

# Coast and Shelf Waters of Eastern Te Waipounamu IMMA

## Summary, continued.

historical numbers and some local populations have been lost. Generally, these coastal waters support a high diversity of marine mammal species.

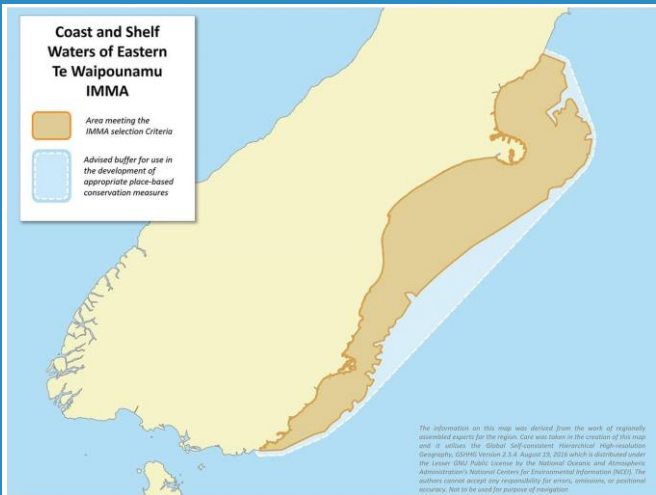
## Description:

The Coast and shelf waters of the eastern Te Waipounamu IMMA consists of the continental shelf waters (out to the 200 m depth contour) from the Waiiau River on the Marlborough coast in the north to Makati/Chaslans Mistake on the Catlins coast in the south.

The New Zealand marine environment is highly distinctive in a global sense. It is a large land mass in relatively temperate waters, with few equivalent areas in the Southern Hemisphere aside from Tasmania and South America.

The east coast of the South Island is the largest hotspot for Hector's dolphin (the west coast South Island is the second largest). Hector's dolphins' range to the 100 m depth contour throughout New Zealand waters, except the northeastern parts of the North Island from North Cape to Cape Colville, where they are very rare currently but were more common historically (e.g. Rayment et al., 2010; IUCN, 2012; MacKenzie et al., 2014, 2016; McGrath, 2020).

The only systematic line-transect surveys to date were designed for Hector's dolphins and therefore range only to 20 nautical miles offshore (e.g. Dawson et al., 2004; Slooten et al., 2004; Rayment et al., 2010;



## Area Size

31 119 km<sup>2</sup>

## Qualifying Species and Criteria

Hector's dolphin – *Cephalorhynchus hectori*  
Criterion A; B (1)

New Zealand sea lion – *Phocarctos hookeri*  
Criterion A; B (1)

## Summary

This IMMA consists of the continental shelf waters (out to the 200 m depth contour) of the southern part of the east coast of Te Waipounamu (New Zealand's South Island), from the Waiiau River on the Marlborough coast in the north to Makati/Chaslans Mistake on the Catlins coast in the south. The east coast of the South Island of New Zealand is important habitat for a number of delphinid and pinniped species. It includes habitat for a small, resident population of Hector's dolphin *Cephalorhynchus hectori*, a species listed as endangered on the IUCN Red List that is endemic to New Zealand. The IMMA also includes important haul-out and breeding sites for the endangered endemic New Zealand sea lion *Phocarctos hookeri*, New Zealand sea lions have been seriously depleted by sealing and more recently by bycatch. Likewise, Hector's dolphin populations are below 30% of their

MacKenzie & Clement, 2014, 2016). The east coast South Island includes high-densities of Hector's dolphins extending from around Banks Peninsula (Brough et al., 2020) south to Timaru, and several small local populations (e.g. Otago N = 42, CV = 41%, CI = 19 – 92; Turek et al., 2013).

The largest mainland breeding location of the endemic New Zealand sea lion is on Otago Peninsula, with smaller breeding aggregations further south in the Catlins and occasional sightings further north (including at Banks Peninsula; Chilvers & Meyer, 2017). New Zealand sea lions use both inshore and offshore habitat for foraging (Auge et al., 2011). New Zealand fur seals are the most common pinnipeds on and along the east coast South Island,

hauling out, breeding and feeding throughout the area (Baird, 2011). They are frequently seen at sea, both inshore and offshore. Leopard seals are also seen throughout the area. Recent research is showing leopard seals to be much more common and widespread in New Zealand than was previously thought (Hupman et al., 2019).

The east coast of the South Island provides habitat for a wide range of marine mammal species. Around half of the world's cetacean species are known to occur in New Zealand waters, and most of those are included in sighting records from the east coast of the South Island (DOC, 2020). The range of species includes inshore dolphins and baleen whales, and pinnipeds.



Figure 1: Hector's dolphin (*Cephalorhynchus hectori*) at Banks Peninsula. Photo credit: Will Rayment / NZ Whale & Dolphin Trust



Figure 2: Male New Zealand sea lion (*Phocarctos hookeri*) at Otago Peninsula. Photo credit: Will Rayment / NZ Whale & Dolphin Trust

## Criterion A: Species or Population Vulnerability

Hector's dolphin and New Zealand sea lion are both IUCN red-listed as Endangered (Chilvers, 2015). New Zealand sea lion is so listed due to the small number of breeding locations. A few small breeding colonies are found on the east coast of the South Island, with the largest mainland breeding colony on Otago Peninsula (Chilvers & Meyer, 2017). Hector's dolphin is considered Endangered based on the rate of population decline over the last three generations. Both species are significantly depleted compared to their historical population size and range (e.g. Childerhouse & Gales, 1988; Slooten & Dawson, 2010). New Zealand sea lions were extirpated from the mainland and sea lions from Sub-Antarctic populations, including Campbell and Auckland Islands, are very slowly re-establishing colonies on the mainland (Collins et al., 2014).

## Criterion B: Distribution and Abundance Sub-criterion B1: Small and Resident Populations

There are several small, resident populations of Hector's dolphins and New Zealand sea lions in this IMMA, e.g. off Otago (42 individuals; CV = 41%, CI = 19 – 92; Turek et al., 2013). Another small, resident population south of Otago Peninsula has been extirpated (Diver, 1866; McGrath, 2020). Increasing population fragmentation is a risk factor for the species as a whole. Large gaps in Hector's dolphin distribution compromise the demographic continuity of regional populations (and the species as a whole) and make it less and less likely that dolphins eliminated by human actions (e.g. bycatch) will be replaced by dolphins from nearby populations. New Zealand sea lions have several small breeding populations in this area, including Otago Peninsula (11-18 breeding females) and Catlins (up to 6 breeding

females; Chilvers & Meyer, 2017). Currently, there are a very small number of breeding females on mainland New Zealand, with the only large breeding colonies on Sub-Antarctic islands (Chilvers & Meyer, 2017). Recolonisation of the mainland and establishment of additional breeding colonies is needed for the species to recover, and therefore these small resident populations of New Zealand sea lions within the IMMA are extremely significant.

## Supporting Information

Auge, A.A., Chilvers, B.L., Moore, A.B., and Davis, L.S. 2011. Foraging behaviour indicates marginal marine habitat for New Zealand sea lions: remnant versus recolonising populations. *Marine Ecology Progress Series* 432: 247-256.

Baird, S.J. 2011. New Zealand fur seals – summary of current knowledge. *New Zealand Aquatic Environment and Biodiversity Report No. 72*. Ministry of Fisheries, Wellington. 50 pp.

Baker, C.S., Hamner, R.M., Cooke, J., Heimeier, D., Vant, M., Steel, D., and Constantine, R. 2012. Low abundance and probable decline of the critically endangered Maui's dolphin estimated by genotype capture-recapture. *Animal Conservation* 16: 224-233.

Baker, C.S., Steel, D., Hamner, R.M., Hickman, G., Boren, L., Arlidge, W., and Constantine, R. 2016. Estimating the abundance and effective population size of Maui dolphins using microsatellite genotypes from 2015-2016, with retrospective matching from 2001 to 2016.

Brough, T., Rayment, W.J., Slooten, E., and Dawson, S.M. 2020. Spatiotemporal distribution of foraging in a marine predator: behavioural drivers of hotspot formation. *Marine Ecology Progress Series*, v635, 187-202.

Burkhardt, S.M. and Slooten, E. 2003. Population viability analysis for Hector's dolphin (*Cephalorhynchus hectori*): A stochastic population model for local populations. *NZ J Mar Freshwat Res* 37: 553-566.

Carroll, E.L., Rayment, W.J., Alexander, A.M., Baker, C.S., Patenaude, N.J., Steel, D., et al. 2013. Reestablishment of former wintering grounds by New Zealand southern right whales. *Marine Mammal Science*, 30(1), 206-220.  
<http://doi.org/10.1111/mms.12031>.

Childerhouse, S. and Gales, N.J. 1998. Historical and modern distribution and abundance of the New Zealand sea lion *Phocarctos hookeri*. *New Zealand Journal of Zoology*, 25(1), 1-16.

Chilvers, B.L. 2015. *Phocarctos hookeri*. The IUCN Red List of Threatened Species 2015: e.T17026A1306343. Downloaded on 28 June 2020.  
<https://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T17026A1306343.en>.

Chilvers, B.L. and Meyer, S. 2017. Conservation needs for the endangered New Zealand sea lion (*Phocarctos hookeri*). *Aquatic Conservation: Marine and Freshwater Ecosystems* 27: 846-855.

Collins, C.J., Rawlence, N.J., Prost, S., Anderson, C.N.K., Knapp, M., Scofield, R.P., et al. 2014. Extinction and recolonization of coastal megafauna following human arrival in New Zealand. *Proceedings of the Royal Society B: Biological Sciences*, 281(1786), 20140097-20140097.

Currey, R.J.C., Boren, L.J., Sharp, B.R., and Peterson, D. 2012. A risk assessment of threats to Maui's dolphins. Ministry for Primary Industries and Department of Conservation, [www.doc.govt.nz/getting-involved/consultations/current/threat-](http://www.doc.govt.nz/getting-involved/consultations/current/threat-)

-plan-review-for-mauis-dolphin/.

Dawson, S.M., Slooten, E., DuFresne, S., Wade, P., and Clement, D. 2004. Small-boat surveys for coastal dolphins: Line-transect surveys for Hector's dolphins (*Cephalorhynchus hectori*). *Fishery Bulletin* 102: 441-451.

de Jager, M., Hengeveld, G.M., Mooij, W.M., Slooten, E.. 2019. Modelling the spatial dynamics of Maui dolphins using individual-based models. *Ecological Modelling* 402: 59-65.

Diver, P. 1866. Guide to Brighton and its environs: Containing every information necessary for visitors to this Otago Watering Place. Fergusson and Mitchell Publishing Company, Dunedin.

DOC. 2016. Department of Conservation Hector's and Maui dolphin incident database.

[www.doc.govt.nz/our-work/hectors-and-maui-dolphin-incident-database/](http://www.doc.govt.nz/our-work/hectors-and-maui-dolphin-incident-database/) Information downloaded in May 2016.

DOC. 2020. Department of Conservation sightings and stranding records.

Ferreira, S.M. and Roberts, C.C. 2003. Distribution and abundance of Maui's dolphins (*Cephalorhynchus hectori mauii*) along the North Island West Coast, New Zealand. DOC Internal Series 93, Department of Conservation, Wellington.

Fletcher, D., Dawson, S. and Slooten, E. 2002. Designing a mark-recapture study to allow for local emigration. *Journal of Agricultural, Biological and Environmental Statistics* 7(4): 1-8.

Gormley, A.M., Slooten, E., Dawson, S.M., Barker, R.J., Rayment, W., du Fresne, S., and Bräger, S. 2012. First evidence that marine protected areas can work for

marine mammals. *J. Appl. Ecol.* 49:474-480.

Gormley, A.M., Slooten, E., Dawson, S.M., Barker, R.J., Rayment, W., du Fresne, S., and Bräger, S. 2012. First evidence that marine protected areas can work for marine mammals. *J. Appl. Ecol.* 49:474-480.

Hamner, R.M., Oremus, M., Stanley, M., Brown, P., Constantine, R., and Baker, C.S. 2012. Estimating the abundance and effective population size of Maui's dolphins using microsatellite genotypes in 2010-11, with retrospective matching to 2001-07. Department of Conservation Report available from [www.doc.govt.nz](http://www.doc.govt.nz).

IUCN. 2008. Listing of Hector's dolphin on International Union for Conservation of Nature's Red List of Threatened Species.

IUCN. 2012. Resolution 142. Actions to avert the extinctions of rare dolphins: Maui dolphins, Hector's dolphins, Vaquita porpoises and South Asian river and freshwater dependent dolphins and porpoises. [https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC\\_2012\\_REC\\_142\\_EN.pdf](https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2012_REC_142_EN.pdf).

IWC. 2016a. Report of the Scientific Committee of the International Whaling Commission. IWC/66/Rep01, reporting on the meeting of the Scientific Committee in Bled, Slovenia 7-19 June 2016.

IWC. 2016b. Information downloaded from International Whaling Commission webpage during May 2016: <https://iwc.int/home> Scientific Committee Progress Reports from 2002 onwards: <https://iwc.int/scprogress> Older reports available from: <https://archive.iwc.int/pages/search.php?search=!collection73&k=>.

Jackson, J.A., Carroll, E.L., Smith, T.D., Zerbini, A.N.,

- Patenaude, N.J., and Baker, C.S. 2016. An integrated approach to historical population assessment of the great whales: case of the New Zealand southern right whale. *Royal Society Open Science*, 3(3), 150669–16. <http://doi.org/10.1098/rsos.150669>.
- Leunissen, E., Rayment, W.J. and Dawson, S.M. 2019. Impact of pile-driving on Hector's dolphin in Lyttelton Harbour, New Zealand. *Marine Pollution Bulletin*. 142: 31-42. (example of non-bycatch impact).
- MacKenzie, D.L. and Clement, D.M. 2014. Abundance and distribution of ECSI Hector's dolphin. New Zealand Aquatic Environment and Biodiversity Report 123, Report to Ministry for Primary Industries, Wellington, New Zealand. March 2014. [www.mpi.govt.nz/document-vault/4350](http://www.mpi.govt.nz/document-vault/4350).
- MacKenzie, D.L. and Clement, D.M. 2016. Abundance and distribution of WCSI Hector's dolphin. New Zealand Aquatic Environment and Biodiversity Report 168, Report to Ministry for Primary Industries, Wellington, New Zealand. March 2014. [www.mpi.govt.nz/document-vault/12129](http://www.mpi.govt.nz/document-vault/12129).
- Manning, L. and Grantz, K. 2017. Endangered Species Act Status Review Report for Hector's Dolphin (*Cephalorhynchus hectori*). Report to the National Marine Fisheries Service, Office of Protected Resources, Silver Spring, Maryland. 90 p.
- Martien, K.K., Taylor, B.L., Slooten, E., and Dawson, S. 1999. A sensitivity analysis to guide research and management for Hector's dolphin. *Biol Conserv* 90: 183-191.
- McGrath, G. 2020. The history of New Zealand / Aotearoa dolphins *Cephalorhynchus hectori* abundance and distribution. MSc thesis, University of Otago, Dunedin, New Zealand.
- Meyer, S., Robertson, B.C., Chilvers, B.L., and Krkosek, M. 2017 Marine mammal population decline linked to obscured bycatch. *PNAS* 114 (44) 11781-11786.
- Rayment, W., Dawson, S., Scali, S., and Slooten, E. 2011. Listening for a needle in a haystack: Passive acoustic detection of dolphins at very low densities. *Endangered Species Research* 14: 149-156.
- Rayment, W., Dawson, S.M. and Slooten, E. 2010. Seasonal changes in distribution of Hector's dolphin at Banks Peninsula, New Zealand: implications for protected area design. *Aquatic Conservation: Marine and Freshwater Ecosystems* 20: 106-116, DOI: 10.1002/aqc.1049.
- Reeves, R.R., Dawson, S.M., Jefferson, T.A., Karczmarski, L., Laidre, K., O'Corry-Crowe, G., Rojas-Bracho, L., Secchi, E.R., Slooten, E., Smith, B.D., Wang, J.Y., and Zhou, K. 2013. *Cephalorhynchus hectori*. The IUCN Red List of Threatened Species 2013: e.T4162A44199757. <http://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T4162A44199757.en>.
- Robertson, B.C. and Chilvers, B.L. 2011. The population decline of the New Zealand sea lion *Phocarcos hookeri*: a review of possible causes. *Mammal Review*, 41: 253–275. <http://doi.org/10.1111/j.1365-2907.2011.00186.x>.
- Russell, K. 1999. The North Island Hector's dolphin: a species in need of conservation. Unpublished MSc thesis, University of Auckland, New Zealand.
- Slooten, E. 2013. Effectiveness of area-based management in reducing bycatch of the New Zealand dolphin. *Endangered Species Research* 20: 121-130.
- Slooten, E. and Dawson, S.M. 2010. Assessing the

effectiveness of conservation management decisions: Likely effects of new protection measures for Hector's dolphin. *Aquatic Conservation: Marine and Freshwater Ecosystems* 20: 334–347.

Slooten, E. 1991. Age, growth and reproduction in Hector's dolphins. *Canadian Journal of Zoology* 69: 1689–1700.

Slooten, E. 2007. Conservation management in the face of uncertainty: Effectiveness of four options for managing Hector's dolphin bycatch. *Endangered Species Research* 3:169–179.

Slooten, E. and Lad, F. 1991. Population biology and conservation of Hector's dolphin. *Can J Zool* 69: 1701–1707.

Slooten, E., Dawson, S.M. and Rayment, W.J. 2004. Aerial surveys for coastal dolphins: Abundance of Hector's dolphins off the South Island west coast, New Zealand. *Marine Mammal Science* 20: 447–490.

Smith, I. 2020. *Pākehā Settlements in a Māori World: New Zealand Archaeology 1769–1860*. Bridget Williams Books.

Turek, J., Slooten, E., Dawson, S., Rayment, W., and Turek, D. 2013. Distribution and abundance of Hector's dolphins off Otago, New Zealand. *New Zealand Journal of Marine and Freshwater Research* 47: 181–191.

Webster, T. and Rayment, W. 2008. Abundance estimate for Hector's dolphins using Porpoise Bay. Report for Department of Conservation.

## Acknowledgements

We would like to thank the participants of the 2020 IMMA Regional Expert Workshop for the identification of IMMAs in the Australia, New Zealand and South East Indian Ocean seas region. Funding for the identification of this IMMA was provided by the Global Ocean Biodiversity Initiative funded by the German government's International Climate Initiative (IKI). Support was also provided by Whale and Dolphin Conservation and the Tethys Research Institute.



**MARINE MAMMAL PROTECTED AREAS TASK FORCE**

IUCN SSC WCPA IMMA

**GOBI** **TETHYS** since 1986 **WDC** WHALE AND DOLPHIN CONSERVATION

Supported by:

 Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

based on a decision of the German Bundestag

Suggested Citation: IUCN-MMPATF (2024) Coast and Shelf Waters of Eastern Te Waipounamu IMMA Factsheet. IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, 2024.

PDF made available for download at <https://www.marinemammalhabitat.org/factsheets/coast-and-shelf-waters-of-eastern-te-waipounamu-imma/>