

Area Size

225,233 km²

Qualifying Species and Criteria

Killer whale – *Orcinus orca*

Criteria C1, C2

Sperm whale – *Physeter macrocephalus*

Criterion A

Criterion D (2) - Marine Mammal Diversity

Globicephala macrorhynchus, *Grampus griseus*,
Orcinus orca, *Physeter macrocephalus*, *Stenella*
attenuata, *Stenella longirostris*, *Tursiops aduncus*,
Tursiops truncatus, *Ziphius cavirostris*

Other Marine Mammal Species Documented

Balaenoptera musculus, *Balaenoptera physalus*,
Kogia breviceps, *Lagenodelphis hosei*, *Mesoplodon*
densirostris, *Peponocephala electra*, *Pseudorca*
crassidens

Summary

The Bismarck Sea of Papua New Guinea lies within the Indo-Pacific coral triangle, which is a global marine biodiversity hotspot. Consistent sightings of killer whales (*Orcinus orca*) suggest that they are resident in Papua New Guinea. Mother-calf pairs and feeding activity have been recorded in the south of the Bismarck Sea IMMA, especially in Kimbe Bay. Large aggregations of spinner dolphins (*Stenella longirostris*) (including relatively high

Bismarck Sea IMMA

Summary continued..

numbers of calves) and considerable numbers of sperm whales (*Physeter macrocephalus*) have also been observed in the Bismarck Sea. The high species diversity of the area is underscored by confirmed recordings of six other cetacean species within the IMMA.

Criterion A: Species or Population Vulnerability

Sperm whales (*Physeter macrocephalus*) are listed as Vulnerable (A1d) on the IUCN Red List. In the 2001 *Odyssey* cruise, sperm whales were consistently reported in the Bismarck Sea in considerable numbers (Wise et al. 2011; Alexander et al. 2016; C.S. Baker, pers. comm.) and were later detected acoustically during surveys in 2010, and in close visual proximity during surveys in 2013.

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

Orcinus orca – The evidence compiled by Visser and Bonaccorso (2003) suggest that Killer whales may be resident in Papua New Guinea waters. Surveys in Kimbe Bay, as well as a review of documented records, indicate the presence of killer whales for 10 months of the year. Killer whale calves were recorded during 13 sightings in March-May and July-Oct, with a peak in April (n = 5) (Visser and Bonaccorso, 2003; Visser, 2007; Visser unpublished data). Nine of the 13 sightings with calves were recorded in the Kimbe Bay area (Visser and Bonaccorso, 2003; Visser unpublished data).

There are continued observations of this species in the Bismarck Sea (S. Kaluwin, pers. comm.) which strongly suggest the continued importance of this area to killer whales.

Criterion C: Key Life Cycle Activities Sub-criterion C2: Feeding Areas

Orcinus orca – Killer whales in the Bismarck Sea have

been observed feeding on four species of elasmobranchs (scalped hammerhead shark, *Sphyrna lewini*; grey reef shark, *Carcharhinus amblyrhynchos*; manta ray, *Manta birostris*; and blue-spotted ray, *Dasyatis kuhlii*) and four species of fin-fish (yellow-fin tuna, *Thunnus albacares*; big-eye tuna, *Thunnus obesus*; Indo-Pacific sailfish, *Istiophorus platypterus*; and sunfish, *Mola mola*) (Visser, 2007). While the above information is outdated, the number of well-documented killer whale sightings throughout the IMMA provide strong support for the ongoing presence of feeding killer whales in this area.

Criterion D: Special Attributes

Sub-criterion D2: Diversity

Other cetacean species confirmed for the Bismarck Sea include common bottlenose dolphin (*Tursiops truncatus*), Indo-Pacific bottlenose dolphin (*Tursiops aduncus*), pantropical spotted dolphin (*Stenella attenuata*), Risso's dolphin (*Grampus griseus*), short-finned pilot whale (*Globicephala macrorhynchus*), and Cuvier's beaked whale (*Ziphius cavirostris*) (Fig. 1 and 2). There have also been records of pygmy sperm whale (*Kogia breviceps*), blue whale (*Balaenoptera*

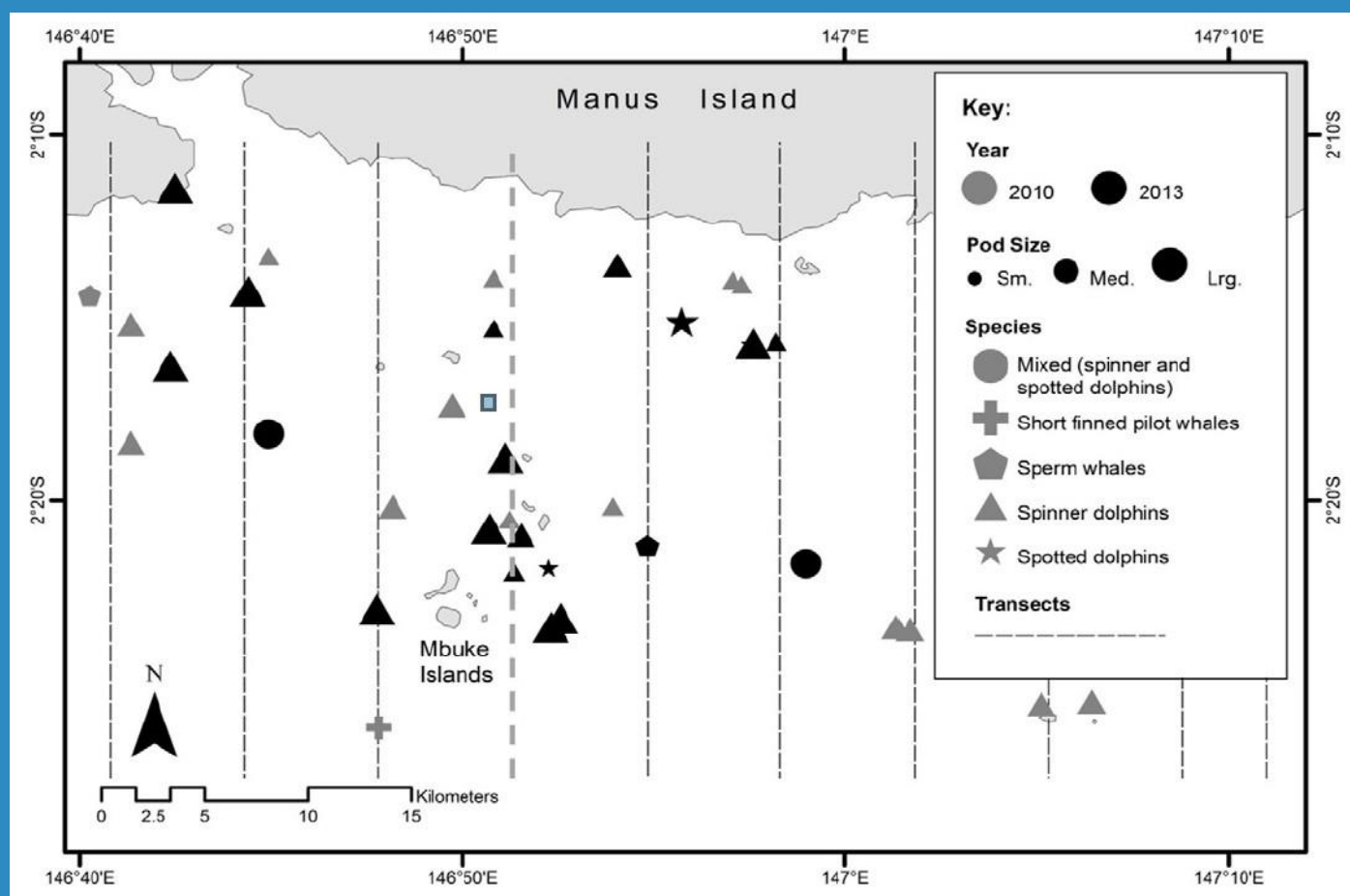
musculus), Blainville's beaked whale (*Mesoplodon densirostris*), fin whale (*Balaenoptera physalus*), Fraser's dolphin (*Lagenodelphis hosei*), melon-headed whale (*Peponocephala electra*), and false killer whale (*Pseudorca crassidens*) (Miller, 2009).

Supporting Information

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pod size is scaled as Sm. (Small: fewer than 15 individuals), Med. (Medium: 16-49 individuals, and Lrg. (Large: more than 50 individuals) From: Miller and Rei, 2021.



Figure 2: Images from surveys in the Northern Bismarck Sea of A and B) adult spinner dolphins leaping out of the water, C) a sperm whale and D) spinner dolphins near shore. Photos: A - Jeremy Bird, B, C, D - Cara Miller

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