

# Macquarie Island Ridge IMMA

## Summary

Macquarie Island, which lies halfway between Australia and Antarctica, was inscribed on the World Heritage List in 1997, on the basis of its outstanding natural values. The island is unique in that three fur seal species reside on this island, Antarctic (*Arctocephalus gazella*), subantarctic (*A. tropicalis*) and New Zealand fur seals (*A. forsteri*). The island also hosts an important southern elephant seal (*Mirounga leonina*) breeding colony that represents roughly 10% of the global population. However, evidence indicates that this population has been continuously decreasing for the past seven decades at approximately 1.2 % per annum. Leopard seals (*Hydrurga leptonyx*) and Endangered New Zealand sea lions (*Phocarctos hookeri*) are vagrants to the island. The IMMA also serves as a seasonal feeding ground for killer whales (*Orcinus orca*). Many species of cetaceans have been sighted, or have stranded, around the island, highlighting this region as an area of high marine mammal diversity.

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

Macquarie Island is a breeding site for three *Arctocephalus* seal species (Antarctic fur seal, subantarctic fur seal and New Zealand fur seal) between November and April each year (Goldsworthy et al., 2008). These populations are recovering slowly following seal hunting on the island in the early 1800s (Goldsworthy et al., 2008). This is the only significant breeding site for subantarctic fur seals in this region (Threatened Species Scientific Committee 2016a). Southern elephant seals breed each year from August to October on Macquarie Island (McMahon et al., 2005; Hindell et al., 2017).



## Area Size

11,851 km<sup>2</sup>

## Qualifying Species and Criteria

Antarctic fur seal – *Arctocephalus gazella*

Criteria C1, C2

Subantarctic fur seal – *Arctocephalus tropicalis*

Criteria C1, C2

New Zealand fur seal – *Arctocephalus forsteri*

Criteria C1, C2

Southern elephant seal – *Mirounga leonina*

Criterion C1

Killer whale – *Orcinus orca*

Criterion C2

## Marine Mammal Diversity (D2)

*Arctocephalus gazella*, *Arctocephalus forsteri*,  
*Arctocephalus tropicalis*, *Balaenoptera*  
*acutorostrata*, *Berardius arnuxii*, *Eubalaena*  
*australis*, *Globicephala melas*, *Hydrurga leptonyx*,  
*Lissodelphis peronii*, *Megaptera novaeangliae*,  
*Mesoplodon bowdoini*, *Mesoplodon layardii*,  
*Mirounga leonina*, *Orcinus orca*, *Phocoena*  
*dioptrica*, *Phocarctos hookeri*, *Physeter*  
*macrocephalus*, *Ziphius cavirostris*

## Criterion C: Key Life Cycle Activities

### Sub-criterion C2: Feeding Areas

Macquarie Island southern elephant seals and other species are a seasonal prey resource for visiting killer whales (Travers et al., 2018). The region to the north of Macquarie Island, along the Macquarie Ridge, also provides important central place foraging habitat for New Zealand fur seals (Shaughnessy & Goldsworthy, 1993) as well as the subantarctic and Antarctic fur seals breeding on the island (Robinson et al., 2002). Killer whales are regular seasonal visitors to Macquarie Island where they are known to feed on southern elephant seals, fur seals and penguins; sightings peak from October to December (Travers et al., 2018).

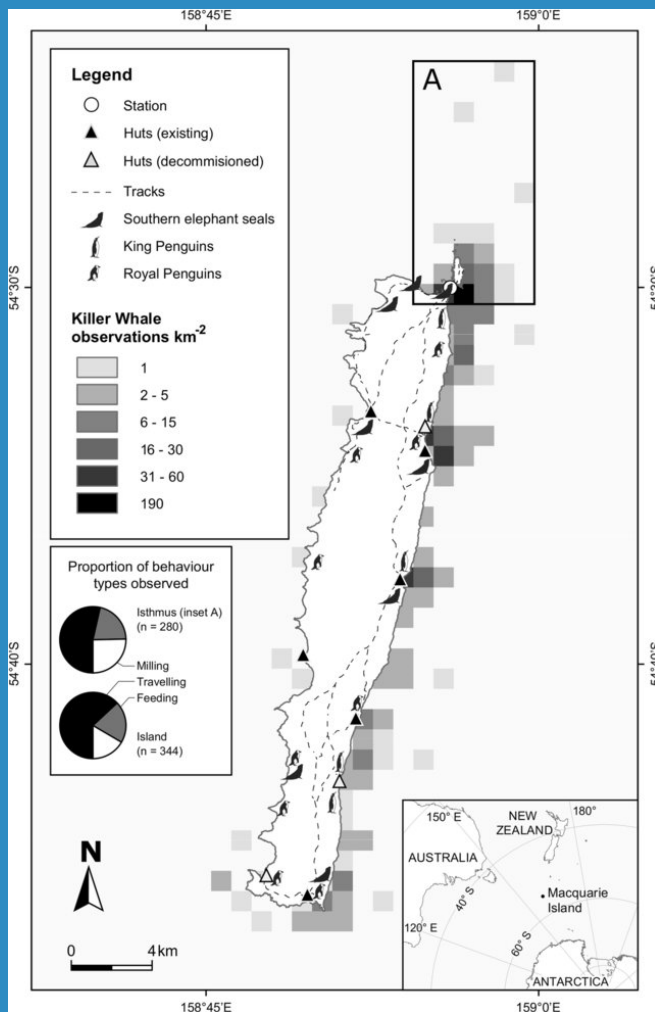


Figure 1: Map of Macquarie Island showing the numbers of killer whale (*Orcinus orca*) sightings in near-shore waters (1986, 1989–2015). Box A denotes the extent of the isthmus study area. Left lower inset = pie charts comparing proportions of whale behaviours observed within Box A and the remainder of the island. Note that refuges marked with open triangle were decommissioned following the mid-1990s. From Travers et al., 2018.

## Criterion D: Special Attributes

### Sub-criterion D2: Diversity

Four species of pinnipeds breed on Macquarie Island (southern elephant seals and three *Arctocephalus* spp.). Leopard seals and New Zealand sea lions occasionally predate on fur seal and elephant seal pups near the rookeries in the summer (Rounseveld and Eberhard, 1980; Robinson and Goldsworthy, 1999). A diverse group of cetacean species have been described from Macquarie Island historically and more recently from sightings and strandings data (Clarke et al., 2017). Commonly recorded cetacean species include long-finned pilot whales, southern right whale dolphins and sperm whales, which can be sighted from the island. Southern right and humpback whales, listed as Endangered in Tasmanian waters, are also known from strandings and sightings data (Clarke et al., 2017). Importantly, the Macquarie Island region supports high beaked whale diversity as evidenced from stranding and skeletal remains of Arnoux's (*Berardius arnuxii*), Andrews' (*Mesoplodon bowdoini*), Blainville's (*Mesoplodon densirostris*), strap-toothed (*Mesoplodon layardii*) and Cuvier's (*Ziphius cavirostris*) beaked whales (Clarke et al., 2017).

## Supporting Information

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