

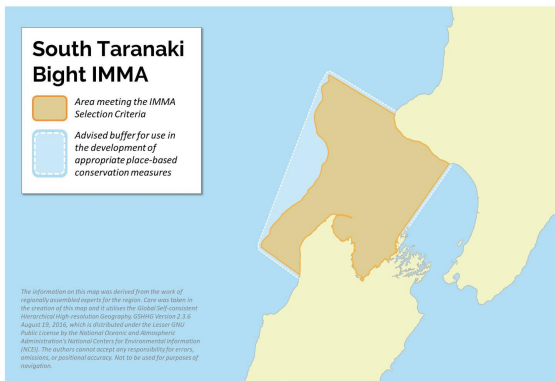
South Taranaki Bight IMMA

Description:

The South Taranaki Bight IMMA comprises mostly shallow shelf waters (mean depth of 100-120m) changing into deeper waters (>500m) in the western reaches. The region harbours the largest wind-driven upwelling system within New Zealand's coastal waters, making it oceanographically unique in the country. Primary productivity leads to large aggregations of krill (*Nyctiphanes australis*) (Bradford-Grieve et al. 1993), an important prey of pygmy blue whales (Torres 2013). Hence, blue whales use this region for foraging and other critical life history functions including nursing, socialising and possibly breeding (Barlow et al. 2018, Barlow et al. 2021a). Analysis of two years of acoustic recordings from five hydrophones deployed in the South Taranaki Bight region detected pygmy blue whale presence year-round with differing seasonal peaks (Barlow et al. 2018, Barlow et al. 2021b). Using capture-recapture abundance modelling, the number of pygmy blue whales that use the area has been estimated at 718 (95% CI = 279 – 1926) whales (Barlow et al. 2018). Individual blue whales observed in the South Taranaki Bight region have been re-sighted within the South Taranaki Bight across multiple years and also



Figure 1 – Blue whales in the Taranaki Bight. Photo credit: Leigh Torres, GEMM Lab Oregon State University



Area Size

47,361 km²

Qualifying Species and Criteria

Māui dolphin – *Cephalorhynchus hectori maui*

Criterion A

Hector's dolphin – *Cephalorhynchus hectori*

Criterion A

Pygmy blue whale – *Balaenoptera musculus brevicauda*

Criterion A, C2, C3, D

New Zealand fur seal – *Arctocephalus forsteri*

Criterion C

Antarctic blue whale – *Balaenoptera musculus intermedia*

Criterion A

Humpback whale – *Megaptera novaeangliae*

Criterion A, C3

Fin whale – *Balaenoptera physalus*

Criterion A

Sei whale – *Balaenoptera borealis*

Criterion A

Sperm whale – *Physeter macrocephalus*

Criterion A

Southern right whale – *Eubalaena australis*

Criterion C3

Common dolphin – *Delphinus delphis*

Criterion C2

Killer whale – *Orcinus orca*

Criterion D1

Marine Mammal Diversity (D2)

Globicephala melas, *Caperea marginata*, *Tasmacetus shepherdi*,
Mesoplodon bowdoini, *Balaenoptera bonaerensis*, *Berardius arnuxii*,
Tursiops truncatus, *Balaenoptera edeni*, *Lobodon carcinophaga*,
Ziphius cavirostris, *Lagenorhynchus obscurus*, *Pseudorca*
crassidens, *Mesoplodon ginkgodens*, *Mesoplodon grayi*,
Mesoplodon hectori, *Hydrurga leptonyx*, *Stenella attenuata*, *Kogia*
breviceps, *Grampus griseus*, *Steno bredanensis*, *Globicephala*
macrorhynchus, *Hyperoodon planifrons*, *Mirounga leonine*,
Lissodelphis peronii, *Phocoena dioptrica*, *Mesoplodon layardii*,
Stenella coeruleoalba

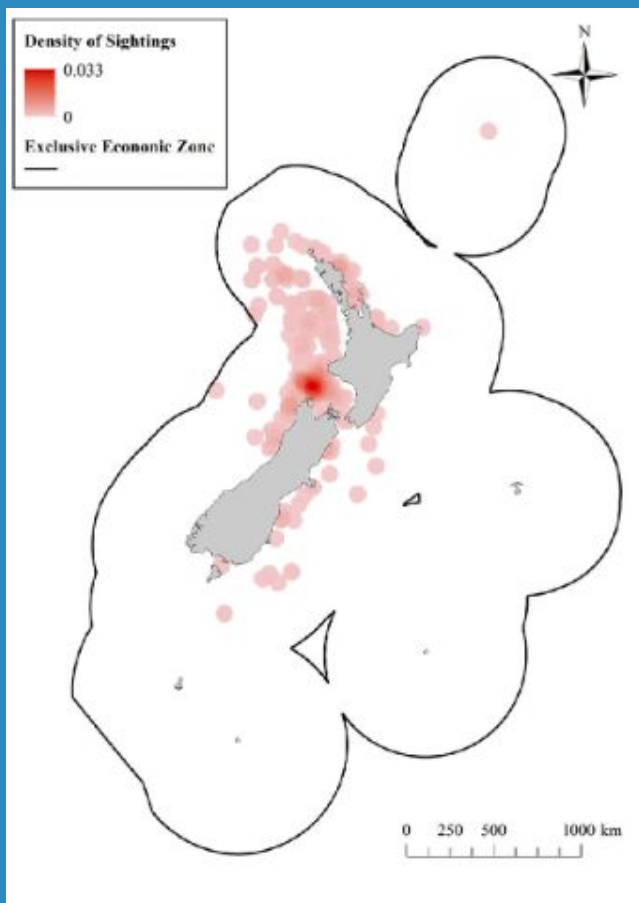


Figure 2 – Spatial distribution of blue whale sightings showing the hot spot for the Taranaki Bight region. From Barlow et al. (2018).

documented in other regions of New Zealand (Olson et al. 2015, Barlow et al. 2018).

There are records of Hector's and Māui dolphins (IUCN listed EN and CR respectively) primarily along the nearshore coastal waters of the South Taranaki Bight region. Hector's dolphins are mostly found around the coastal areas of the South Island and likely originate from west and east coast South Island populations. Māui dolphins have been recorded in the coastal parts of the North Island of the South Taranaki Bight which historically formed part of the now contracted Māui dolphin range (Dawson et al. 2001, Hamner et al. 2012, 2014). Genetic analyses have confirmed that individuals of the nominate subspecies *C. h. hectori* (locally called Hector's dolphins as distinct from Māui dolphins) are sometimes present in the coastal waters of the North Island. While the range of Māui dolphins has contracted from the historical range, there are recent sightings in the coastal areas of the North Island of

the IMMA but, because none of these have been biopsy sampled, it is not possible to determine if they are Hector's or Māui dolphins (Hamner et al. 2014) and we therefore make the precautionary assumption that both sub-species are present within the IMMA.

The Taranaki/Wellington corridor is important as it facilitates potential expansion of the range of Hector's dolphins. Such expansion may contribute to the 'genetic rescue' and restoration of some of the former range of Māui dolphins (Hamner et al. 2014). Small numbers of Hector's dolphins are sighted at the north end of the South Island; these animals are most likely connected to the west coast (MacKenzie & Clement 2016), but preliminary genetic analysis suggests isolation (Baker et al. 2017). There is minimal protection from fisheries interactions (i.e. bycatch) in this region (Roberts et al. 2019).

Overall, more than 35 different marine mammal species have been reported from the Taranaki region (New Zealand Department of Conservation (DOC) Marine Mammal Sighting and Stranding database 2020). It is an important migratory corridor for whales, including humpback, Antarctic blue, sperm, and southern right whales. Common dolphins, pilot whales, killer whales and dusky dolphins use these waters year-round. There are established breeding colonies of New Zealand fur seals and plentiful feeding grounds (Bradshaw et al. 2002, Baker et al. 2010). There are no local abundance estimates for any of these species in the region.



Figure 1 – Blue whales in the Taranaki Bight. Photo credit: Leigh Torres, GEMM Lab Oregon State University

This region has considerable oil and gas exploration and development with platforms, sub-sea pipelines, Floating Production and Supply (FPSO) vessels, regular seismic surveys, and substantial vessel traffic.

The South Taranaki Bight IMMA has a contiguous boundary with the Marlborough Sounds and Cook Strait IMMA to the separated by a line between Wainui Beach on the North Island and Cape

Stephens on D'Urville Island to the south. This boundary is broadly consistent with the 100 m depth contour and biogeographic differences. The South Taranaki Bight IMMA to the west is strongly influenced by the Kahurangi upwelling with westward flows and the Marlborough Sounds and Cook Strait IMMA to the east influenced by the strong tidal flows through Cook Strait.

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 (e.g. Maui dolphins (CR), Antarctic blue whale (CR), Hector's dolphin (EN), pygmy blue whale (EN), humpback whale (Oceania sub-population; EN), sei whale (EN), fin whale (VU), 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. In addition, at least seven marine mammals that occur in the South Taranaki Bight IMMA are identified as nationally threatened under the New Zealand Threat Classification System including the blue whale, killer whale, Māui dolphin, Hector's dolphin, common bottlenose dolphin, southern right whale and Bryde's whale (Baker et al. 2019).

The IMMA forms an important feeding area for a range of marine mammal species with the Kahurangi upwelling system recognised as a highly productive source of food for marine mammals within the area.

Criterion C: Key Life Cycle Activities

Sub-criterion C1: Reproductive Areas

Important New Zealand fur seal breeding colonies (e.g. Kahurangi Point, Steep Point, Wekakura Point) occur along the north west coast of the South Island whose coastal and offshore feeding (particularly for nursing females) are constrained to feeding completely within the IMMA during the breeding season (Baker et al. 2010). The region is also likely to be important for a range of other species (e.g. Hector's, blue whales, southern right whales, pilot whales, common dolphins) which have been observed with young calves in the region but for which there is little systematic information (DOC Marine Mammal Sighting and Stranding database 2020).

Sub-criterion C2: Feeding Areas

The Kahurangi upwelling system sustains high productivity in the South Taranaki Bight region causing high densities of krill biomass leading to an important feeding area for pygmy blue whales (Torres 2013, Barlow et al. 2018; Barlow et al. 2020) and may also be important for other species

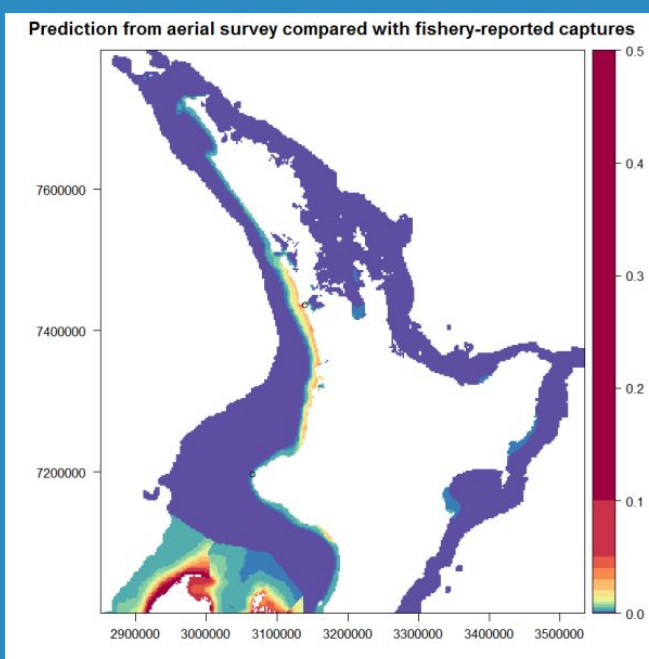


Figure 3 – Predicted spatial abundance of Hector's and Māui dolphins in summer used for the spatial risk assessment compared with the spatial distribution of commercial fishery reported captures (set-net and trawl). The region of interest is in the bottom left of the image. From Roberts et al. (2019).

Sub-criterion C3: Migration Routes

Historical whaling data confirms this IMMA as an important migration route for humpback whales and southern right whales (Dawbin 1956, Richards et al. 2009). Recent records have also confirmed that this IMMA still contains important migratory pathways for humpback, southern right whales, and blue whales (Bott et al. 2017, Carroll et al. 2013, Barlow et al. 2021a, Goetz et al. 2018). While there is little data for other species, it is likely that this IMMA is also important for other species such as fin, sei, sperm and Bryde's whales.

Criterion D: Special Attributes

Sub-criterion D1: Distinctiveness

The pygmy blue whales of New Zealand are genetically distinct from all other populations in the Southern Hemisphere (Barlow et al. 2018). Furthermore, No photo-id matches have been made between New Zealand blue whales (n=174) and those in the photo-id catalogues for Antarctica, Australia, or Sri Lanka (Barlow et al. 2018, Galletti Vernazzani et al. 2017). The New Zealand blue whale call type has been detected rarely off the east coast of Australia and once in Tonga (Balcazar et al. 2015). Also, killer whales in New Zealand are considered distinctive to other killer whales around the Southern Hemisphere (Baker et al. 2019).

Sub-criterion D2: Diversity

This IMMA supports a wide range of marine mammal species including over 35 different marine mammal species recorded including the main species such as Māui dolphin, Hector's dolphin, pygmy blue whale, New Zealand fur seal, humpback whale, sperm whale, southern right whale, common dolphin and killer whale (e.g. DOC Marine Mammal Sighting and Stranding database 2020). Other species recorded further include Andrew's beaked whale, antarctic minke whale, Arnoux's Beaked whale, common bottlenose dolphin, Bryde's whale,

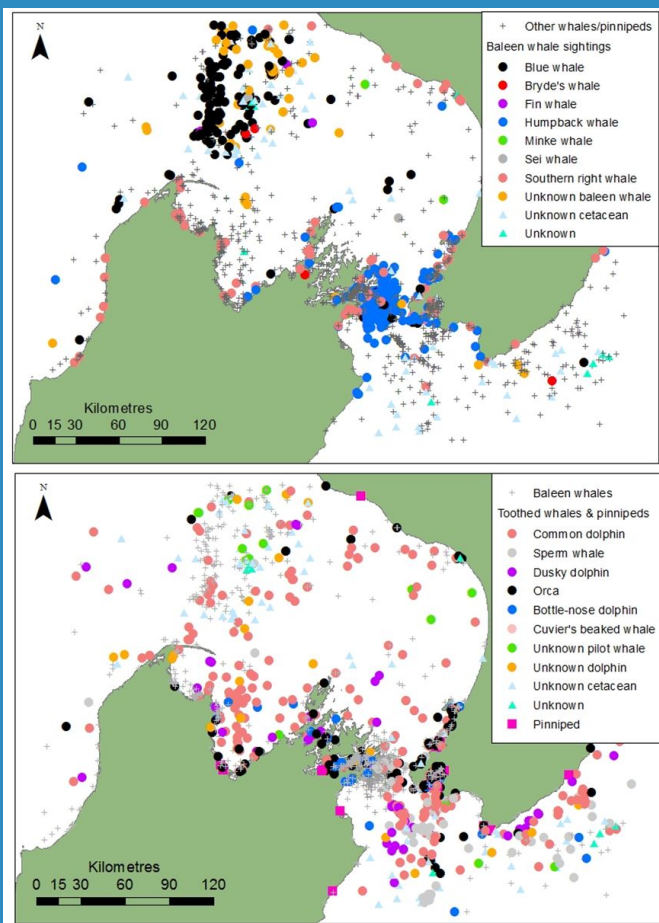


Figure 4 – The spatial locations of systemic and opportunistic marine mammal sightings and strandings reported within the general Cook Strait region and associated waters of both the North and South Island, including the South Taranaki Bight and Marlborough Sounds. The top panel shows all baleen whales and the bottom panel shows all other marine mammal species. Data accessed in June 2019 from the New Zealand Department of Conservation (DOC) Marine Mammal Sighting and Stranding database 2020.

including fin, sei and potentially Bryde's whales. This same system also likely provides important feeding grounds for long finned pilot whales, pygmy right whales and Shepherd's beaked whales which are reported from regular visual sightings and / or stranding records from the IMMA (DOC Marine Mammal Sighting and Stranding database 2020). Common dolphins are also regularly reported from the IMMA including regular bycatch in commercial trawl fisheries providing strong indication that this is an important feeding area for them (MPI 2017). Various other species (e.g. Hector's, blue whales, fur seals, sperm whales, southern right whales, pilot whales, common dolphins) have also been recorded feeding in this area but there is little information available about these species (DOC Marine Mammal Sighting and Stranding database 2020).

crabeater seal, Cuvier's beaked whale, dusky dolphin, false killer whale, ginkgo-toothed beaked whale, Gray's beaked whale, Hector's beaked whale, leopard seal, pantropical spotted dolphins, pygmy sperm whale, Risso's dolphin, rough toothed dolphin, short-finned pilot whale, southern bottlenose whale, southern elephant seal, southern right whale dolphin, spectacled porpoise, strap-toothed beaked whale, striped dolphin, and the presence of other unrecorded species highly likely.

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MARINE MAMMAL PROTECTED AREAS TASK FORCE

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