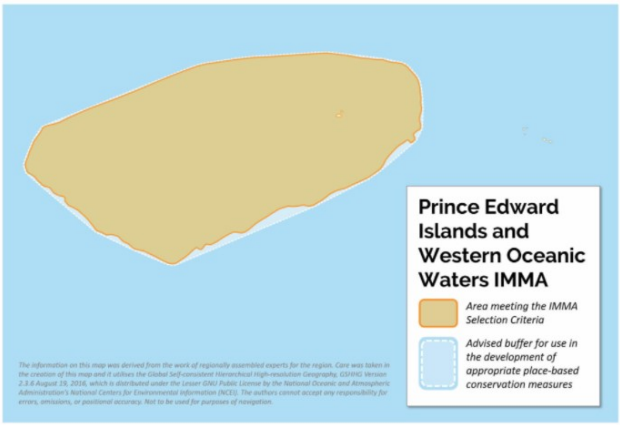

Area Size

2,861,819 km²

Qualifying Species and Criteria

Southern elephant seal – *Mirounga leonina*

Criteria C 1, C2

Antarctic fur seal – *Arctocephalus gazella*

Criteria C 1, C2

Subantarctic fur seal – *Arctocephalus tropicalis*

Criteria C 1, C2

Killer whale – *Orcinus orca*

Criterion C 2

Marine Mammal Diversity

Arctocephalus gazella, Arctocephalus tropicalis, Balaenoptera borealis, Balaenoptera musculus intermedia, Balaenoptera musculus brevicauda, Balaenoptera physalus, Eubalaena australis, Globicephala melas edwardii, Hydrurga leptonyx, Lagenorhynchus cruciger, Lagenorhynchus obscurus, Megaptera novaeangliae, Mesoplodon layardii, Mirounga leonina, Orcinus orca, Physeter macrocephalus, Lissodelphis peronii,

Summary

The Prince Edward Islands IMMA includes two subantarctic islands under South African jurisdiction – Marion Island and Prince Edward Island. The islands themselves provide terrestrial breeding sites for significant populations of Antarctic fur seals (*Arctocephalus gazella*), subantarctic fur seals (*A. tropicalis*) and southern

Prince Edward Islands and Western Oceanic Waters IMMA

Summary, continued.

elephant seals (*Mirounga leonina*). Killer whales (*Orcinus orca*) are regularly observed in the waters surrounding the islands, along with at least 12 other marine mammal species that have been recorded in the area. The IMMA encompasses the core at-sea distributions of all three seal populations as well as the killer whales (defined using tracking data). The area also encompasses important bathymetric features (e.g., South West Indian Ridge, Africana II Bank, Gallieni Bank and other seamounts) and oceanographic features (the Subantarctic Front, the Polar Front) that are associated with high prey abundance and thus serve as important foraging grounds for seals and killer whales.

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

On Marion Island, 1,553 Antarctic fur seal pups and approximately 8,312 Subantarctic fur seal pups were counted in summer 2013 (Wege et al., 2016a). The total population size of fur seals on Marion Island was estimated to be approximately 5,800 Antarctic fur seals and 80,000 Subantarctic fur seals in 2004 (Hofmeyr et al., 2006). On Prince Edward Island, there were approximately 810 Antarctic fur seal pups and approximately 14,130 Subantarctic fur seal pups in summer 2008 (Bester et al., 2009). These represent total populations of approximately 5,280 Antarctic fur seals and approximately 67,824 Subantarctic fur seals (Bester et al., 2009). Together, the Prince Edward Islands account for approximately 25% of the worldwide pup production of Subantarctic fur seals (Hofmeyr et al., 2016b). The global Antarctic fur seal population numbers around 600,000 adult females (Hofmeyr et al., 2016a). Pup production at Prince Edward (~810) plus Marion (~1,553) therefore indicates that the Prince Edward Islands host about ~3.9% of the global population (assuming one adult female per pup counted), making this the largest sympatric population of Antarctic and Subantarctic fur seals in the world.

At Marion Island, 589 southern elephant seal pups were born in summer 2017 (Mammal Research Institute, University of Pretoria, unpublished data). At Prince Edward Island the estimated number of southern elephant seal births was 130 in 2004 (Bester and Hofmeyr, 2005). There has not been a recent count there, but the number is likely higher, assuming the same increasing trend as that documented at neighbouring Marion Island (Pistorius et al., 2011). Using these counts and a conversion factor, the elephant seal population at the Prince Edward Islands is estimated at around 2,500 – 3,200 individuals (De Bruyn et al., 2016). The global population has been estimated at ~749,385 (Hindell et al., 2016); the Prince Edward Islands population thus represents less than 1% of the global population.

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

Female Antarctic fur seals tracked from Marion Island frequently used areas east and northeast of the island, including the Del Cano rise and areas west at 20-30˚ E (upstream of the Island relative to the eastward Antarctic Circumpolar Current) of the Southwest Indian Ridge (Arthur et al., 2017). Seals also favour areas south of the island, at about 55˚S, and areas near Bouvet Island and west of Îles Kerguelen (Arthur et al., 2017). A pilot study of Subantarctic fur seal movements showed that adult females used the region between the Subtropical Front to the north of the islands, and the Polar Front to the south (De Bruyn et al., 2009). Females move to

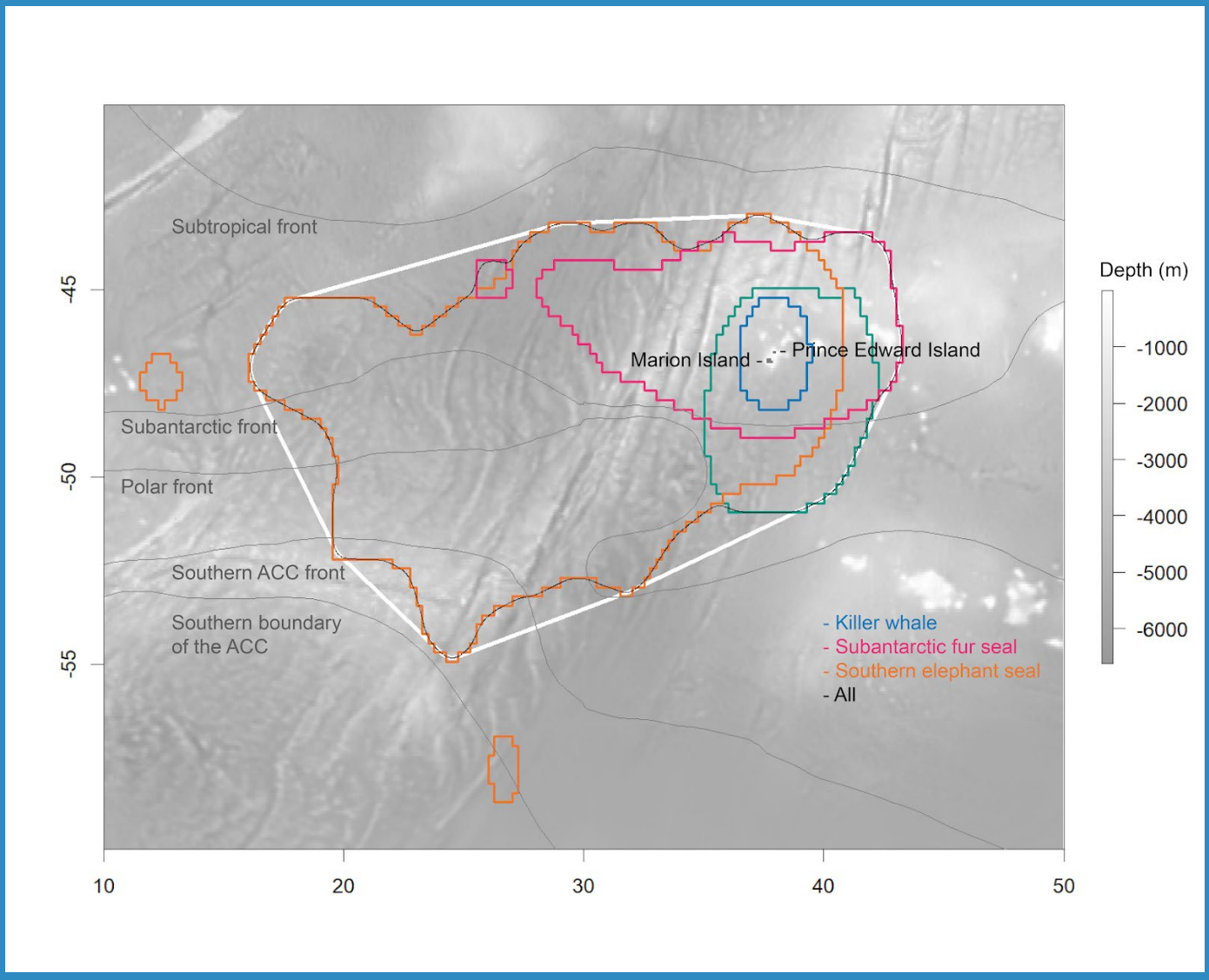

Figure 1: Kernel Utilization Distributions (60%) (coloured polygons) calculated from tracking data for four marine mammal species from the Prince Edward Islands. The black polygon surrounds the main kernel utilization distributions for all four species, and the white line is the IMMA boundary. Data are from various studies, collated in Reisinger et al. (2018) and Ropert-Coudert et al. (2020).

the Del Cano rise to the northeast of the Prince Edward Islands and to fracture zones on the Southwest Indian Ridge (Andrew Bain Fracture Zone and Prince Edward Fracture Zone) to the west of the islands (De Bruyn et al., 2009). A second study of female Subantarctic fur seals at Marion Island (Wege et al., 2016b) confirmed the use of the Gallieni Bank to the east of the islands during summer and the Del Cano rise and Southwest Indian Ridge during winter (Wege, et al. 2016b). Subantarctic fur seals tracked from Prince Edward Island use similar areas at sea (Kirkman et al., 2016).

Adult female southern elephant seals target the strong eddy field southwest of the Prince Edward Islands, in the lee (east) of the Southwest Indian Ridge for foraging (Massie et al., 2016). Adult and subadult males use areas west of the Prince Edward Islands, including areas north of the Subantarctic front to areas south of the Antarctic Polar Front. They use waters around the Southwest Indian Ridge, but also zones north of the Ridge (McIntyre et al., 2010). Juvenile southern elephant seals show restricted behaviour to the west and southwest of the Prince Edward Islands, around the Southwest Indian ridge, but area restricted search locations are also strongly associated with the Subantarctic Front and Polar Front (Tosh et al., 2012). Tracked killer whales spend most of their time in the inshore waters of Marion and Prince Edward Islands. Some individuals also use seamounts to the north and northeast of the islands. Here, they sometimes interact with longline fishing vessels catching Patagonian toothfish (Reisinger et al., unpublished data) but their dive behaviour (Reisinger et al., 2015) and stable isotope analysis (Reisinger et al., 2016) suggests that these seamounts could be places where they naturally prey on Patagonian toothfish or cephalopods (Reisinger et al., 2015; Reisinger et al., 2016). Some individuals make rapid, long-distance migrations north of the islands (Reisinger et al., 2015). Killer whales patrol the inshore waters of Marion and Prince Edward Islands, where they feed on seals and penguins (Reisinger et al., 2011).

Supporting Information

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