

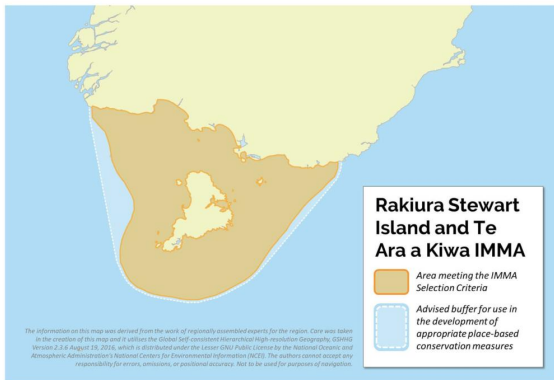
Rakiura Stewart Island and Te Ara a Kiwa IMMA

Summary

Covering the southern coast of Te Waipounamu/ South Island, Te Ara a Kiwa/Foveaux Strait, and the waters around Rakiura/Stewart Island, this IMMA has a wide range of marine mammal habitats from terrestrial seal haul out sites to shallow, coastal shelf waters to deep, off the shelf waters. Twenty-one species or subspecies have been recorded in the IMMA including eight threatened marine mammals. The IMMA contains a large breeding area for the endemic New Zealand sea lion and a small, genetically distinct population of endemic Hector's dolphins. The IMMA is also an important migratory route for blue, southern right and humpback whales. The deeper waters to the west support sperm and beaked whales including frequent sightings and strandings of Arnoux's beaked whales.

Description:

This IMMA stretches from Long Reef Point, Fiordland in the west to Hasland's Mistake, Catlins in the east and covers shelf waters out to 100-200 m depth on the eastern and southern side of Rakiura and deep, off the shelf waters up to 500m on the western side of Rakiura. The region is strongly influenced by



Area Size

25,158 km²

Qualifying Species and Criteria

Antarctic blue whale – *Balaenoptera musculus intermedia*

Criterion A, C3

Fin whale – *Balaenoptera physalus*

Criterion A

Hector's dolphin – *Cephalorhynchus hectori*

Criterion A, B1

Humpback whale – *Megaptera novaeangliae*

Criterion A, C3

New Zealand fur seal – *Arctocephalus forsteri*

Criterion C1

New Zealand sea lion – *Phocarctos hookeri*

Criterion A, B1, C1

Pygmy blue whale – *Balaenoptera musculus brevicauda*

Criterion A, C3

Sei whale – *Balaenoptera borealis*

Criterion A

Southern right whale – *Eubalaena australis*

Criterion C1, C3

Sperm whale – *Physeter macrocephalus*

Criterion A

Marine Mammal Diversity (D2)

Berardius arnuxii, *Balaenoptera bonaerensis*, *Delphinus delphis*, *Lagenorhynchus obscurus*, *Orcinus orca*, *Hydrurga leptonyx*, *Globicephala melas*, *Caperea marginata*, *Mirounga leonine*, *Lissodelphis peronii*



Figure 1 – Female New Zealand sealions at Rakiura/ Stewart Island. Photo credit: Louise Chilvers, Massey University

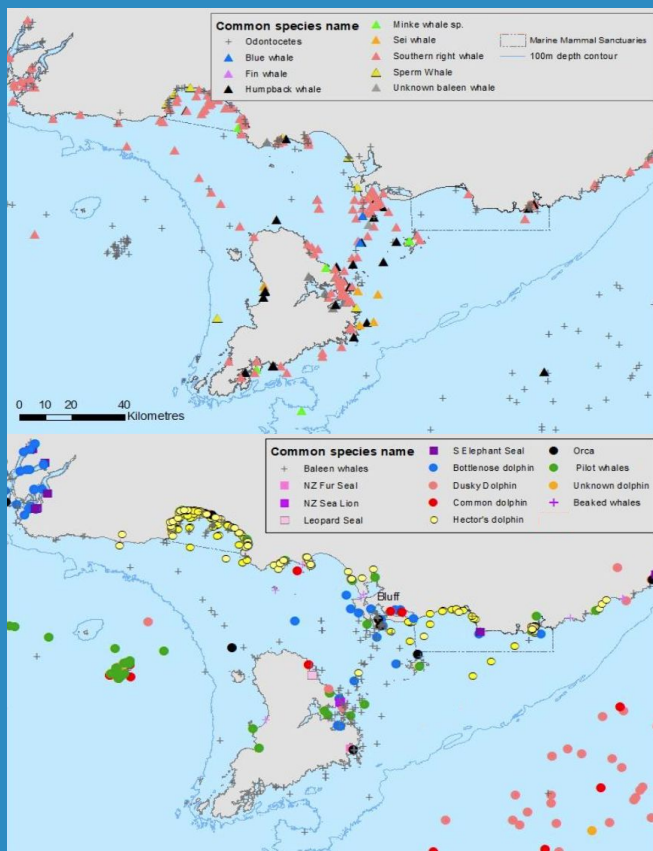


Figure 2 – All Department of Conservation (DOC) reported marine mammal strandings (1912–2015) and opportunistic mammal sightings (1977–2018) within the Te Ara a Kiwa/Foveaux Strait and Rakiura/Stewart Island area. Selected migrating baleen whale species (plus sperm whale) are shown in the top image and selected toothed whales, dolphins, and pinnipeds (seals and sea lions) are in the bottom image.

Southern Ocean upwelling events and dynamic marine shelf ecosystems primarily driven by the eastward flowing Southland current moving through Te Ara a Kiwa and around the southern side of Rakiura. The sea surface temperature is increasing more rapidly in this region than elsewhere in New Zealand (e.g. approx. 1.5°C warmer on average than 50 years ago) with associated changes in productivity and species (Shears & Bowen 2017).

New Zealand sea lions were abundant throughout New Zealand until subsistence and commercial hunting drove the species to near extinction by the early 19th Century and they have been slowly recovering since then (Childerhouse & Gales 1998, Chilvers 2018). Port Pegasus, on the south eastern coast of Rakiura, has seen the recent establishment of a new breeding colony which is now the fifth largest breeding population of this endangered, endemic species with an estimate of 178 (168-194)

adults and pups in 2014-2015 (Roberts & Doonan 2016). Increasing numbers of sea lions, including individual females giving birth to pups, are also being recorded in the Catlins region (e.g. the western extent of the Catlins region lies within the eastern boundary of this IMMA) and there is a possibility that breeding colonies will establish there eventually. Both these sites represent important breeding areas for this recovering species.

The turbid coastal waters along the South Island coast including three large bays within the IMMA form part of a small, endemic and genetically distinct sub-population of Hector's dolphins. The Te Waewae Bay Marine Mammal Sanctuary was established in 2008 to protect the primary habitat of this sub-population from fisheries bycatch and other threats.

New Zealand fur seals have at least ten breeding colonies and haul-out sites within this IMMA (e.g. Ruapuke Island, Bench Island, Breaksea Island, Codfish Is, Solander Island) although no systematic surveys have been undertaken (Baird 2011). Modelling by Bradshaw et al. (2002) concluded that there are abundant prey and resources for colonies to grow. This IMMA therefore represents an important breeding and feeding area for New Zealand fur seals.

Criterion A: Species or Population Vulnerability

There are eight species or subspecies found in the IMMA that meet this criterion with IUCN threatened or vulnerable status, and include Antarctic blue whale (CR), Hector's dolphin (EN), New Zealand sea lion (EN), pygmy blue whale (EN), humpback whale (Oceania sub-population; EN), sei whale (EN), fin whale (VU), and sperm whale (VU). All these species have been reported from the IMMA (e.g. DOC Marine Mammal Sighting and Stranding database 2020) and this IMMA forms an important part of their range within New Zealand.

Criterion B: Distribution and Abundance

Sub-criterion B1: Small and Resident Populations

New Zealand sea lions are slowly recovering within the IMMA with a new, small breeding colony established in Port Pegasus, on the south eastern coast of Rakiura, which is now the fifth largest breeding population of this endangered, endemic species with an estimate of 178 (168-194) adults and pups in 2014-2015 (Roberts & Doonan 2016). There are also a small number of additional breeding females in the Catlins (e.g. northeastern part of the IMMA). The total number of New Zealand sea lions within the IMMA is presently estimated at approximately 300-400 individuals (S. Childerhouse pers. comm.).

The turbid coastal waters along the South Island coast including three large bays within the IMMA (i.e. Te Waewae, Toetoes and Porpoise Bays) form part of a small, endemic and genetically distinct sub-population of Hector's dolphins, called the South Coast South Island sub-population (Hamner et al. 2012). These three bays are spread over approximately ~120 km of coastline but dolphins at all three sites consistently exhibit a high degree of genetic differentiation from the two other South Island sub-populations of Hector's dolphins (Hamner et al. 2012). An aerial survey estimated a total of 332 (95% CI 217-508) Hector's dolphins along the south coast of the South Island (e.g. the whole area is contained within the IMMA) (MacKenzie & Clement 2018), providing evidence that this sub-population is extremely vulnerable.

Criterion C: Key Life Cycle Activities

Sub-criterion C1: Reproductive Areas

Important New Zealand fur seal breeding colonies (e.g. Ruapuke Island, Bench Island, Breaksea Island, Codfish Is, Solander Island) occur on offshore Islands around Te Ara a Kiwa and Rakiura (Baird 2011) whose

coastal and offshore feeding (particularly for nursing females) are constrained to feeding completely within the IMMA during the breeding season (MPI 2017). Also, as noted previously, there are important New Zealand sea lion breeding areas at Port Pegasus, Rakiura (the fifth largest colony for this endangered, endemic) and the Catlins on the North Island. The highest concentration of records of southern right whales are from Te Ara a Kiwa with a local hot spot in Te Waewae Bay. Te Waewae Bay was the site of the first recorded mating of southern right whales around New Zealand post commercial whaling operations and is also a site of regular records of cow-calf pairs (Carroll et al. 2014, Cranswick et al. 2022.).

Sub-criterion C3: Migration Routes

Historical whaling data confirms this IMMA as an important migration route for humpback whales (Dawbin 1956) sperm whales (Gaskin 1973) and southern right whales (Richards et al. 2009, Carroll et al. 2014), and efforts to research this important migratory route has been undertaken for humpback whales (Gibbs & Childerhouse 2000, Constantine & Riekkola 2019), sperm whales (Gaskin 1973) and southern right whales (Carroll et al. 2014, Mackay et al. 2020). Recent satellite tracking of blue whales and southern right whales), have also further confirmed

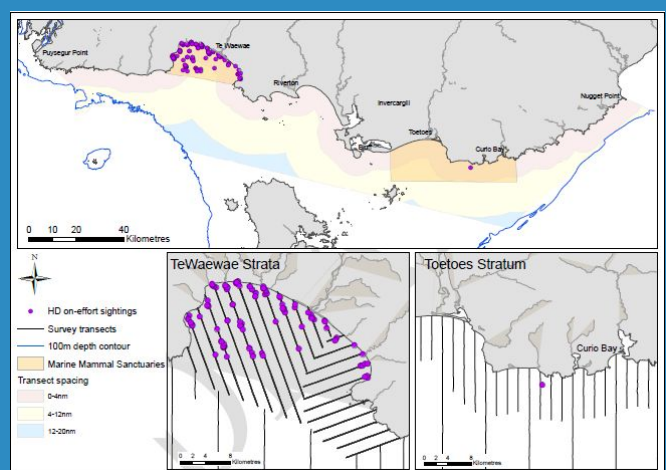


Figure 3 – Hector's dolphin summer distribution from aerial line-transect surveys of the south coast, South Island, summer 2018. Insets show Te Waewae Bay (left) and Toetoes/ Curio Bay (right). From MacKenzie & Clement (2018).

that this IMMA still contains important migratory pathways for these species (Carroll et al. 2013, Goetz et al. 2018, Mackay et al. 2020, DOC Marine Mammal Sighting and Stranding database 2020).

Criterion D: Special Attributes

Sub-criterion D2: Diversity

This IMMA supports 21 different marine mammal species or subspecies recorded (e.g. DOC Marine Mammal Sighting and Stranding database 2020) and the presence of other unrecorded species is highly likely. The IMMA is an important migratory route for humpback whales (Gibbs & Childerhouse 2000, Constantine & Reikkola 2019), sperm whales (Gaskin 1973) and southern right whales (Carroll et al. 2014, Mackay et al. 2020). Whilst little is known about living pilot whales in New Zealand, Rakiura is a renowned stranding site for pilot whales, including 100+ individuals, with the number of strandings increasing (Oremus et al. 2013, Betty et al. 2019). Seasonally enhanced productivity in this region may influence pilot whale occurrence (Hamilton et al. 2019) and changes in temperature (Shears & Bowen 2017) and ocean dynamics may be contributing to increased habitat use by them. The combination of shallow, coastal shelf waters and deep, submarine canyon waters provide ideal habitat for a number of other cetaceans with regular sightings of Arnoux's beaked whales, pygmy right whales, sperm whales. There are increasing reports of leopard seals on Rakiura and the southeast coast of the South Island (Hupman et al. 2020).

Supporting Information

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