, *Ziphius cavirostris and Pseudorca crassidens* (Baird et al., 2013; 2015; Baird, 2016; Carretta et al., 2016).

Figure 1: A false killer whale (*Pseudorca crassidens*) mom and calf pair. Photo: Robin W. Baird, Cascadia Research Collective

Figure 2: A juvenile Blainville's beaked whale (*Mesoplodon densirostris*) surfaces in the Hawaiian archipelago. Photo: Robin W. Baird, Cascadia Research Collective

Figure 3: A breaching melon-headed whale (*Peponcephala electra*) . Photo: Robin W. Baird, Cascadia Research Collective

Criterion C: Key Life Cycle Activities
Sub-criterion C1: Reproductive Areas

This IMMA encompasses the Hawaiian Islands Humpback Whale National Marine Sanctuary, which is defined as an important reproductive area for humpback whales. Many thousands of humpback whales use the Hawaiian waters as calving and mating areas during the winter.

Criterion D: Special Attributes
Sub-criterion D2: Diversity

There is evidence of the following species within the Main Hawaiian Archipelago IMMA: *Neomonachus schauinslandi, Stenella coeruleoalba, Steno bredanensis, Grampus griseus, Kogia breviceps, Physeter macrocephalus, Indopacetus pacificus, Balaenoptera physalus, Balaenoptera acutorostrata, Balaenoptera borealis, Stenella longirostris, Tursiops truncatus, Feresa attenuata, Globicephala macrorhynchus, Kogia sima, Mesoplodon densirostris, Peponocephala electra , Stenella attenuata, Steno bredanensis, Ziphius cavirostris, Pseudorca crassidens, Megaptera novaeangliae*

Supporting Information

Albertson, G.R., Baird, R.W., Oremus, M., Poole, M.M., Martien, K.K. and Baker, C.S. 2016. Staying close to home? Genetic differentiation of rough-toothed dolphins near oceanic islands in the central Pacific Ocean. Conservation Genetics doi: 10.1007/s10592-016-0880-z

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Acknowledgements

We would like to thank the participants of the 2017 IMMA Regional Expert Workshop held in Apia, Samoa for the identification of IMMAs in the Pacific Islands Region. Funding for the identification of this IMMA was provided to the Global Ocean Biodiversity Initiative by the International Climate Initiative (IKI). The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag. Support was also provided by SPREP, the French Biodiversity Agency, Whale and Dolphin Conservation and the Tethys Research Institute.

Suggested Citation: IUCN-Marine Mammal Protected Areas Task Force, 2021. Main Hawaiian Archipelago IMMA Factsheet. https://www.marinemammalhabitat.org/wp- content/uploads/imma-factsheets/PacificIslands/main-hawaiian-archipelago-PacificIslands.pdf. Downloaded on (day month year).

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