SUBMISSION ON PROPOSED MEASURES TO PROTECT SOUTH ISLAND HECTOR'S DOLPHINS

SUBMITTER DETAILS	
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1. Introduction

1.1. This is a submission on proposed measures to protect South Island Hector's dolphins. Specifically, it provides feedback on the options described in documents released by Fisheries New Zealand (**FNZ**) for public consultation on 11 October 2021.[1]

1.2. The Environmental Defence Society (**EDS**) is an independent not-for-profit organisation conducting interdisciplinary policy research and litigation. It was established in 1971 with the purpose of improving environmental outcomes in Aotearoa New Zealand. EDS has a special interest in coastal and marine ecosystems and is currently leading research on future options for oceans system reform.

1.3. EDS is familiar with the diverse challenges that must be addressed in decision-making on fisheries management in Aotearoa New Zealand. In 2018, EDS published a report on the effectiveness of the national fisheries management framework. Findings were informed by international best practice, national data on the status of fish stocks, and more than 60 interviews with key stakeholders.[2] More recently, EDS submitted on proposals to temporarily close fishery areas to the harvest of taonga species; and proposed sustainability measures for the management of wild fish stocks.[3]

1.4. EDS has always sought to improve outcomes for vulnerable marine species, including marine mammals. In 2012, EDS published findings from a review of the legislative framework established by the Marine Mammals Protection Act 1978, along with recommendations on how to strengthen protection for marine mammals.[4] Building on this work, EDS published a book on the relationship between humans and dolphins titled '*Dolphins of Aotearoa: Living with New Zealand Dolphins'*.[5] The book describes the plight of the Hector's dolphins and the evolution of a management framework for their protection.[6] More recently, EDS submitted on proposals to amend the Threat Management Plan for Hector's and Māui dolphins (**TMP**); and to establish a Marine Mammal Sanctuary in Te Pēwhairangi / Bay of Islands.[7]

[1] FNZ (2021) "*Protecting South Island Hector's dolphins: further consultation on fisheries measures, October 2021*", Discussion Paper N:2021/22 (primary consultation document); and supporting information. Available from: www.mpi.govt.nz.
[2] Peart, R. (2018) "Voices from the Sea: Managing New Zealand's Fisheries", EDS, Auckland, New Zealand.
[3] Copies of recent submissions prepared by EDS are available from: https://www.eds.org.nz
[4] Mulcahy, K. and Peart, R. (2012) Wonders of the Sea. EDS. Available from: https://www.eds.org.nz/
[5] Peart, R. (2013) Dolphins of Aotearoa: Living with New Zealand Dolphins. Craig Potton Publishing, Nelson, NZ. pp. 307.
[6] Peart, R. (2013), above n 5, at pp 136 to 158.
[7] Copies of recent submissions prepared by EDS are available from: https://www.eds.org.nz

2. Summary of submission

2.1. EDS does not support a reliance on the proposals in the Consultation Document, because there is not sufficient certainty that the proposals will reduce fishing-related mortality of Hector's dolphins and ensure their long-term future.

A better option: a zero-bycatch approach

2.2. EDS requests that FNZ include an additional option (**Option 5**) for ministerial consideration, that supports a 'zero-bycatch' approach to fishing-related dolphin mortality. EDS considers a zero-bycatch approach is available to the Minister under s 15(2) of the Act, and should comprise:

a) a prohibition on the use of trawl fishing methods within all known Hector's dolphin habitat (which extends out to the 100 m depth contour); and

b) a prohibition on the use of commercial and recreational set-nets within all known Hector's dolphin habitat (which extends out to the 100 m depth contour).

2.3. Alternatively, a fishing-related mortality limit (**FRML**) of zero could be set, with a requirement that trawl and set net fisheries are closed for the balance of the fishing year once the FRML has been exceeded.

2.4. EDS considers that a zero-bycatch approach will achieve the purpose of the Act in accordance with applicable environmental and information principles. It can be achieved through closure of the full extent of the Hector's dolphin habitat to trawl and set-net fisheries and/or through setting a FRML of zero.

Proposed Bycatch Reduction Plan (Option 2)

2.5. EDS does not support reliance on the proposed Bycatch Reduction Plan. If FNZ submits this option for ministerial consideration, EDS requests the following amendments:

a) an extension to the proposed scope of the BRP to include the west coast dolphin sub-population;

b) the inclusion of FRML for all dolphin sub-populations, including those located on the west coast and north coast;

c) all FRML are set to zero, or are set on a sliding scale towards zero, recognising that the accidental capture of Hector's dolphins is unsustainable;

d) specified vessel-based responses are strengthened by the inclusion of requirements to cease fishing activity following the accidental capture of a Hector's dolphin until a vessel-specific response plan has been approved by a DOC fisheries liaison;

e) area-based (fleet level) responses are strengthened by the inclusion of an immediate and mandatory prohibition on the use of trawl and set net fishing methods within a management area if the applicable FRML is exceeded;

f) the proposed Protected Species Management Plan is mandated for all recreational and commercial fishing vessels;

g) additional consideration is given to monitoring and verification of fisher reporting to ensure regulatory gaps are appropriately managed.

Proposed Trawl Gear Restrictions (Option 3)

2.6. EDS supports the proposed extension of trawl gear restrictions, as a minimum requirement.

2.7. EDS considers the current and proposed trawl gear restrictions are not a sufficiently certain method for reducing the risk of trawl capture to Hector's dolphins. Therefore, EDS requests:

a) the inclusion of an additional zero-bycatch approach for ministerial consideration (described as "Option 5" in this submission); or

b) alternatively, the inclusion of an additional proposal to set discrete area-based trawl closures in identified dolphin hot-spots (including, but not limited to Pegasus Bay, the South Canterbury Bight, Te Waewae Bay, and the central west coast); or

c) alternatively, the inclusion of an additional proposal to extend the proposed trawl gear restrictions to apply within the 100 m depth contour.

Proposed extension of current set-net closures (Option 4)

2.8. EDS supports the proposed extension of area-based set-net closures around Bank's Peninsula, as a minimum requirement.

2.9. EDS does not consider existing set-net gear restrictions provide sufficient coverage of Hector's dolphin habitat. Therefore, EDS requests:

a) the inclusion of an additional zero-bycatch approach for ministerial consideration (described as "Option 5" in this submission); or

b) alternatively, the inclusion of an additional proposal to implement commercial set-net restrictions (out to 2 nm) along the full extent of the west coast.

2.10. EDS does not support preservation of the status quo (**Option 1**).

3. Background: managing human-induced pressures on the Hector's dolphin

3.1. The Hector's dolphin, which is only found in Aotearoa New Zealand, comprises two spatially discrete sub-species.[8] The nationally critical Māui dolphin is found off the west coast of the North Island, while the nationally vulnerable Hector's dolphin is found in coastal waters surrounding the South Island.[9]

[8] Baker, A., Smith, A., and Pichler, P. (2002) "Geographical variation in Hector's dolphin: Recognition of new subspecies of *Cephalorhynchus hectori*", Journal of the Royal Society of New Zealand. 32:4, 713-727.
[9] Baker *et al*. (2002), above n 8.

3.2. Māui and Hector's dolphins look similar to each other, but have unique physical features that make them different to other dolphin species.[10] They have rounded black dorsal fins, tapered beaks, and distinct black and white markings.[11] Māui and Hector's dolphins are smaller than other dolphins, measuring up to 1.7 m in length and weighing only 50 kg.[12] Other dolphin species that reside in the waters of Aotearoa New Zealand typically measure between two and four metres in length.[13]

3.3. Māui and Hector's dolphins are an iconic part of Aotearoa New Zealand's natural heritage. They are also of important cultural and spiritual significance. Māori traditionally used several names for the dolphin, including "pahu" or 'life-long friend' and "Tutumaireikurai" or 'special ocean dweller'.[14] Māori hold long-lasting spiritual connections with the dolphins, with traditional perspectives recognising the dolphins as spirits of their dead.[15]

Hector's dolphins are under threat from human-induced pressures

3.4. The biological characteristics of the Hector's dolphin make it particularly vulnerable to human-induced pressures.[16] The Hector's dolphin is slow to mature and reproduce, with females having their first calf between five and nine years of age; and reproducing every two to four years.[17] The lifespan of Hector's is around 20 years,[18] so the rate of population growth is slow and sensitive to dolphin mortality.

3.5. The South Island Hector's dolphin population is small, comprising approximately 15,000 individuals.[19] Studies investigating the spatial distribution and abundance of the population indicate that the Hector's dolphin is most abundant off the west coast and central east coast,[20] though available data is incomplete and uncertain. In addition, studies show the South Island population is highly fragmented, with three genetically distinct sub-populations occurring in different geographic areas.[21] The spatial distribution of the Hector's population exhibits seasonal trends, with dolphins more concentrated in shallow, inshore waters during summer; and more widely distributed offshore in winter.[22]

[10] Peart, R., (2013), above n 5, at page 136.
[11] Peart, R., (2013), above n 5, at page 136.
[12] Refer to electronic factsheets on the nine species of dolphin found around Aotearoa New Zealand prepared by the Department of Conservation. The factsheets were last accessed on 6 December 2021, and are available at: https://www.doc.govt.nz/nature/native-animals/marine-mammals/dolphins/
[13] DOC (date unknown), above n 12.
[14] Peart, R., (2013), above n 5, at page 136.
[15] Peart, R., (2013), above n 5, at page 136.
[16] Refer to the review article by Slooten, E., and Dawson, S. (2021) "Delays in Protecting a Small Endangered Cetacean: Lessons Learned for Science and Management" *Frontiers in Marine Science*, https://doi.org/10.3389/fmars.2021.606547.
[17] Slooten, E. (1991). "Age, growth and reproduction in Hector's dolphins". *Canadian Journal of Zoology*, 69:6, 1689–1700. doi: 10.1139/z91-234
[18] Slooten, E. (1991), above n 17.
[19] This estimate is based on aerial surveys, refer Mackenzie, D.I., and Clement, D.M (2016) "Abundance and distribution of WCSI Hector's dolphin." *New Zealand Aquatic Environment and Biodiversity Report No. 168. 67 p.* This estimated population size is widely cited and relied on in the latest conservation assessment report for marine mammals (Baker, *et al.* 2019).
[20] Roberts J.O.; Webber D.N.; Goetz K.T.; Edwards C.T.T.; Roe W.D.; Doonan I.J. (2019) "Spatial risk assessment of threats to Hector's and Maui dolphins (Cephalorhynchus hectori)". *New Zealand Aquatic Environment and Biodiversity Report series*. Ministry for Primary Industries, Wellington, New Zealand.
[21] Hamner, R., Pichler, F., Heimeier, D., and Constantine, R. (2012) "Genetic differentiation and limited gene flow among fragmented populations of New Zealand endemic Hector's and Maui's dolphins", *Conservation Genetics* 13(4), doi::10.1007/s10592-012-0347-9
[22] Slooten, E., Rayment, W. J., and Dawson, S. M. (2006). Offshore distribution of Hector's dolphins at banks Peninsula: is the banks Peninsula marine mammal sanctuary large enough? *New Zealand Journal of Marine and Freshwater Ecology.* 40, 333–343. doi: 10.1080/00288330.2006.9517425; and Rayment, W. J., 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. (Accessed from the food and agriculture organisation of the United Nations website).

3.6. A recent risk assessment modelled the spatial density of Hector's dolphins based on observed sightings.[23] The model found turbidity and prey (the presence of ahuru) were useful predictors of observed spatial patterns of Hector's dolphins.[24] Based on the model, the assessment identified Hector's hot-spots at Pegasus Bay (immediately north of Bank's Peninsula), and in coastal waters off the South Canterbury Bight (stretching south from Bank's Peninsula to Timaru).[25] The model predicted that the highest dolphin densities occur within the 50-metre depth contour off the east coast of the South Island.[26] Uncertain and incomplete data constrained the application of the model to the west and east coast populations, though public sightings along the north and south coasts show Hector's dolphins are frequently observed within these areas, and in deeper waters out beyond the 50 m depth contour.[27]

3.7. The inshore habitat of the Hector's dolphin makes it particularly vulnerable to human-induced pressures from fishing, transport, tourism (dolphin watching), pollution, seismic surveying, and seabed mining.[28] Climate change effects, including ocean warming and changes in ocean chemistry, could impact dolphin-prey interactions,[29] and exert additional pressure on Hector's dolphin population. The cumulative effects of these stressors are placing the Hector's dolphin population under increasing pressure, and threatening the resilience of the population to changes in ecological and environmental conditions.[30]

3.8. Bycatch in set-net fisheries is considered the most serious threat to the Hector's dolphin, followed by bycatch in trawl fisheries.[31] Toxoplasmosis, which is a parasitic disease spread by cat faeces and transported to the coastal environment via runoff, has also been identified as a significant human-induced threat to the Hector's dolphin.[32] It can infect dolphins when they ingest contaminated prey and is a confirmed cause of dolphin mortality.[33]

3.9. The latest conservation status assessment for the Hector's dolphin classifies the South Island population as 'threatened' and 'national vulnerable'.[34] The assessment advises that population declines are likely to have been significant in the past, though the extent of past declines is uncertain.[35] Certainly, observations and anecdotal evidence of dolphin mortality

[23] Roberts, J.O. et al. (2019), above n 20.
[24] Roberts, J.O. et al. (2019), above n 20.
[25] Roberts, J.O. et al. (2019), above n 20.
[26] Roberts, J.O. et al. (2019), above n 20.
[27] As demonstrated by Figure 1, at page 3 of the Fisheries New Zealand (2021) "Protecting South Island Hector's dolphins: Supporting Information: Further consultation on fisheries measures." Fisheries New Zealand Information Paper: 2021/17. Accessed online from: www.mpi.govt.nz.
[28] Refer: Slooten, E., and Dawson, S. (2021), above n 16.
[29] For example, by changing the spatial abundance and distribution or population structure of finfish species; and driving changes in dolphin hunting behaviours. The potential for change to occur to finfish populations is confirmed by Pinkerton, M.H (2017) "Impacts of Climate Change on New Zealand Fisheries and Aquaculture" https://doi.org/10.1002/9781119154051.ch5
[30] As demonstrated by the need to revise measures to achieve the objectives of the Hector's and Māui Dolphins Threat Management Plan, refer to: https://www.doc.govt.nz/get-involved/have-your-say/all-consultations/2019/hectors-and-maui-dolphins-threat-management-plan-review/
[31] Refer: Slooten, E., and Dawson, S. (2021), above n 16.
[32] Fisheries New Zealand, (2019) "Protecting Hector's and Māui Dolphins: Consultation on proposals for an updated Threat Management Plan", Discussion Paper June 2019, at page 29.
[33] Fisheries New Zealand, (2019), above n 32, at page 29.
[34] Baker, C.S., Boren, L., Childerhouse, S., Constantine, R., van Helden, A., Lundquist, D., Rayment, W., and Rolfe, J.R. (2019) "Conservation status of New Zealand marine mammals, 2019" New Zealand Threat Classification Series 29. Available from www.doc.govt.nz under "publications".
[35] Baker *et al.,* above n 34, at page 16.

off the Canterbury coast in the 1980's suggest historic mortality rates were unsustainably high, at approximately 57 deaths per year.[36]

3.10. The 2019 conservation assessment raises concern about the potential for fisheries risk to threaten the recovery of the South Island Hector's dolphin population; and identifies a residual risk of population decline across most of the species' habitat.[37] Key passages from the assessment are reproduced below:[38]

- *Available data on* [population] *trends are conflicting, with different methods resulting in strongly contrasting estimates of rates of decline.*

- *The decline has slowed at Banks Peninsula where protective measures are in place (Gormley et al. 2012) to reduce fisheries risks, but similar positive population-level effects of protection have not been demonstrated or investigated elsewhere.*

- *Disease and risks from fishing in dolphin habitat outside protected areas may still be sufficient to inhibit recovery (Roberts et al. in press).*

- *None of the data available on trends over the last three generations are conclusive, particularly with respect to fisheries risks in the 1970s and 80s. Our inference is that population declines are likely to have been significant in the past but have been reduced by protections in place at present.*

- *We are still concerned about the risk of decline across most of the species' range, particularly in areas where populations range outside currently protected areas. We are particularly concerned for small, isolated subpopulations around the South Island, which are likely to be less resilient to anthropogenic impacts.*

3.11. In short, the assessment recognises that current fisheries measures may have reduced the rate of historic population decline, but a moderate to high risk of further decline across Hector's dolphin habitat remains.

Management of fishing-related threats to the Hector's dolphin

3.12. Human-induced pressures on Hector's and Māui dolphin are managed by Fisheries New Zealand (**FNZ**) and the Department of Conservation (**DOC**) under a Threat Management Plan (**TMP**). As outlined in the Consultation Document, FNZ is responsible for managing the effects of fishing-related mortality to levels specified in the TMP.

3.13. Current set-net restrictions apply to most parts of the coastline, but the spatial and temporal coverage of these restrictions is variable. The highest level of restrictions occurs on the east coast, where the use of recreational and commercial set-nets is prohibited within 4 nm of the shore along most of the coastline, and extends out to 19 nm at Pegasus Bay and 12 nm at the Canterbury Bight.[39] A narrower commercial set-net restriction applies off Kaikōura, due to the abrupt transition to deep water. The use of commercial or

[36] As referenced in Mulcahy, K. and Peart, R., above n 4, at page 171. This work relied on research undertaken by Steve Dawson, and was based on interviews with commercial fishers in the Canterbury region.
[37] Baker *et al.,* above n 34, at page 16.
[38] Baker *et al.,* above n 34, at page 16.
[39] The analysis of current restrictions is based on the maps provided in the primary Consultation Document, above n 1, at pages 16 to 17.

recreational set-nets is prohibited within 4 nm of the north coast, and the eastern half of the south coast. The restrictions extend out to 10 nm at Te Waewae Bay (central south coast). Restrictions are weakest on the west coast, where the use of recreational set-nets are prohibited out to 2 nm along the northern and central parts of the coast (excluding Fiordland). A commercial set-net ban applies out to 2nm between Farewell Spit and Awarua Point, but only during summer months (1 December to 28 February).

3.14. Current trawl restrictions apply to the entire east coast, and the eastern half of the south coast. In these areas, the use of trawl methods is prohibited unless a vessel uses a low headline height trawl net (< 1 m). The use of trawl methods is prohibited in various discrete areas, including Fiordland and Marlborough Sounds.[40]

3.15. The coverage of current measures leaves gaps where fishing activity poses a risk to the Hector's dolphin population. Key gaps include the waters off Kaikōura, where commercial set-net activity is permitted; the waters off Bank's Peninsula, where there is inconsistency in the spatial extent of set-net restrictions; and the entire west coast, where there are limited restrictions on commercial set-netting. Further, the limited spatial scope of current trawl gear restrictions and closure areas means most of the Hector's dolphin habitat range is exposed to risk from trawl capture.

4. Background to current consultation on measures to protect South Island Hector's dolphins

4.1. In 2019, the TMP was revised and new population goals and objectives were set for the Hector's dolphin.

4.2. A specific population outcome was set, requiring that human impacts are managed to allow the population to increase to a level at or above 90% of the maximum number of dolphins the environment can support (**population outcome**).

4.3. Additional objectives were set to ensure fishing-related mortality rates do not exceed the population sustainability threshold (**PST**) with 95% certainty, cause localised depletion, or create substantial barriers to dispersal or connectivity between subpopulations.[41] The PST is defined as the maximum number of dolphin deaths per year that can occur while still allowing the population outcome to be achieved.[42] For localised populations of dolphins, another objective was set to allow these populations to recover to, and / or remain at or above 80% of unimpacted status with 95% certainty.[43]

4.4. The Consultation Document advises that current restrictions do not meet the specific fisheries objectives for the north coast, south coast and Kaikōura dolphin sub-populations.[44] FNZ proposes to set new measures to manage the effects of fishing-related mortality on these populations, in accordance with the minimum requirements of the TMP. All current measures will remain in place.

[40] Ibid.
[41] Fisheries New Zealand, above n 1, at page 15.
[42] Fisheries New Zealand, above n 1, at page 15.
[43] Fisheries New Zealand, above n 1, at page 15.
[44] Fisheries New Zealand, above n 1, at page 18.

4.5. The FNZ Discussion Document includes three options, in addition to the status quo (which is described as "Option 1"):[45]

- Implementation of a Bycatch Reduction Plan ("Option 2");
- Trawling gear restrictions ("Option 3"); and
- An extension to existing area-based bans on the use of commercial and recreational set nets ("Option 4").

4.6. This submission includes general comments on the proposals, followed by more detailed consideration of the specific options included in the Consultation Document.

5. Risk management approach underpinning the proposed measures

5.1. The proposals contained in the Consultation Document are informed by a spatial risk analysis of threats to Hector's dolphins.[46] The assessment estimated commercial fisheries risk and annual dolphin mortality rates, by modelling spatial overlap between dolphins and fishing efforts.[47]

5.2. Based on the spatial risk analysis, upper estimates of annual dolphin mortality from commercial set-net and trawl fisheries are highest for the east coast population (33.7 dolphins), followed by the west coast population (10.8 dolphins), south coast population (1.8 dolphins) and the north coast population (which had a risk score of 1.5).[48]

5.3. The proposals in the Consultation Document aim to reduce commercial fisheries risk to levels that are consistent with the population sustainability thresholds (PST) set by the TMP. The PSTs, or annual number of dolphins that can theoretically be killed without undermining the desired population outcome, are specified as: 46 dolphins (east coast), 25.9 dolphins (west coast), 1.57 dolphins (south coast) and 1.00 dolphin (north coast).[49] Consequently, under this management approach it is only considered necessary to reduce commercial-fishing risk to the north coast population and the south coast. In addition, necessary risk reduction was identified at Kaikōura (at the local population level).

5.4. EDS does not consider that the proposals in the Consultation Document go far enough. It is widely accepted that the Hector's dolphin population has experienced significant decline in the past, and current population trends are uncertain. As the latest conservation assessment identifies, there is a real risk that the population will continue to decline. EDS considers stronger regulatory action is required to further reduce dolphin bycatch, as this will support the recovery of the population and mitigate impacts from past and present fishing activity.

[45] Fisheries New Zealand, above n 1, at page 10 (summary).
[46] FNZ, above n 27, at page 4 (the supporting consultation document).
[47] Roberts *et al.* (2019), above n 20.
[48] FNZ, above n 1, at page 18 (the primary consultation document).
[49] FNZ, above n 1, at page 18 (the primary consultation document).

6. Advancing the case for a "zero-bycatch" approach

6.1. As described in "*Dolphins of Aotearoa: Living with New Zealand dolphins",* dolphins are highly intelligent and socially bonded mammals.[50]

6.2. New Zealander's have a special and close bond with dolphins, which has led to the development of regional tourism operations focused on seeing and interacting with dolphins in the wild; and special legislation for their protection.[51] Dolphins and other marine mammals are protected under the Marine Mammals Protection Act 1978, while other species are managed more generally under the Wildlife Act 1953. New Zealander's have consistently shown support for the continued protection of dolphins, and for eradicating existing threats to them. Recent public support for the Te Pēwhairangi (Bay of Islands) Marine Mammal Sanctuary is a testament to this enduring relationship.

6.3. Set-netting and trawl-netting are relatively indiscriminate methods of fishing and can also be destructive of the marine environment. Set-nets create large transparent 'walls' in the water, which dolphins may find difficult to detect. Once trapped, a dolphin is unable to swim backward or reach the surface, and eventually drowns.[52] Killing these threatened and vulnerable animals in fishing gear is causing significant pain and suffering, not only for the individual animals concerned but also for their tight, socially-bonded family groups. As well as impacting the health of the overall dolphin population, killing dolphins through the use of indiscriminate fishing methods is socially and culturally inappropriate and unacceptable on animal welfare grounds.

6.4. There is a need to reduce the cumulative human-induced pressures on Hector's dolphins if their future is to be secure. While many of the threats are difficult to control, bycatch is a serious threat that can be effectively managed under the existing regulatory framework. Therefore, EDS considers a reduction in dolphin bycatch should be addressed as a priority.

6.5. EDS considers a "zero-bycatch" approach is the most suitable option for managing the effects of fishing-related mortality on Hector's dolphins. A "zero-bycatch" approach is available to the Minister for Oceans and Fisheries (**Minister**) under the Fisheries Act 1996 (**the Act**). A zero-bycatch approach seeks to eliminate the risk of fishing-related mortality to Hector's dolphins, by preventing spatial overlap between dolphins and fishing activities that pose the greatest threat to the species.

6.6. To avoid the effects of further fishing-related mortality on Hector's dolphins, EDS considers a zero-bycatch approach should comprise:

(a) a prohibition on the use of trawl fishing methods within all known Hector's dolphin habitat (which extends out to the 100 m depth contour); and

(b) a prohibition on the use of commercial and recreational set-nets within all known Hector's dolphin habitat (which extends out to the 100 m depth contour).

[50] Peart, R., (2013), above n 5.
[51] Peart, R., (2013), above n 5.
[52] Mulcahy, K. and Peart, R., above n 4, at page 171.

6.7. Alternatively, a FRML of zero could be set, with a requirement that trawl and set net fisheries are closed for the balance of the fishing year once the FRML has been exceeded.

6.8. EDS considers the closure of the full extent of the Hector's dolphin habitat to all trawl and set-net fisheries is necessary to safe-guard the population from further decline.

6.9. Where available, aerial survey data demonstrates that Hector's dolphins are most abundant across shallow coastal waters (0 to 40 m depth range).[53] However, aerial surveys also indicate that dolphins are more widely distributed across deeper waters, with observations of Hector's dolphins in waters up to 200 m deep off the west coast, and up to 150 m deep off the east coast.[54] Available information on the abundance and distribution of the north and south coast sub-populations is less certain, though observed sightings of dolphins along these coasts suggests they occur across the same habitat range.[55]

6.10. The spatial risk analysis used to inform the proposals in the Consultation Document predicted spatial density patterns of Hector's dolphins across habitat with a maximum depth of 250 m.[56] While the risk analysis predicts the occurrence of highest dolphin densities within the 50 m depth contour, it also predicts the occurrence of lower densities of dolphins between the 50 m and 100 m depth contour.[57] There are also numerous validated public sightings of Hector's dolphins within this depth range.[58]

6.11. The coverage of current commercial and set-net restrictions is relatively extensive on the east coast of the South Island, but leaves Hector's exposed to risk in discrete areas, including off the Otago Peninsula and along the northern east coast, where set-net restrictions apply within 4 nm of the shore, but several verified sightings of Hector's dolphins have occurred beyond this limit.[59] Current restrictions also leave potential for dolphins to be exposed to set-net activity across a large area off the north coast of the South Island, where dolphin abundance data are least certain. As previously discussed, current set-net restrictions on the west coast are minimal, and do not adequately cover the predicted habitat range of Hector's dolphins in this area.

6.12. The coverage of current trawl gear restrictions leaves Hector's dolphins exposed to incidental trawl capture in all coastal waters surrounding the South Island. Current gear restrictions on the east and south coast are confined to the 2 nm limit, despite high spatial densities of dolphins being predicted to occur well beyond this distance.

6.13. Due to remaining uncertainty about the spatial distribution of dolphins around the South Island, EDS considers a cautious approach requires the prohibition of the use of trawl and set net fishing methods within the 100 m depth limit in all areas, as this represents the full habitat range of the Hector's dolphin. Full coverage of the Hector's dolphin habitat is necessary to protect the genetic diversity of local dolphin populations.

[53] As summarised in Roberts *et al.* (2019), above n 20, at page 13.
[54] Ibid.
[55] FNZ (2021), above n 1, at page 3.
[56] Roberts *et al.* (2019), above n 20, at page 13.
[57] For example, refer to FNZ (2021), above n 1, at page 3, where the predicted distribution of dolphins extends beyond the 50 m depth contour on the west coast of the South Island (from the central west coast to the northern west coast). Further, the predicted distribution extends out beyond the 50 m depth contour along the northern part of the east coast, and in parts of the central east coast.
[58] Ibid.
[59] FNZ (2021), above n 1, at page 3.

6.14. A zero-bycatch approach is consistent with the long-term objectives and goals of Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020. Of particular relevance to the proposed sustainability measures are the goals listed under objective 12 '*natural resources are managed sustainably*':[60]

a) *By 2025: the number of fishing-related deaths of protected marine species is decreasing toward zero for all species (Goal 12.2.1).*

b) *By 2030: the direct effects of fishing do not threaten protected marine species populations or their recovery (Goal 12.2.2).*

c) *By 2050: the mortality of non-target species from marine fisheries has been reduced to zero (Goal 12.2.3).*

6.15. A zero-bycatch approach is also consistent with the government's international obligations under the Convention on Biodiversity 1992, which include duties to prioritise the recovery of threatened species, and to avoid or minimise adverse impacts on biological diversity.

7. A regulated zero-bycatch approach is available under s 15(2) of the Act

7.1. Under s 15(2) of the Act, the Minister has statutory powers to "*take such measures as he or she considers are necessary to avoid, remedy or mitigate the effect of fishing-related mortality on any protected species*…".

7.2. In determining whether or not a measure is "*necessary*" for the purposes of s 15(2), the Minister must be guided by the purpose of the Act, and take into account the environment principles and information principles in sections 9 and 10 of the Act.

7.3. The purpose of the Act is to "*provide for the utilisation of fisheries resources while ensuring sustainability*".[61] The terms "utilisation" and "ensuring sustainability" are defined in s 8(2) of the Act, and are reproduced below:

"***ensuring sustainability*** *means -*

(a) *maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and*

(b) *avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment.*

utilisation *means conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural well-being.*"

7.4. The term "*aquatic environment*" is defined by s 2 of the Act, and includes "*the natural and biological resources comprising any aquatic ecosystem*" as well as "*all aquatic life*". The term "aquatic life" also has a specific meaning, which includes "*any species of animal life that, at any stage in its life history, must inhabit water*". Marine mammals fall within this

[60] DOC., (2020), "*Te Mana o Te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020*", at page 54, available from www.doc.govt.nz.
[61] Fisheries Act 1996, s 8(1).

definition. “Avoiding” adverse effects of fishing on Hector’s dolphins is therefore an option available under section 8.

7.5. In *New Zealand Fishing Council Inc v Sanford Ltd,* the Supreme Court provided the following interpretive guidance on the purpose of the Act:[62]

“*s 8(1) requires that in the attribution of due weight to each policy that given to utilisation must not be such as to jeopardise sustainability. Fisheries are to be utilised, but sustainability is to be ensured*”.

7.6. This judicial direction illustrates that avoiding, remedying or mitigating any adverse effects of fishing on marine mammals is an important priority in decision-making under the Act. Indeed, EDS considers the appropriate management of adverse effects constitutes an environmental bottom line that must not be undermined by the utilisation of fisheries resources.

7.7. In exercising powers to set sustainability measures under the Act, the Minister is required to take account of the environmental principles listed under s 9 of the Act:

(a) associated or dependent species should be maintained above a level that ensures their long-term viability;
(b) biological diversity of the aquatic environment should be maintained;
(c) habitat of particular significance for fisheries management should be protected.

7.8. For the purposes of s 9(a), the term “*associated or dependent species*” is defined in s 2 of the Act as “*any non-harvested species taken or otherwise affected by the taking of any harvested species*”. As previously described, Hector’s dolphins are accidentally caught during trawl and set net fishing operations, and therefore fall within the definition of an “*associated or dependent species*” under the Act.

7.9. In setting measures to manage fishing-related mortality effects on Hector’s dolphins, EDS considers the Minister is therefore required to consider the need to maintain the Hector’s dolphin population above a level that will ensure their long-term viability. This consideration must inform whether a measure is considered “necessary” under s 15(2) of the Act.

7.10. For the purposes of s 9(b), the term “*biological diversity*” is defined in s 2 of the Act as “*the variability among living organisms, including diversity within species, between species, and of ecosystems*”. Consequently, in determining whether a measures is “necessary” for the purposes of s 15(2), EDS considers the Minister is required to take account of the need to safe-guard genetic diversity within the Hector’s dolphin species; as well as the need to maintain the important diversity Hector’s dolphins represent within marine ecosystems (nationally and internationally).

7.11. In accordance with the information principles listed under s 10 of the Act, the Minister must *inter alia* take into account the best available information, consider any uncertainty in the available information, and adopt a cautious approach when information is uncertain, unreliable or inadequate.

[62] *New Zealand Recreational Fishing Council Inc and anor v Sanford Limited and others* [2009] NZSC 54, at [39] to [40].

7.12. Based on a review of available information, EDS considers there is scientific uncertainty in regard to:

a) the abundance and distribution of dolphin populations;[63]

b) the effectiveness of available mitigation measures (especially trawl gear restrictions);[64]

c) the residual fishing-related mortality risk to Hector's dolphins;[65] and

d) the long-term population trend of Hector's dolphins.[66]

Due to this uncertainty, EDS considers a cautious approach should be adopted by the Minister when determining what measures are "necessary" for managing the effects of fishing-related mortality on Hector's dolphins under s 15(2) of the Act.

7.13. EDS considers a prohibition on the use of trawl and set-net fishing methods within the 100 m depth contour is prudent in order to reduce the risk of population decline across the Hector's dolphin habitat range. Managing the risk of bycatch provides the best opportunity to reduce cumulative pressure from human activities on the Hector's dolphin. By avoiding the effects of fishing-related mortality on Hector's dolphins, EDS considers the zero-bycatch approach recognises the need to maintain the population above a level that will ensure its long-term viability, while minimising localised depletion and loss of genetic diversity within the species and across marine ecosystems more generally. This outcome will achieve the purpose of the Act, while giving effect to applicable environmental principles.

7.14. For these reasons, EDS requests that FNZ include a zero-bycatch approach, as an additional fifth option, for ministerial consideration.

7.15. The remainder of this submission comments on the proposed options contained in the Consultation Document.

8. Comments on the proposed Bycatch Reduction Plan (Option 2)

Aim and general approach

8.1. FNZ proposes to implement a proposed Bycatch Reduction Plan to reduce fishing-related mortality of Hector's dolphins. The scope of the BRP will cover the north, east, and south coast dolphin sub-populations. It is not proposed to include the west coast dolphin sub-population.

8.2. As described in the Consultation Document, the goal of the proposed BRP is "*to support fishers to continually improve practices and **avoid all Hector's dolphin captures over time**, including developing and adopting new mitigation methods*" (emphasis added).[67]

[63] Refer to the summary of available abundance and distribution information provided by Slooten, E., and Dawson, S. (2021), above n 16.
[64] This uncertainty is recognised explicitly by the Consultation Document, refer FNZ (2021), above n 1, at page 40.
[65] The residual risk is estimated in the spatial risk assessment undertaken by Roberts et al. (2019), above n 20. As discussed in Slooten, E., and Dawson, S. (2021), the spatial risk analysis relies on an "unvalidated habitat model", which has been critiqued by international experts. Further, the estimates of current fishing-related mortality risk do not account for recreational fishing efforts.
[66] Baker *et al.* (2019), above n 34, at page 16.
[67] FNZ (2021), above n 1, at page 30.

8.3. The BRP proposes to:

- set a regulated fishing-related mortality limit (**FRML**) for east coast and south coast Hector's dolphin populations;
- specify vessel-based and area-based escalating responses to accidental Hector's dolphin captures;
- encourage the implementation of voluntary Protected Species Risk Management Plans on all set net and trawl vessels; and
- leverage off new technology, including regulated on-board cameras, to monitor and verify commercial fishing reporting.

8.4. While EDS considers some of the proposed BRP components have merit, EDS does not support a reliance on the BRP because it provides no certainty of achieving a reduction in fishing-related mortality through time. EDS considers strong regulatory tools are required as well to reduce the risk of population decline, and to promote the future recovery and resilience of the species.

8.5. EDS does not support the proposed exclusion of the west coast sub-population of Hector's dolphins from the BRP, where the coverage of restrictions on the use of set-nets and trawl fishing methods are spatially and temporally limited. As protective measures and associated fishing restrictions are strengthened across other inshore habitat, EDS considers there is a risk that fishing pressure will shift toward more exposed areas including the west coast, where there are less restrictions. It is essential that the genetic diversity of the west coast sub-population is protected. Therefore, EDS requests that the proposed scope of the BRP is expanded to include this sub-population.

Proposed fishing-related mortality limits (FRML)

8.6. EDS does not support the proposed fishing-related mortality limits (**FRML**) because EDS considers that a zero-bycatch approach should be adopted.

8.7. If FNZ includes FRMLs in advice to the Minister, EDS requests that FNZ revisit the FRML to ensure they accommodate the lowest possible level of bycatch. EDS considers some of the FRML have been set too high, would allow an increase in dolphin bycatch, and therefore accommodate unsustainable levels of risk to dolphin sub-populations. EDS considers a stricter approach is required to ensure dolphin bycatch is reduced through time, and eventually eliminated, in accordance with the objectives of the national biodiversity strategy.

8.8. EDS has concerns about the general approach underpinning the setting of FRML. The FRML are informed by the population sustainability thresholds (PST) for each dolphin sub-population or local population, which are in turn informed by estimates of the abundance of dolphins within applicable areas.[68] Uncertainty in the abundance of dolphin sub-populations therefore flows through to influence the reliability of the PST.

[68] FNZ, above n 27, at page 4 (the supporting consultation document).

8.9. Notwithstanding this uncertainty, some of the proposed FRML have been set to match the PST of local dolphin populations (e.g., for the Cloudy Clifford and Otago populations). In these examples, EDS considers the FRML therefore equates to the maximum level of fishing-related mortality that can be sustained by the dolphin population, without including a precautionary buffer, despite scientific uncertainty in understanding what sustainable risk levels really are.

8.10. In addition, EDS considers there are worrying discrepancies between the FRML and the estimated annual rates of commercial-fishing related dolphin mortality, which suggest the FRML are too high, and do not provide for effective risk reduction through time.

8.11. For example, the proposed FRMLs for the Cloudy Clifford and Otago sub-populations exceed estimates of mean annual fishing-related mortality.[69] The proposed FRML for the Cloudy Clifford sub-population is 5 dolphin deaths per year. The applicable PST for this sub-population is 5.2, while the estimate of commercial fishing-related deaths is 0.45 dolphins (mean), with a 95 percent confidence interval of 0.16 to 0.92 dolphins per year. EDS considers the setting of an FRML that is equivalent to the PST (5 dolphins), not only accommodates the current commercial fishing-related mortality rate (1 dolphin based on the upper estimate), but also enables an increase in fishing-related mortality of 4 dolphins. EDS considers this outcome does not represent effective risk reduction.

8.12. In addition, although the proposed FRML for the Banks Peninsula sub-population (of 18 dolphins) is lower than the applicable PST (of 45 dolphins), it greatly exceeds the estimated commercial fishing-related mortality rate for this area (4.7 dolphins).

8.13. To safe-guard populations from further decline, EDS considers it is necessary to minimise the level of risk that is accommodated by FRML. Setting FRML that accommodate the maximum number of dolphin deaths that can be sustained by a population (theoretically), when inputs are informed by uncertain data, does not sufficiently apply a precautionary approach.

8.14. EDS considers that FRML could be used as a regulatory tool for reducing dolphin bycatch through time, but if such an approach is adopted, lower settings must be applied to account for uncertainty and encourage risk reduction. For this reason, EDS suggests amending the proposed FRML to zero, or setting it on a sliding scale towards zero, which would support a zero-bycatch approach. This approach would have flow-on consequences for the proposed escalating response framework, by triggering action earlier (after every recorded dolphin capture event). EDS considers a stronger regulatory approach will provide the best opportunity of reducing dolphin bycatch, and therefore enhance the resilience of the Hector's dolphin population.

8.15. In summary, EDS does not support the proposed FRML for two reasons. First, EDS considers that any dolphin bycatch should be avoided if at all possible. In addition, the approach gives too much weight to the optimal utilisation of fisheries, by accommodating fisheries-related mortality up to the PST. Second, EDS considers the setting of static limits, with no provision for their adaptation through time or in response to changing population trends, does not support a reduction in the effect of fishing-related mortality through time.

[69] For the information relied on in this example, refer to FNZ (2021), above n 27, at page 13.

8.16. If FNZ decides to include the proposed FRML for ministerial consideration, EDS requests the following amendments:

a) FRML are set for all dolphin populations and sub-populations, including the west coast and north coast dolphin populations; and

b) all FRML are set to zero, or are set on a sliding scale towards zero, to indicate that by-catch of Hector's dolphins needs to be avoided and should be reduced over time.

Proposed vessel and area-based responses to reported dolphin captures

8.17. EDS supports the establishment of vessel-based and area-based escalating response frameworks. However, EDS has concerns about uncertainty and the lack of specificity in the proposed frameworks. Further, EDS considers the proposed responses are not strong enough to effectively reduce fishing-related mortality of Hector's dolphins.

8.18. The proposed vessel-based response framework comprises voluntary guidelines for fishers to follow after dolphin capture events. The guidelines seek to improve the quality of information reported after each capture event; to enable identification of commonalities between capture events; and to encourage fishers to take voluntary action to mitigate fishing-related mortality effects on Hector's dolphins.

8.19. EDS has concerns about the potential for non-compliance with the voluntary response framework to undermine efforts to reduce fisheries-mortality risk. For example, vessel compliance with the proposed information requirements will depend on the extent to which fishers are willing to cooperate and release potentially commercially sensitive information to other stakeholders. Other responses are also voluntary, and rely on fishers to implement plans and practices of their own accord. There are no disincentives for fishers that choose not to comply with recommended practices, meaning fishers that are committed to a reduction in fishing-related mortality rates will bear the brunt of the proposal, while other fishers can continue to adopt unsustainable practices.

8.20. EDS considers the proposed area-based response framework does not contain sufficient certainty or specificity to safeguard Hector's dolphins from the effects of fishing-related mortality. For example, the response framework does not include any mandatory actions following an exceedance of a specified trigger threshold. The Discussion Document advises that FNZ "*may*" increase monitoring efforts, but this is not required. EDS is concerned that the level of discretion afforded to FNZ could lead to delays and uncertainty in decision-making once an FRML is approached or exceeded. EDS considers clearer direction is required to ensure the response framework is effective at reducing bycatch through time.

8.21. EDS requests that stronger responses are included in the proposed area-based response framework. The proposed responses provide for the continuation of fishing despite an FRML being approached or exceeded. EDS considers this outcome is not acceptable, and undermines the effectiveness of the system. Stronger responses have been adopted to safeguard the New Zealand sealion from fishing-related mortality in the squid trawl fishery. On the exceedance of an FRML, the squid fishery is required to close for the balance of the fishing season without consultation via notice in the Gazette. FNZ then works with vessel

operators to ensure that fishers are aware of estimated mortalities compared to the FRML throughout the season.[70]

8.22. If FNZ decides to include the proposed escalating response frameworks in advice to the Minister, EDS requests the following amendments:

Vessel-based responses

a) following any accidental capture of a Hector's dolphin, the responsible vessel must cease fishing immediately, return to port, and develop a vessel-specific response plan with mitigation measures for the approval of a DOC liaison. Fishing activity cannot re-commence until the response plan has been approved by the DOC liaison.

Area-based (fleet level) responses

b) the inclusion of an immediate prohibition on the use of set-nets and trawl fishing methods for the balance of the fishing season on the exceedance of the FRML. Fishing activity should not commence until FNZ has conducted a review of available regulatory options for avoiding fishing-related mortality effects on Hector's dolphins, and the Minister has determined whether or not to implement additional measures.

Proposed voluntary Protected Species Risk Management Plans

8.23. The BRP includes a proposal for each set net or trawl vessel operator to follow a voluntary Protected Species Risk Management Plan (**PSRMP**), kept on-board. FNZ proposes to work with DOC and fishers to include measures the vessel should follow to avoid or mitigate any dolphin bycatch. Proposed measures include move-on rules when dolphins are encountered; not deploying or hauling the net when dolphins are seen; areas or times where fishing should be avoided; immediate notification of a dolphin capture to a Liaison Office; and prompts for additional reporting of information around dolphin capture events.

8.24. EDS supports the use of PSRMP, but has concerns about the PSRMP being a voluntary tool, which means that fishers are not required to comply with best practice; and therefore, face no repercussions for not doing so. Further, due to insufficient information about the effectiveness of fishing mitigation measures, there is no certainty the PSRMP will effectively reduce fishing-related mortality.

8.25. If FNZ decides to include the proposed escalating response frameworks in advice to the Minister, EDS requests the following amendments:

a) the PSRMP is mandated for all recreational and commercial fishing vessels. A mandatory (as opposed to a voluntary) approach will establish minimum requirements for mitigating the effects of fishing on Hector's dolphins; and promote consistency between vessels. It will also improve the quality of information on dolphin capture events; and promote the development of more effective bycatch mitigation methods through time.

[70] Refer to the Squid 6T Operational Plan 2019-2023, available from www.mpi.govt.nz.

Leveraging off new technology

8.26. FNZ proposes to enhance monitoring of fishing-related mortality events, by using footage from regulated on-board cameras to verify fisher reporting. The Consultation Document advises that a risk-based approach will be undertaken to optimise levels of footage review to detect Hector's dolphin interactions, by considering:[71]

- *the likelihood and severity of consequence of by-catch on the sub or local population;*
- *vessel specific factors, such as non-compliance or previous dolphin interactions;*
- *area-specific factors, such as previous Hector's dolphin interactions in the local area.*

8.27. EDS supports this proposal in principle, but considers additional monitoring will be required to manage regulatory blind-spots arising out of the proposed scope of regulated on-board cameras.

8.28. The proposed scope of regulated on-board cameras will exclude 120-130 set net vessels less than 8m in length that target flatfish and mullet in semi-enclosed waters.[72] EDS considers the exclusion of set net vessels is of particular concern, as these inshore vessels operate in the Hector's dolphin habitat range. Commercial set-netting remains permitted across the extent of the west coast (with a small area excluded within summer months), and beyond the seaward extent of current restrictions elsewhere. Further, the on-board cameras will not include coverage of recreational set netting vessels. This monitoring blind spot could distort estimates of fisheries risk to Hector's dolphins, particularly if fishers are deterred from reporting catches (albeit illegally) out of fear they may be encouraged to implement additional mitigation measures.

8.29. EDS notes the proposed roll-out of onboard cameras is proposed to commence in late 2022, and is anticipated to take approximately 2 years to complete. EDS considers additional monitoring will be required during this time period, to support verification of fisher reporting.

8.30. EDS requests that FNZ include consideration of additional monitoring tools and approaches to address these regulatory blind spots. A reliance on onboard cameras leaves large gaps in respect of set netting vessels, which pose the greatest threat to Hector's dolphins; and mid-depth trawl vessels which operate within the habitat range of Hector's dolphins.

9. Comments on proposed trawl-gear restrictions (Option 3)

9.1. As previously described, under current fishing regulations, the use of trawl gear is prohibited within 2 nm of the east and south coasts of the South Island, unless a commercial fisher is using a low headline height trawl net (< 1 m) (**Option 1**). There are also

[71] FNZ (2021), above n 1, at page 37.
[72] As described in FNZ (2021) "Consultation: Wider rollout of on-board cameras: FNZ Consultation Document October 2021", available from www.mpi.govt.nz.

a number of small and discrete nearshore areas, including internal fjords and sounds, where the use of trawl gear is prohibited.[73]

9.2. The FNZ Consultation Document includes consideration of a potential extension to existing trawl gear restrictions to include:[74]

- the area within 2 nm of the shore from Farewell Spit to Cape Soucis (covering most of the north coast but excluding the inner waters of the Marlborough Sounds where trawling is already prohibited);
- areas around Pegasus Bay and the South Canterbury Bight (an expansion to existing east coast restrictions); and
- the entirety of Te Waewae Bay, and the area within 4nm of the shore from Sand Hill Point to Wakaputa Point (an expansion to existing south coast restrictions).

9.3. The Consultation Document advises that FNZ does not prefer this option, though it is included for consideration.

9.4. EDS supports Option 3 as a minimum requirement, but does not consider it represents a sufficiently cautious approach to managing fishing-related mortality impacts on the Hector's dolphin population. EDS requests the implementation of stronger regulatory measures, consistent with the proposal to adopt a zero-bycatch approach, as discussed at paragraphs [6.1] to [7.15] of this submission.

9.5. Information on the number of dolphins caught in trawl fisheries is uncertain, due to limited observer coverage across inshore trawl fisheries; and incomplete bycatch records. Consequently, there is insufficient information to generate reliable estimates of the risk of trawl capture to Hector's dolphins. Observer coverage of trawl captures has led to one dolphin death being recorded, though fisher-reported data suggests there has been at least 13 capture events, and six of those events represented multiple captures of between two and four dolphins.[75]

9.6. Observations of large groups of Hector's dolphins following trawl vessels to feed on fish stirred up by the trawl net indicates there is a potentially serious risk of potential interactions between Hector's dolphins and trawl nets.[76]

9.7. There is no scientific evidence to suggest existing trawl gear restrictions, which impose a maximum headline net height of 1 m, are effective at reducing the risk of dolphin capture by trawl vessels. It is essential that resources are channelled toward the testing of available mitigation tools, including the use of small trawl nets and reduced vessel speeds. In the interim, these unproven methods should not be relied on to protect Hector's dolphins.

9.8. Inshore trawl fishing efforts are more widely distributed than set-net fishing activities, yet few inshore coastal areas are closed to the use of trawl methods. EDS requests that

[73] FNZ (2021), above n 1, at page 17.
[74] FNZ (2021), above n 1, at pages 40-41.
[75] As described in the FNZ (2020), "Aquatic Environment and Biodiversity Annual Review 2019-2020", compiled by the Fisheries Science Team, Ministry for Primary Industries, Wellington, NZ, at pages 64 and 150, available from www.mpi.govt.nz.
[76] Slooten, E., and Dawson, S. (2021), above n 16, at page 3.

additional consideration be given to area-based closures in areas where Hector's dolphins are most abundant. Based on the spatial risk analysis relied on in the Consultation Document, priority areas include Pegasus Bay, the South Canterbury Bight, Te Waewae Bay, and the central west coast.

9.9. If FNZ does not include consideration of a zero-bycatch approach in advice to the Minister, EDS requests that FNZ include consideration of an additional proposal to establish smaller area-based closures, covering key Hector's hot-spots. A reliance on unproven trawl gear restrictions is not acceptable mitigation of fishing-related mortality on a species that is at threat of extinction.

9.10. Alternatively, if FNZ chooses to rely on trawl gear restrictions, EDS request that the proposed restrictions be extended to include the entire Hector's dolphin habitat range (all waters within the 100 m depth contour).

9.11. EDS does not support the status quo in regard to trawl gear restrictions (Option 1).

10. Comments on the proposed extension of recreational and commercial set net closure at Banks Peninsula (Option 4)

10.1. FNZ proposes to extend existing recreational and commercial set net closures around the Banks Peninsula area (between Goat Point and Snuffle Nose out to 12 nm offshore).

10.2. EDS supports Option 4 as a minimum requirement, but does not consider it represents a sufficiently cautious approach to managing fishing-related mortality impacts on the Hector's dolphin population. EDS requests the implementation of stronger regulatory measures, consistent with the proposal to adopt a zero-bycatch approach, as discussed at paragraphs [6.1] to [7.15] of this submission.

10.3. If FNZ does not include consideration of a zero-bycatch approach in advice to the Minister, EDS requests the inclusion of an additional proposal to extend area-based commercial set-net closures along the extent of the west coast of the South Island. As previously described, the use of set-nets by commercial fishers is relatively unrestricted along the extent of the west coast of the South Island, with the exception of a small inshore area (within 2nm of the shore) over summer months. EDS requests that current set-net settings be extended to include the vulnerable west coast dolphin population, as a minimum.

10.4. EDS does not support the status quo in regard to set-net restrictions (Option 1).