Revision of the Hector's and Māui Dolphin Threat Management Plan: Non-fishing Measures

Advising agencies	*Department of Conservation*
Decision sought	*To note measures to manage the effects of (non-fishing) impacts on Hector's and Māui dolphins as part of a revised Hector's and Māui Dolphin Threat Management Plan.*
Proposing Ministers	*Hon Eugenie Sage* *Minister of Conservation*

Summary: Problem and Proposed Approach

Problem Definition

What problem or opportunity does this proposal seek to address? Why is Government intervention required?

Both Hector's and Māui dolphins are classified as threatened species, which have the greatest risk of extinction. Māui dolphins are ranked as Nationally Critical, which are the most severely threatened, and face an immediate high risk of extinction. Hector's dolphins are ranked as Nationally Vulnerable, and face a risk of extinction in the medium term[1].

Threats to Māui and Hector's dolphins are managed under the Hector's and Māui Dolphin Threat Management Plan[2], which provides the framework for the identification and effective management of threats by the Department of Conservation and Fisheries New Zealand[3].

In 2018 the Ministers of Conservation and Fisheries jointly confirmed the requirement for a review of the Threat Management Plan. New scientific information[4] gathered as part of the review demonstrates that human-induced threats to the Māui dolphins and Hector's dolphins are preventing the populations from achieving the desired population outcomes and objectives for each subspecies as set out under their Threat Management Plan.

1 Māui dolphin has a population estimated at 63 animals over the age of 1 year, with the only known population living on the west coast of the North Island. Hector's dolphins has a population estimated at 15,000 animals, with populations living off the north coast, east coast and south coast of the South Island, with few animals also sighted on the east coast of the North Island . Both sub-species are unique to New Zealand.

2 The Threat Management Plan was developed in 2008 to respond to public and Government concern about the effect of human-induced threats to these dolphins. The Māui component was reviewed in 2012, and the first complete review of the Plan was undertaken in 2019.

3 Fisheries New Zealand is a business unit within the Ministry for Primary Industries. It operates the country's fisheries management system, which provides New Zealanders with sustainable access to wild fisheries for tangata whenua, recreational and commercial fishers.

4 A risk assessment undertaken for the review identified human-threats potential threats to the dolphins from fishing, the disease toxoplasmosis, seismic surveying, seabed mining, tourism, vessel traffic, oil spill risk, coastal development, pollution, sedimentation, and climate change.

The population outcomes and objectives are designed to support the populations to achieve levels close to what they would be without human-induced impacts, and to ensure that population connectivity and dispersal are supported for the whole species. Population trends are uncertain, but the science indicates that any human-induced deaths would have effects on the populations, potentially affecting the ability to recovery or contributing to further decline. It is important that human-induced threats are managed to allow the population outcomes and objectives to be achieved.

Marine mammals are given some protection from some of these harmful activities under current legislation. New information from the review shows current regulatory settings are not sufficient to manage the risk. Further measures targeted to those human-induced activities that pose the highest risk are required if Māui and Hector's dolphins are to achieve the desired population outcomes[5].

This RIA focuses on the following non-fishing related threats to dolphins:

- the lethal threat of the disease toxoplasmosis (a lethal disease spread by cat faeces and transported into the coastal environment through runoff from land); and
- the sublethal threat of seismic surveying (because of the very loud underwater noise produced by the airgun rays); and
- the sublethal threat of seabed mining (through a combination of underwater noise, direct seabed disturbance, and the discharge of sediments).

New information indicates that these threats are the greatest non-fishing threats to Hector's and Māui dolphins that can be addressed through regulatory change.

No restrictions are proposed on the following activities because they are either considered to be of low risk and/or can be managed under appropriate legislation such as the Fisheries Act: aquaculture, shipping and vessel traffic, coastal recreation (including tourism), oil spills, other pollution and sediment run-off, coastal development, climate change.

Summary of Preferred Option or Conclusion (if no preferred option)

How will the agency's preferred approach work to bring about the desired change? Why is this the preferred option? Why is it feasible? Is the preferred approach likely to be reflected in the Cabinet paper?

The regulatory measures will significantly strengthen the existing regulatory regime that protects the dolphins from some key sources of human-induced mortality and harm. These interventions draw upon new information about the dolphins and will significantly reduce the remaining risk of harm and help achieve the desired outcomes.

The preferred option is to put in place a mix of regulatory interventions to extend the current restrictions or to create new ones on seismic surveying and seabed mining (subject to limited exceptions), as well as implement a Toxoplasmosis Action Plan[6].

5 Fishing-related threats are the subject of a separate work-stream and a separate regulatory impact statement prepared.

6 The Toxoplasmosis Action Plan is a non-regulatory intervention. It was the only proposal included in the June 2019 discussion document to address the lethal threat from the disease of toxoplasmosis, other than the status quo.

The interventions will apply to the different subpopulations of Hector's and Maui dolphins and these are discussed later in the RIA. This is the best option as it:

- provides the most comprehensive means of implementing spatially targeted risk reduction measures across seismic surveying and seabed mining activities; and
- allows commercial activities to continue in the marine environment, subject to limits.

It is proposed that the prohibitions and restrictions will apply in all five current Marine Mammal Sanctuaries, including proposed extensions to the West Coast North Island and Banks Peninsula Sanctuaries. The proposals will be implemented under section 22 of the Marine Mammals Protection Act 1978.

The Department of Conservation acknowledges the regulatory initiatives are a balancing act between public expectations, New Zealand's obligations to its marine mammal species, and commercial and recreational interests.

This approach is reflected in the Cabinet paper.

Section B: Summary Impacts: Benefits and costs

Who are the main expected beneficiaries and what is the nature of the expected benefit?

The main expected benefits (primarily non-monetised) of the proposal are to Hector's and Māui dolphin subpopulations, general public and the marine environment as a whole. The beneficiaries are outlined below:

Hector's and Māui dolphin subpopulations: a reduction in harm, injury and mortality from human induced threats from seabed mining and seismic surveying activities[7] as well as the disease toxoplasmosis is expected to support the maintenance of, or increases in, local and subpopulation dolphin numbers, and to support maintaining and / or enabling connectivity between local an subpopulations to support genetic biodiversity, noting however that benefits may not be realised if other human-induced threats (i.e. fishing) are not also managed. This is expected to remove the risk of extinction in the short term and maintain the ability of the species to recover if further recovery support can be provided in future.

General public: Providing New Zealanders the reassurance and confidence that action is being taken such that the impacts on the dolphins from the lethal threat of the disease toxoplasmosis are being addressed, and the sub-lethal threats from seabed mining and seismic surveying are properly and responsibility managed. There is very high interest among New Zealanders in Hector's and Māui dolphins. The 2019 public consultation on the proposals for an updated Threat Management Plan received 15,263 submissions in total, reflecting widespread interest in the dolphins. The Department of Conservation enjoys high levels of support among coastal communities on the east coast of the South Island, and the west coast of the North Island, in reporting on the welfare of Hector's and Māui dolphins.

7 All these activities emit numerous chemical and physical pollutants (including noise) that have potential to affect Hectors /Maui dolphins, directly or indirectly.

Tourism: Improved public confidence in marine mammal protection from the disease toxoplasmosis and mining and seismic surveying impacts could potentially enhance opportunities for the ecotourism industry within New Zealand and may bring indirect benefits to domestic tourism, specifically to the tourism operators in the South Island who have existing concessions to undertake dolphin watching and swimming activities.

Marine users: Improved certainty about the extent and type of activities and use allowed in key habit areas for the dolphins.

Marine ecosystem: The controls will benefit other elements of the marine environment. For example, seismic surveying is known to cause lethal effects on species such as squid which are important parts of marine food chains, and seabed mining can have significant effects on benthic (seabed) habitats and species. Actions to reduce land-based pollutants in the marine environment will have major benefits for estuarine habitats and coastal fisheries which rely on those.

Government: Benefits will include improving Hector's and Māui dolphins' threat classification statuses, recognising they are collectively a species unique to New Zealand. A secondary benefit will be in New Zealand's international reputation in conservation of marine mammals and their habitat. New Zealand would enhance our reputation as a country seeking to improve the environmental performance of its industries.

Industry: The proposals will also give greater legal certainty to industry and signal the Government's medium to long-term environmental objectives to parties conducting seismic surveying and seabed mining activities in Marine Mammal Sanctuaries. Reductions in the effects of seismic surveying, seabed mining and sediment inputs on dolphins will also benefit other aspects of the marine environment, and are likely to reduce impacts on fisheries.

Where do the costs fall?

Costs will come in immediate and short-term costs, and longer-term foregone opportunities, as follows:

Immediate and short-term costs:

- The Department of Conservation will carry on-going costs in administering what are major expansions of two Marine Mammal Sanctuaries.
- 9(2)(f)(iv) [redacted]
- For the Government and Department of Conservation as the administrator of the sanctuaries and the proposed Toxoplasmosis Action Plan the total costs are expected to be $20 m - $25 m over five- years. Approximately half this cost will be in the Toxoplasmosis Action Plan.
- Costs include increased monitoring and compliance activities such as monitoring public engagement with the Threat Management Plan, maintaining the risk assessment, population monitoring and including the necropsy contract with Massey University.

Long-term costs and foregone opportunities:

- Costs to the Department of Conservation are nil for seabed mining prohibitions, though there are substantial opportunity costs to New Zealand. For seismic surveying proposals, Department of Conservation will have costs associated with implementing the 2013 Code of Conduct for minimising acoustic disturbance to marine mammals from seismic survey operations (the Code of Conduct). However, the Department of Conservation already works with operators who implement the Code of Conduct on a voluntary basis, so additional costs are only anticipated when enforcement action is required. These costs are anticipated to be marginal. Cost to industry is also anticipated to be marginal as the code is already in effect, either on a mandatory basis (such as in the exclusive economic zone) or voluntary basis (territorial sea).
- Limits on seabed mining will effectively prevent new mining in the Marine Mammal Sanctuaries. Potential discoveries of deposits will be foregone, imposing an economic cost on New Zealand and the exploration and mining sectors. This cost is limited to the west coast of the North Island, which is the only area where interest in such exploration and mining has been identified.
- The in-situ value of the resources has been estimated in the 2019 RSC Offshore Mineral Assessment report against the areas affected by options proposed in the Threat Management Plan discussion document, split between North (the current boundaries) and South (the proposed extension) areas of the West Coast North Island Marine Mammal Sanctuary. The estimate has assumptions based upon depth, density, recovery and iron sand price, which the Ministry of Business Innovation and Employment has reviewed and accepts as reasonable. It is important to note this assessment is of in-situ mineral resource prospectivity. Wider economic values were not assessed. Operational factors or other practical constraints were also not considered. The prospectivity data therefore have low levels of confidence.

Median values from the report are provided below:

Area	Iron sand value (NZD)		Vanadium value (NZD)[8]	
	North	South	North	South
12NM Limit	180 Billion	140 Billion	240 Billion	180 Billion

- Potential compliance costs of seeking the consent of the Minister of Conservation and Minister of Energy and Resources to undertake seismic surveying by exemption. These costs have not been quantified as they are hypothetical. It is unknown whether there will be seismic survey proposals that would seek to meet this exemption. Costs are likely to be similar to complying with other environmental regulations and within expected costs of such projects.

8 Vanadium has potential application in high energy density batteries, which may emerge as a method for managing peak loading in electricity markets. Vanadium extraction occurs as a secondary benefit of iron sand extraction.

What are the likely risks and unintended impacts? how significant are they and how will they be minimised or mitigated?

Litigation

9(2)(h) [redacted]

Effectiveness

Regular monitoring will enable the Department of Conservation to reassess risk and respond if necessary. Benefits may not be realised if other human-induced impacts, particularly those relating to fishing, are not also managed. The Department of Conservation will continue to work with Fisheries New Zealand to ensure agencies are aligned in efforts to manage human-threats and support achieving the objectives.

Impacts on individuals

The proposed measures will likely affect some businesses and individuals however these will be significantly mitigated by the proposed exemptions.

Consultation feedback shows the proposed measures are largely supported with the exception of the mining and petroleum industry. Iwi, environmental groups, academics, and the general publics' submissions heavily favoured banning seismic surveying and seabed mining within Marine Mammal Sanctuaries. The Gazette Notice process provides a further opportunity for input on these proposals, including on the extended seabed mining prohibitions.

Impacts on Māori interests

Decisions to vary the sanctuaries must be made in accordance with the Crown's obligations in relation to the Treaty of Waitangi.

The Department of Conservation has engaged with Māori on the proposed measures as part of the Threat Management Plan review process. Iwi, hapū and whānau supported protecting the dolphins from seismic surveying and seabed mining within the sanctuaries. Most iwi submissions called for more extensive seabed mining restrictions in dolphin habitat. Some concerns, however, were expressed about the engagement process. The Department of Conservation will continue to engage with Māori on the proposals alongside the Gazette Notice process calling for public submissions.

A submission from Te Korowai o Te Tai o Marokura included the proposal to ban seabed mining in the Te Rohe o Te Whānau Puma Whale Sanctuary as part of their 'Option Kaikōura' which aimed to "support the purpose of the Kaikōura (Te Tai o Marokura) Marine Management Act 2014".

This is outside of the scope of the Threat Management Plan review it is proposed but will be progressed concurrently and the Gazette process will provide an opportunity for public submissions. Iwi engagement will continue through this period.

International obligations

Under the UN Convention on the Law of the Sea (UNCLOS), foreign researchers must seek consent from New Zealand to undertake marine scientific research (MSR) in our exclusive economic zone and territorial sea – including seismic surveying within MMSs. New Zealand has wide discretion to decline MSR requests in our territorial sea, so the proposed Marine Mammal Sanctuary variations will not conflict with our UNCLOS obligations as any seismic survey requests within these areas can be declined if warranted.

However, in the exclusive economic zone UNCLOS provides only four grounds on which a coastal state can decline a Marine Seismic Research request (Article 246(5)). Seismic surveying undertaken as part of mining exploration or exploitation can be declined within Marine Mammal Sanctuary in the exclusive economic zone. For non-commercial seismic surveying research, however, New Zealand can only request foreign vessels to comply with the Code of Conduct in granting coastal state approval to conduct marine scientific research, and cannot prohibit such surveys by foreign research vessels in sanctuaries in our exclusive economic zone.

Since 2013 (when the Code was implemented) New Zealand has received on average less than 1 application per year for seismic surveying for MSR from foreign vessels (5 applications over a period of 8 years). The marine mammal sanctuaries and proposed extensions are largely, although not exclusively, within New Zealand's territorial sea so in practice this is unlikely to cause any issues.

Section C: Evidence certainty and quality assurance

Agency rating of evidence certainty?

We have reasonable confidence about the evidence base for the size of the problem, effectiveness of the policy options, and associated cost and benefits. The revised policy and regulatory proposals are supported by information compiled to support the Threat Management Plan review and includes:

- Revised dolphin population and subpopulation estimates;
- New sightings and spatial distribution information for the dolphins;
- Updated information from fisheries observers;
- Updated bycatch and fishing activity information;
- Information from the Department of Conservation's necropsy programme; and
- A spatial risk assessment of threats to Hector's and Māui dolphins (the risk assessment), commissioned by Fisheries New Zealand and the Department of Conservation, and provided by a team of independent and academic scientists led by NIWA.

The spatial risk assessment is a substantive advance on risk assessments that have been undertaken previously, enabling more refined estimates of the spatial overlap of dolphin distribution with fishing activities and some non-fishing threats. The risk assessment has been subject to peer review, including by an international panel of experts.

Nonetheless, assumptions and uncertainties remain within the risk assessment, particularly on effects from non-fishing activities, including disease, seismic exploration and

potential effects of seabed mining. Assumptions and uncertainties have been addressed qualitatively throughout the development of proposals.

The risk assessment (as it relates to non-fishing threats) indicates that:

- toxoplasmosis has emerged as a significant risk to Māui dolphins and some Hector's dolphin subpopulations in areas where high water runoff from land results in contamination in the marine environment; and
- risks from noise pollution and other industrial activities are less well understood but are likely to pose a cumulative risk to the welfare of Hector's and Māui dolphins and health of their habitat.

The Department of Conservation is continuing its necropsy programme, with Massey University, which provides detailed information on the causes of death of dolphins where the carcass is recovered and viable for necropsy. The programme provides long-term empirical data on mortality.

The Department of Conservation accepts that the risk assessment does not provide complete certainty, which will never be possible with a marine species, particularly one that has a small population and is difficult to detect and assess. The assessment is based on the best scientific evidence that is available, and the recent work has suggested that it is unlikely that the assessed risks would be found to be a much lower problem if more scientific work was undertaken. Recent research has tended to identify additional or more significant threats rather than the opposite, and a higher cumulative risk to the populations.

Overall, the regulatory initiatives and the associated costs and benefits are based on projections from a comprehensive assessment of available data and applying accepted scientific principles in assessing risk to marine mammals.

For the latest revision of the Threat Management Plan, extensive consultation was undertaken in June - August 2019 to test proposals that would be included in the updated plan. This included numerous public meetings and hui and one-on-one meetings with Treaty partners and stakeholders (customary, recreational and commercial), and feedback from an independent technical advisory group. In total, 15,263 submission were received, of which 616 were unique submissions from organisations or individuals.

To be completed by quality assurers:

Quality Assurance Reviewing Agency:
The joint DOC/MPI Regulatory Impact Analysis Panel (RIAP) has reviewed the *'Revision of the Hector's and Māui Dolphin Threat Management Plan: Non-fishing Measures'* Regulatory Impact Assessment in accordance with the quality assurance criteria set out in the CabGuide.
Quality Assurance Assessment:
"The DOC/MPI Regulatory Impact Analysis Panel has reviewed the Regulatory Impact Assessment "*Revision of the Hector's and Māui Dolphin Threat Management Plan: Non-fishing Measures*"" produced by DOC and dated 27 May 2020. The review team considers that it **fully meets** the Quality Assurance criteria.

Reviewer Comments and Recommendations:
Given the acknowledged assumptions and uncertainties remaining within the spatial risk assessment, we recommend robust monitoring, evaluation and review processes to ensure that the preferred option has a greater net-benefit than alternatives

Impact Statement: Revision of the Hector's and Māui Dolphin Threat Management Plan: Non-fishing Measures

Section 1: General information

1.1 Purpose

The Department of Conservation is solely responsible for the analysis and advice set out in this regulatory impact statement, except as otherwise explicitly indicated. This analysis and advice has been produced for the purpose of informing policy decisions to be taken by the Minister of Conservation and other responsible Ministers (whose consent to proposals is required) and informing Cabinet.

1.2 Key Limitations or Constraints on Analysis

Limitations and constraints underpinning the analysis fall within the following categories:

- Scope;
- Interdependencies;
- Evidence of the problem;
- Quality of data used for impact analysis; and
- Consultation and testing.

Scope

No policy interventions outside the Threat Management Plan revision were considered, given the cost of establishing a new and un-tested means of responding to the risk to Hector's and Māui dolphins, and the level of confidence in the approach taken in the Plan.

Decision-making is constrained to the proposals that were consulted on in 2019:

- Varying (extending) two of the five existing Marine Mammal Sanctuaries (West Coast North Island and Banks Peninsula) to reduce barriers to population connectivity and facilitate more frequent occupancy throughout the dolphin's range and risk reduction through sanctuary restrictions across a greater portion of dolphin distribution.
- Improved protection in and reduction of harm from seismic surveying and seabed mining activities in specific spatial areas.
- Implementation of a Toxoplasmosis Action Plan (a non-regulatory intervention).

Interdependencies

Interdependencies include future decisions on how to manage fishing-related threats to the dolphins, which is led by Fisheries New Zealand. Work has been done by Fisheries New Zealand to support decisions, which are expected in the near future. The need to manage the adverse effect of non-fishing related mortality and harm is independent of any other adverse effect on the population. However, the overall population outcomes for Hector's and Māui dolphins require all human-induced threats, particularly from fishing, to be managed appropriately. If this risk is not managed then that will undermine, in part, or completely, the benefits from the prohibitions on industry, and management of the disease toxoplasmosis. Any risk which is not managed appropriately may undermine the benefits of managing other risks.

Evidence of the problem

Both Hector's and Māui dolphins are classified as threatened species in the New Zealand Threat Classification System which have the greatest risk of extinction.

Māui dolphins (found on the West Coast of the North Island) are ranked as Nationally Critical, which are the most severely threatened, and face an immediate high risk of extinction. Population trends are uncertain, but it remains vulnerable to any human induced deaths. The Conservation status of New Zealand Marine mammals, 2013 provides:

"Maui dolphin, Cephalorhynchus hectori maui No change to listed status. Recent population estimates from genotype capture/recapture suggest a population of fewer than 100 (Baker et al. 2013). There is also evidence of decline from 12 Baker et al.— Conservation status of New Zealand marine mammals, 2013 both a semi-quantitative risk assessment and capture/recapture analysis (Currey et al. 2012; Hamner et al. 2014b). The subspecies is listed on the basis of Criterion A(1) (small population) but also meets Criterion C (high rate of decline). No evidence has been detected of successful reproduction by Hector's dolphin individuals sampled within the core Maui's range (one dead and two live females, and one dead male) (Hamner et al. 2014a)" [9].

Hector's dolphins (found mainly on the South Island) are ranked as Nationally Vulnerable and face a risk of extinction in the medium term. Population trends are uncertain but may be declining. The Conservation status of New Zealand marine mammals, 2013 provides:

"Hector's dolphin, Cephalorhynchus hectori hectori No change to listed status. There was very little new information. Eighteen Hector's dolphin necropsies were carried out in

9 Conservation status of New Zealand marine mammals, 2013, C.S. Baker, B.L. Chillers, S. Childerhouse, R. Constantine, R. Currey, R. Mattlin, A. van Helden, R. Hitchmough and J. Rolfe page 11
https://www.doc.govt.nz/globalassets/documents/science-and-technical/nztcs14entire.pdf

12 months of 2012–13. This is likely to be well above a sustainable rate of human-induced mortality if a significant proportion of those animals died when interacting with fisheries, because only a small proportion of animals killed as by-catch will come ashore. The population size of those dolphins encountered around Banks Peninsula appears roughly stable under management (Gormley et al. 2012), but decline is inferred to be continuing over the rest of the subspecies' range. The South Coast population has now been shown to constitute two separate subpopulations; both are small and vulnerable"[10].

Limitations and constraints underpinning evidence of the problem:

- Modelling of spatial estimates of dolphin density are most reliable in locations with more dolphins.
- Modelling spatial distribution based on suitable habitat for dolphins was limited by factors the model could not consider (e.g. physical barriers like sandbars in harbours).
- Public sightings (used as an independent validation of the habitat model) are considered an imperfect way of estimating dolphin densities.
- In areas with low densities of dolphins the estimates of population size, distribution, and overlap with fisheries are less reliable.
- In areas where there are fewer people on the water there will be fewer sightings, but this does not mean there are fewer dolphins.

We consider the limitations to be of minor/moderate significance. All scientific information and associated estimates that use this information are subject to uncertainty. The power of the methodology that is used is that we are able to account for most of this uncertainty (for example using confidence intervals in estimates of risk reduction). Where this uncertainty cannot be included explicitly within the modelling it is described qualitatively and has been taken into account in analysing options and making final recommendations. The results of new work and new information have tended to confirm that the animals are at high risk of extinction and have identified new threats rather than indicated that known threats could be discounted. It is therefore unlikely that new information would result in significant changes in the overall strategy for managing the species.

Quality of data used for impact analysis

A key limitation is much of the qualitative data is derived from information received during public consultation. There is potential bias in the information provided and uncertainty in the magnitude of unquantified costs and benefits. We consider these limitations to be of minor significance. Areas of uncertainty have been considered during options analysis.

Consultation and testing

Limitations and constraints underpinning regulatory and non-regulatory intervention options:

- The Government sought to complete the review of the Hector's and Māui Dolphin Threat Management Plan by the end of 2019. Iwi and some stakeholders (submitted that ideally, we could have consulted for a longer period, which would have allowed more opportunity for discussion of the nature and extent of the problem and collective determination of possible options.

- We note that there was an 8-week consultation with numerous public meetings and hui, which we consider provided adequate time for all parties to have input and submit their views.
- We therefore do not consider this to have been a significant limitation or constraint on the analysis and development of the preferred set of options.

An announcement will be made of the intention to vary the Marine Mammal Sanctuaries and advising there will be a further opportunity to submit on the proposals. The announcement will be made ahead of the formal notification in the Gazette. All previous submitters will be advised of the plan, and notifications will be made on websites and social media.

Treaty partners

Iwi submitters supported the proposed extensions to the Marine Mammal Sanctuaries. Iwi, hapū and whānau supported protecting the dolphins from seismic surveying and seabed mining within the sanctuaries. Most called for more extensive seismic surveying and seabed mining restrictions in dolphin habitat.

A submission from Te Korowai o Te Tai o Marokura included the proposal to ban seabed mining in the Te Rohe o Te Whānau Puha Whale Sanctuary as part of their 'Option Kaikōura' which aimed to "support the purpose of the Kaikōura (Te Tai o Marokura) Marine Management Act 2014". The Te Rohe o Te Whānau Puha Whale Sanctuary was established under the Kaikoura (Te Tai o Marokura) Marine Management Act 2014. Accordingly, the provisions of that Act govern the process for variations to this Whale Sanctuary and not the Marine Mammals Protection Act (although enforcement is under the MMPA).

This proposal is discussed further in section 5 of this document as an area for further analysis and consultation.

1.3 Responsible Manager (signature and date):

Ian Angus

Marine Species Team

Aquatic Unit, Biodiversity Group

Department of Conservation

25 May 2020

Section 2: Problem definition and objectives

2.1 What is the current state within which action is proposed?

Environmental state

Hector's dolphins are endemic to the coastal waters of New Zealand. In 2002, Hector's dolphins were identified as comprising two subspecies – the Māui dolphin and Hector's dolphin. This identification is the result of genetic and bone structure analysis. Hector's and Māui dolphins are together considered to be one of the world's rarest dolphin species.

Hector's and Māui dolphins are most prevalent close to shore (within four nautical miles), but are known to range further offshore in locations where their preferred habitat extends beyond 4 nautical miles.

Both Hector's and Māui dolphins are classified as threatened species, which have the greatest risk of extinction. Māui dolphins are ranked as Nationally Critical, which are the most severely threatened, and face an immediate high risk of extinction. Hector's dolphins are ranked as Nationally Vulnerable, and face a risk of extinction in the medium term.

Scientific models estimate that the Māui dolphin population has declined in the past 20 years. The decline can be explained by a combination of commercial and recreational fishing impacts, and other non-fishery threats such as the disease toxoplasmosis. Scientific information suggests the greatest threats to Māui dolphins are the lethal threats of set-net fisheries, trawl-net fisheries, and the disease toxoplasmosis. Current population trends are uncertain, but the population remains vulnerable to any human-induced deaths, and even sub-lethal threats such as seismic surveying and seabed mining need to be managed to reduce the possibility of extinction of these dolphins[11].

The Hector's dolphin population (found mainly around the South Island) is estimated to consist of around 15,700 individual dolphins and is classified as Nationally Vulnerable. The greatest estimated threats to Hector's dolphins are the lethal threats of set-net fisheries, trawl fisheries, and toxoplasmosis. Risk from toxoplasmosis is estimated to be greatest on the west coast South Island but may outweigh fisheries risk in all locations.

Genetic evidence supports the presence of distinct subpopulations of Hector's dolphins. The largest subpopulations are along the east and west coasts of the South Island, with a relatively small subpopulation along the south coast. Hector's dolphins on the north coast may comprise a fourth subpopulation, but this is uncertain. There have been a few sightings of Hector's dolphins on the east coast of the North Island, although no genetic material has been obtained from this region to assess the relationship of these animals to any population.

11 Supporting scientific evidence for both Hector's and Māui dolphins can be found at this link:https://www.fisheries.govt.nz/news-and-resources/consultations/hectors-and-maui-dolphins-threat-management-plan-review/

Societal expectations

A context for proposing further action is the increasing societal expectations both domestically and internationally for the impact of human activities on the aquatic environment to be managed responsibly.

Current management framework

The framework for identification and management of human-induced threats to the Hector's and Māui dolphin sits within a Threat Management Plan, first developed in 2007. The Threat Management Plan is led by both Fisheries New Zealand and the Department of Conservation. It is the Department of Conservation's role and responsibility to manage the dolphin populations overall. It is Fisheries New Zealand's role and responsibility to manage the effects of fishing on the dolphins.

The current suite of regulatory and non-regulatory mitigation measures reflect the different threats facing the dolphins (fishing-related and non-fishing-related), and were based on the knowledge and tools available (about the dolphins and threats) at the time they were put in place. These measures were designed to meet the legislative obligations in the Fisheries Act 1996 and Marine Mammals Protection Act 1978, and the goals and outcomes of the Threat Management Plan.

There are also five marine mammal sanctuaries in dolphin habitat around the North and South Islands. These sanctuaries, established under the Marine Mammals Protection Act 1978, restrict a variety of activities, including fishing, seismic surveying, and seabed mining.

2.2 What regulatory system(s) are already in place?

The primary regulatory system for managing the non-fishing threats of the disease Toxoplasmosis and the activities of seismic surveying and seabed mining is the Marine Mammals Protection Act 1978.

Marine Mammals Protection Act 1978

Under the Marine Mammals Protection Act 1978, the Department of Conservation is responsible for the administration and management of and manage marine mammals and marine mammal sanctuaries. The Minister of Conservation can vary an existing marine mammal sanctuary and define which activities are, and are not, allowed to occur within these areas. For example, the Minister to manage the sub-lethal threats to dolphins from seismic surveying and sea-bed mining activities within sanctuaries. The consent of the Ministers with control of any Crown-owned land, foreshore, seabed or waters of the sea declared to be a marine mammal sanctuary is required to vary the sanctuary.

Treaty of Waitangi

A decision on the variations to the marine mammal sanctuary must be consistent with the Crown's obligations in relation to the Treaty of Waitangi:

a. Section 4 of the Conservation Act, and the obligation to give effect to the principles of the Treaty of Waitangi;
b. Commitments made in Treaty settlements; and

c. Subpart 1 of the Marine and Coastal Area (Takutai Moana) Act 2011 (MACA Act) in relation to participation in conservation processes in the common marine and coastal area.

The principles of the Treaty require the Crown to act in good faith, reasonably, make informed decisions, actively protect Māori rights and interests and preserve capacity to provide redress for proven grievances. The Department engaged with iwi/Māori on the variations to the Marine Mammal Sanctuaries as part of the Threat Management Plan process. Concerns were expressed about the adequacy of the engagement process. The Department will continue to engage with iwi/Maori on the proposals before any final decisions are taken. Generally, iwi sought prohibitions to both seismic surveying and seabed mining within the Marine Mammal Sanctuaries, without any exemptions.

Government regulation

Government regulation is generally the preferred approach to managing the human-induced threats to Hector's and Māui dolphins due to the:

- wide range of human-induced threats that pose a risk to the dolphins;
- breadth of people/communities/industries that may be affected by protection measures for the dolphins; and
- geographic spread of protection measures that are required.

These variables require a level of coordination and high degree of compliance to be successful. An over-reliance on voluntary measures would make it difficult to ensure the objectives of the Threat Management Plan can be achieved, unless there is a supporting compliance framework to assess the effectiveness of non-regulatory interventions. Also when managing risk of low likelihood but high consequence there is a need for a greater level of certainty about effectiveness than can generally be provided by voluntary measures, particularly when incidents can result in significant public scrutiny and risk of more government intervention. This can result in people having a perverse incentive not to voluntarily report or take action.

We note that the overall population outcome for Hector's and Māui dolphins will not be achieved unless all human-induced lethal threats, particularly from fishing, are managed appropriately. If these other risks are not managed then they will undermine, in part, or completely, the benefits stemming from controls and associated cost placed on industry.

2.3 What is the policy problem or opportunity?

The problem

Hector's and Māui dolphins remain vulnerable to human-induced deaths. The dolphins currently face a range of fishing-related and non-fishing related threats, which can directly cause deaths or reduce survival of dolphins.

In addition to the lethal threat of the disease toxoplasmosis, there are numerous other non-fishery threats which may impact on dolphins including sub-lethal threats of seismic surveying, seabed mining, dolphin watching and vessel traffic, oil spills, other pollution and sedimentation run-off, coastal development, infectious diseases other than toxoplasmosis, climate change.

These other threats may affect both Hector's and Māui dolphins through various overlapping direct and indirect mechanisms including injury, disease, disturbance, noise, habitat modification, impacts on prey distribution and abundance, reduced foraging success, displacement, and habitat fragmentation. These other threats have a generally indirect negative impact on the population for example by reducing reproductive success. The severity of these impacts can be context and scale dependent and will vary depending on a range of interrelated factors (such as location, spacial, size of an operation, technology and timing).

Of these threats, seismic surveying and seabed mining are considered to pose the greatest risk to Hector's and Māui dolphins - seismic surveying because of the very loud underwater noise produced by the airgun arrays; and seabed mining through a combination of underwater noise, direct seabed disturbance, and the discharge of sediments.

The fishing and non-fishing threats to dolphins were assessed against the revised Threat Management Plan goals, population outcomes and fisheries objectives for the dolphin sub-species and sub-populations.

The toxoplasmosis management objectives and management objectives for other non-fishing threats inform whether (and where) action is required to reduce these threats to the dolphins to ensure that the impacts are managed below the level necessary to support the population outcomes.

These objectives form part of the criteria used to assess the options to address these risks and are described in Section 3.2.

Need for further action

The best available information indicates that further measures are required to reduce the level of toxoplasmosis ed mortality and potential harm associated with seabed mining and seismic surveying sufficiently to support the recommended outcomes and

objectives of the Threat Management Plan. That is, the scientific assessment suggests that risk is too high in some locations[12].

As outlined in Section C, the Department of Conservation is confident in the evidence that has been used to support this assessment.

The counterfactual

There are a number of threats facing Hector's and Māui dolphins including fishing-related threats and non-fishing related threats. Some of these are the direct cause of dolphin deaths (fishing and the disease toxoplasmosis) and other threats have an indirect negative impact on the population (for example by reducing reproductive success)[13].

The counterfactual assumes that there would be no new regulatory measures to further mitigate the threats of non-fisheries related mortality and harm to Hector's and Māui dolphins. The latest risk assessment indicates that under current management measures:

- fishing-related risks to dolphins have been significantly reduced in many areas where restrictions on fishing activity were put in place between 2003 and 2012;
- fishing still poses a risk to Hector's and Māui dolphins in some areas;
- in fisheries where most set-net deaths occur, a typical set-net is 20 times more likely to capture or kill a dolphin than a single trawl in the same location;
- toxoplasmosis has emerged as a significant risk to Māui dolphins and some Hector's dolphin subpopulations in areas where high water runoff from land results in contamination in the marine environment; and
- risks from noise pollution and other industrial activities, and subsequently the cumulative impact on Hector's and Māui dolphins, are less well understood, but may pose an unacceptable threat in some situations and circumstances.

Given the current status of the dolphin populations, if the identified threats are not further mitigated then there is a risk that the conservation status of the dolphins will not improve, and the population outcomes and objectives as set out under the Threat Management Plan will not be achieved.

Māui dolphins remain vulnerable to any human-induced deaths and harm, and there is a significant risk of extinction for this subspecies unless human-induced deaths are reduced as near as practicable to zero.

12 "Risk" is a numerical output of the scientific risk assessment; if the fisheries risk estimate is greater than 1, fisheries risk is too high to achieve the fisheries objective.

13 Toxoplasmosis deaths have been estimated from necropsy results, which relies on relative detectability of dolphin carcasses that have died from various causes, resulting in uncertainty in annual numbers of deaths.

2.4 What do stakeholders think about the problem?

The main stakeholders are commercial fishers, environmentalists, independent experts, recreational fishers, regional councils, and the general public. Tangata whenua have a key interest in the protection of Hector's and Māui dolphins and the activities that may impact on the dolphins.

Consultation

Public consultation on the review of the Threat Management Plan ran from 17 June to 19 August 2019.[14]

Over 370 people attended 8 public consultation meetings held in the most affected regions of New Zealand. A number of targeted meetings with affected stakeholders and environmental non-governmental organisations were also held during the consultation period. Over 15,200 submissions were received across nine key stakeholder groups.

This included: 255 from commercial fishers, 65 from tangata whenua, 13,700 from environmentalists (including 13,650 prefilled forms), 14 from independent experts, 200 from recreational fishers, 4 from the petroleum industry, 8 from the seabed mining industry, 3 from local government authorities, and over 1,000 from the general public. There were also 3 petitions from environmental groups handed in to parliament, totalling over 76,000 signatures, and a petition from the Kawhia community with 140 signatures.

An announcement will be made of the intention to vary the Marine Mammal Sanctuaries and advising there will be a further opportunity to submit on the proposals. This will be followed by formal notification in the Gazette. All previous submitters will be advised of the plan, and notifications will be made on websites and social media.

Stakeholder view of the problem

In general, most submitters agree that action is required to reduce human-induced mortality to achieve the goals and population outcomes of the Threat Management Plan. However, there was a clear divide amongst some of these stakeholders in terms of what human-induced threats pose a risk (or the greatest level of risk), and therefore should be targeted with further management measures to reduce or remove that risk.

Most of the fishing industry, some tangata whenua, and iwi representatives consider there is a lack of evidence to support the need for further measures in relation to fishing. They typically support the status quo. They also consider non-fishing-related threats, such as toxoplasmosis, pose a much greater threat that needs to be addressed to achieve the population outcomes.

[14] The consultation document and additional supporting evidence can be found at this link: https://www.fisheries.govt.nz/news-and-resources/consultations/hectors-and-maui-dolphins-threat-management-plan-review/

Environmental submitters and some tangata whenua consider the risk of fishing-related mortality across the entire Māui and Hector's dolphin habitat range poses the greatest threat to the dolphins.

Submitters were divided on the importance of toxoplasmosis as a threat. Fishing industry submitters were critical of the Government for not taking action on toxoplasmosis sooner, that this risk far outweighs the risk of fishing, and that further fishing restrictions are therefore not warranted as the main focus should be on dealing with toxoplasmosis.

Some submitters were either dismissive of the risk of toxoplasmosis altogether (including questioning the methods used in the risk assessment to estimate the risk of this disease), including uncertainty around the magnitude of the risk, or were concerned that the focus would be taken off the need to manage fishing risk.

Environmental submitters typically support the most protective options consulted upon or argue for going further. Most of the environmental stakeholders consider that non-fishing-related threats such as toxoplasmosis pose a much lower threat than indicated by the scientific assessment.

Māori interests

Māori have an interest in both the protection of Hector's and Māui dolphins and the management of, and involvement in, activities that maybe be impacted by additional protection measures.

The Department of Conservation has engaged with Māori on the proposed measures as part of the Threat Management Plan review process.

Iwi, hapū and whānau supported protecting the dolphins from seismic surveying and seabed mining within the sanctuaries. Most iwi and public submissions called for more extensive seabed mining restrictions in dolphin habitat.

2.5 What are the objectives sought in relation to the identified problem?

The overarching objective is to reduce extinction risk, however, there is no guarantee of success or any real ability to either forecast or monitor the extent of the reduction in risk.

Population outcomes

The specific population outcomes of the Threat Management Plan set out the requirements for management of all human-induced threats (refer to **Table 1**).

Table 1. Recommended population outcomes.

Subspecies of dolphin	Population outcome
Māui dolphins	Human impacts are managed to allow the population to increase to a level at or above **95 percent** of the maximum number of dolphins the environment can support.

Hector's dolphins	Human impacts are managed to allow the population to increase to a level at or above **90 percent** of the maximum number of dolphins the environment can support.

These population outcomes inform Conservation policy and decision-making. The Department of Conservation consider them appropriate given the conservation status of the dolphins, and that their long-term viability and contribution to the biological diversity in the marine environment should be maintained.

These are long term outcomes. To ensure they can be achieved, in the short term the highest priorities are to prevent declines of the populations to the point where they cannot recover, and declines in population and connections between populations to the point where genetic diversity is reduced. If those priorities are not achieved, future recovery will be difficult or impossible, and stochastic events (e.g. a new disease, an unusual weather event) could cause significant losses or even extinction.

Management objectives for the threat of toxoplasmosis

To support achieving the population outcomes, the following objectives apply:

- Reduce the number of dolphin deaths caused by toxoplasmosis to near zero
- Improve knowledge on toxoplasmosis to increase the ability to take actions to reduce this threat.

Management objectives for other non-fisheries threats (seismic surveying and seabed mining)

To support achieving the population outcomes, the following objectives apply:

- Ensure adverse effects on dolphins from other human-induced threats are avoided or minimised.

The objectives for Māui dolphins would mean that, with 95 percent confidence, the West Coast North Island Māui dolphin population is able to recover to and/or maintain a level that is no more than 5 percent lower than what it would be in the absence of any non-fisheries threat impact.

The objectives for South Island Hector's dolphins would mean that, with 95 percent confidence, each South Island subpopulation is able to recover to and/or maintain a level that is no more than 10 percent lower than what it would be in the absence of any non-fisheries threat impact.

These objectives require that non-fisheries threat impacts are successfully managed to support the population outcomes being achieved. Achieving these objectives is not dependent on other impacts being managed also; however, achieving the population outcomes does rely on successful management of all human-induced threats. It is important that the other major lethal threat to the dolphins (i.e. fishing) is addressed. Without such action, toxoplasmosis and seismic surveying and seabed mining measures will not deliver the desired outcomes.

Section 3: Option identification

3.1 What options are available to address the problem?

The discussion document released in June 2019 proposed a mix of options related to non-fishing threats. Broadly, there was an option to address the disease toxoplasmosis, and a mix of options to address "other" non-fisheries threats, including seismic surveying and seabed mining.

For the lethal threat of toxoplasmosis (other than the status quo option), the option proposed was to implement a Toxoplasmosis Action Plan. **This option requires no legislative change and is mentioned in this document for completeness**.

For the management of the "other" non-fishing threats, in addition to the status quo, the discussion document proposed the variation (extension) of two of the existing Marine Mammal Sanctuaries (West Coast North Island and Banks Peninsula).

In addition to the variation of two existing sanctuaries, and for the specific management of the sub-lethal threats of seismic surveying and seabed mining, a number of options were identified, and also included in the consultation document (along with the status quo options). These regulatory options have been revised to take into account consultation feedback. No non-regulatory options were identified.

Non- regulatory options to deal with the threat of the disease Toxoplasmosis

To manage the threat from Toxoplasmosis, two options were identified:

1. Status quo
2. A Toxoplasmosis Action Plan was proposed and included in public consultation. If implemented, the Action Plan will be used to manage reduction of impacts associated this disease in the long-term, and includes the following core elements:

- Research to better understand the pathways, dynamics and impacts of the disease, as well as the efficacy and costs of potential management actions, and prioritize areas for management actions.
- Establishing a Strategic Science Advisory Group (SSAG)
- Steps to increase public awareness of the impact of the disease on the dolphins and initiate behaviour change
- To work with other agencies (including councils) to take action to reduce loading of the parasite into the marine environment including riparian planting, storm and wastewater management and pest management

Regulatory Options to deal with non-fishing threats generally

Option	Description of option
1	No further extensions to the Sanctuary areas **(Status quo)**
2	Extend both the West Coast North Island Marine Mammal Sanctuary southwards to Wellington (out to 12 nautical miles, with commensurate restrictions proposed for seismic surveying and seabed mining) and the Banks Peninsula MMS north to the southern boundary of the Te Rohe Whānau Puha / Kaikoura Whale Sanctuary, south to Timaru, and offshore to 20 nautical miles throughout.

While the proposal to extend the sanctuaries is independent of the proposals relating to seismic surveying and seabed mining below, the survival of the dolphins is dependent on what restrictions are implemented within these sanctuaries and where.

The following options are specific to seismic surveying and seabed mining threats, and these options were considered for both the existing and proposed new sanctuary areas.

Options to deal with seismic surveying threats

There are existing commercial interests within the proposed sanctuary extension area. **Options were considered to address threats from seismic surveying in the five existing Marine Mammal Sanctuaries**, **including the proposed extension**s:

Option	Description of option
1	Voluntary compliance with the 2013 Code of Conduct for Minimising Acoustic Disturbance to Marine Mammals from Seismic Surveying Operations **(Status quo)**
2	Compliance with the 2013 Code of Conduct for Minimising Acoustic Disturbance to Marine Mammals from Seismic Surveying Operations (this is the enhanced status quo)
3	Establishing a permitting system for seismic surveying in sanctuaries, with the ability to impose conditions on permits or decline applications (including for existing permit holders under the Crown Minerals Act 1991).
4	Prohibition on seismic surveying in sanctuaries with exemptions for: urgent hazard assessments in sanctuaries and existing Crown Ministerial Act permit holders, as well as any subsequent permits granted with respect to those existing permits.

Options to deal with seabed mining threats

Five options were considered to address threats from seabed mining. There were three mutually exclusive options (options 1 – 3 below)

Option	Description of option
1	Prohibition on mining within the existing West Coast North Island Marine Mammal Sanctuary out to two and four nautical miles (and maintaining the current exceptions for mining for petroleum and mining impact activities)[15]. **(Status quo)**
2	Prohibition on mining with the **existing West Coast Northland Marine Sanctuary out to 8 nautical miles** (and maintaining the current exceptions for mining for petroleum and mining impact activities).
3	Prohibition on mining within the **existing West Coast North Island Marine Mammal Sanctuary out to 12 nautical miles** (and maintaining the current exceptions for mining for petroleum and minimum impact activities).
Two additional options which could be added individually to the above 3 options were considered (options 4 and 5 below)	
4	Prohibition on mining out to **2 nautical miles within the proposed southern extension of the West Coast North Island Marine Mammal Sanctuary** (and maintaining the current exceptions for mining for petroleum and minimum impact activities).

[15] Current permits and potential subsequent permits are shown in annex 1.

5	Prohibition on mining within **2 nautical miles of the coast within the four South Island marine mammal sanctuaries (Clifford and Cloudy Bay, Catlins Coast, Te Waewae Bay and Banks Peninsula including proposed extensions)** (and maintaining the current exceptions for mining for petroleum and minimum impact activities).

3.2 What criteria, in addition to monetary costs and benefits have been used to assess the likely impacts of the options under consideration?

For the disease toxoplasmosis the assessment criteria are:

- **Criterion 1:** Does the option reduce the risk to a level that enables the population to increase to a level at or above 95 percent (Māui) and at or above 90 percent (Hectors), of the maximum number of dolphins the environment can support?
- **Criterion 2:** Is the option suitable? i.e. does the option help build knowledge (and therefore actions) about the threat of toxoplasmosis?

These criteria are derived from objectives of the revised Threat Management Plan; specifically to reduce the number of dolphin deaths caused by toxoplasmosis to near zero and to improve knowledge on toxoplasmosis to increase the ability to take actions to reduce this threat.

For the management of "other" threats, the assessment criteria are:

- **Criterion 1:** Does the option support achieving the population outcomes by protecting dolphins from seismic surveying and seabed mining?
- **Criterion 2:** Does the option support dispersal or connectivity between subpopulations of the subspecies?
- **Criterion 3:** Is the option acceptable? i.e. does the option minimise the impact on existing marine users & including industry
- **Criterion 4:** Is the option feasible? Can it be readily implemented and administered?

Criteria 1-2 are derived from the non-fisheries objectives of the revised Threat Management Plan. Criterion 3 is informed by the need for the proposal to be limit the impact on existing marine environment users and option 4 as to the feasibility of the option (ease of implementation and administration).

3.3 What other options have been ruled out of scope, or not considered, and why?

Reform options considered and discarded

The Threat Management Plan is widely recognised as a sound and established policy response to threatened species. The proposals will be included in the updated Threat Management Plan and given effect through the Marine Mammal Protection Act. As such, the proposals are effectively an enhancement to the status quo arrangements.

Standalone legislation to manage harmful activities (such as mining and seismic surveys) was identified as an option but discarded early. Creating stand-alone legislation to manage mining and seismic survey activities would be the most comprehensive option as it would protect the dolphins throughout* New Zealand's territorial sea and the exclusive economic zone, however this would be a very ambitious project (possibly unnecessary due to the Marine Mammal Protection Act, which is specifically directed at the protection of marine mammals) and would not be completed in the short-medium term. This could result in the status quo remaining for a considerable period of time.

A simpler solution is to utilise the existing powers of the Marine Mammal Protection Act. The Minister of Conservation has powers under section 22 of the Marine Mammals Protection Act to vary marine mammal sanctuaries, subject to the consent of the Ministers of Fisheries, Transport, and Energy and Resources. The prohibitions and restrictions proposed within the Marine Mammal Sanctuaries will be implemented under section 22 of Marine Mammal Protection Act. Utilizing the Marine Mammal Protection Act will help protect dolphins immediately, whilst not precluding the development of an over-arching review of the marine regulatory settings in future.

Section 4: Impact Analysis

Marginal impact: How does each of the options identified in section 3.1 compare with taking no action under each of the criteria set out in section 3.2?

Key: **++** much better than doing nothing/the status quo **+** better than doing nothing/the status quo **0** about the same as doing nothing/the status quo **-** worse than doing nothing/the status quo **- -** Much worse than doing nothing / the status quo

	Toxoplasmosis options	
Criteria	**Option 1:** No Toxoplasmosis Action Plan (status quo)	**Option 2:** Toxoplasmosis Action Plan
Criterion 1: Does the option reduce the risk to a level that enables the population to increase to a level at or above 95 percent (Māui) and at or above 90 percent (Hectors), of the maximum number of dolphins the environment can support?	**0** Does not reduce risk / does not achieve criterion	**+** Measure is necessary to satisfy criterion
Criterion 2: Does the option support building knowledge / awareness about the threat?	**0** Does not support building awareness / does not achieve criterion	**++** Measure is necessary to achieve criterion
Overall assessment	Does not achieve the criteria	Likely to achieve the criteria, and much better than doing nothing

	Sanctuary variation options		Seismic survey options				Seabed mining options				
Criteria	**Option 1**	**Option 2**	**Option 1**	**Option 2**	**Option 3**	**Option 4**	**Option 1**	**Option 2**	**Option 3**	**Option 4**	**Option 5**
Criterion 1: Does the option support achieving the population outcomes by protecting dolphins from seismic surveying and seabed mining?	**0** Does not support criterion	**++** Supports the criterion but also relies on other measures (the restrictions on activities)	**0** Does not support criterion	**0** Does not support criterion	**++** Criterion exceeded	**++** Criterion exceeded	**0** Does not support criterion	**+** Provides additional protection from harmful activities	**+** Provides additional protection from harmful activities	**+** Provides additional protection from harmful activities	**+** Provides additional protection from harmful activities
Criterion 2: Does the option support dispersal or connectivity between subpopulations of the subspecies?	**0** Does not support criterion	**+** Supports criterion	**0** Does not support criterion	**0** Minimal impact from current state (if any)	**+** Supports criterion but extent depends on other measures - sanctuary extensions	**+** Supports criterion but extent depends on other measures - sanctuary extensions	**0** Does not support criterion	**0/+** May have small positive impact on connectivity	**0/+** May have a small positive impact on connectivity	**+** Supports criterion	**+** Supports criterion
Criterion 3: Does the option minimise the impact on users & industry to the extent poss ble	**0** Least impact than other options	**0/-** Will impact but extent will depend on Other measures (the restrictions on activities)	**0** Least impact than other options	**0/-** Minimal impact as Code already in place	**- -** Will have the most impact / creates uncertainty	**-** Impacts but limited by exemptions	**0/-** Impacts but limited by exemptions	**0/-** Impacts but limited by exemptions	**0/-** Impacts but limited by exemptions	**/-** Impacts but limited by exemptions	**-** Impacts but limited by exemptions
Criterion 4: Is the option feasible	**0** is feasible / is current state	**+** Will be an extension of current practice.	**0** is feasible / is current state	**0/-** Minimal impact	**- -** Least feasible – due to time to develop	**-** Is feasible / within existing processes	**0**	**-** is feasible / within existing processes	**-** Is feasible / within existing processes	**-** Is feasible / within existing processes	**-** Is feasible / within existing processes
Overall assessment	Does not provide any additional certainly or protection for dolphins	Achieves criteria, but relies on other measures somewhat	Does not achieve criteria	Does not provide any additional certainly or protection for dolphins	Will achieve criteria with considerable impact on use and high implementation effort	Exceeds criteria with least impact on users	Does not provide any additional certainly or protection for dolphins	Provides some additional protection but doesn't go far enough	Provides some additional protection but doesn't go far enough	Provides additional protection, impacts are limited (given exemptions and necessary)	Provides additional protection, impacts are limited (given exemptions, and necessary)

Extending Marine Mammal Sanctuary proposals

Extending the West Coast North Island marine mammal sanctuary will benefit dolphins as it may reduce barriers to population connectivity and facilitate more frequent occupancy throughout the dolphin's range. Extending the Banks Peninsula Marine Mammal Sanctuary as proposed will benefit dolphins by reducing risks as sanctuary restrictions will apply across a greater portion of Hector's dolphin distribution.

Seismic surveying proposals

Relative to doing nothing, the enhanced status-quo option (option 2) will improve protection to dolphins in the marine mammal sanctuaries. However, a seismic survey cannot be stopped if risks cannot be appropriately mitigated. Relative to doing nothing, option 3 would allow for greater protection of dolphins in sanctuaries through conditions to mitigate adverse effects and the ability to decline a consent if necessary. This option would take time to develop and would require additional public consultation. Option 4 would mean that the effects of seismic surveying on Hector's and Maui dolphins would be avoided in sanctuaries, except as related to surveys undertaken using exemptions.

Seabed mining proposals

The first three options are mutually exclusive. The benefit of Option 1 is that effects of seabed mining on Hector's and Māui dolphins would continue to be avoided within the existing prohibited area. Elsewhere, the effects on dolphins would continue to be managed through the RMA and Exclusive Economic Zone Act consent process (this is the status quo). Option 2 would avoid any direct overlap between mining and the known range of Māui dolphins (out to at least eight nautical miles from shore off the Manukau coast). Option 3 will add a greater degree of protection by creating a buffer for effects such as noise and sedimentation which may spread well beyond the immediate location of a mining operation. It would also account for any Māui dolphins venturing further offshore than eight nautical miles (the furthest acoustic detection of a Hector's / Māui dolphin off Manukau is 9.8 nautical miles).

Options 4 and 5 can be added individually to the above three options. Option 4 has the benefit of offering a protected near-shore corridor (e.g. two nautical miles from shore along these southern shores) would help reduce impediments to dolphin movements along this coast. Option 5 would also mean a near-shore corridor would help retain connectivity between areas and reduce the risk of subpopulation fragmentation in these core Hector's dolphin areas. All options included exemptions for existing CMA permit holders, or any subsequent permits granted with respect to those existing permits.

Toxoplasmosis Action Plan

Relative to doing nothing, given the significant risk of the disease, the implementation of a toxoplasmosis Action Plan will be essential to achieving the goals of the Threat Management Plan.

Section 5: Conclusions

5.1 What option, or combination of options is likely to best address the problem, meet the policy objectives and deliver the highest net benefits?

Preferred option

Following reflection of submitters views as well as ministerial discussions, an enhanced package of measures – based on those consulted on – is proposed.

Two Marine Mammal Sanctuary areas will be extended, off the West Coast of the North Island to Wellington (Māui dolphin), out to 12 nautical miles; and extend the Banks Peninsula MMS south to Timaru and north to the boundary of the Kaikoura Whale Sanctuary, out to 20 nautical miles for the whole sanctuary (Hector's dolphin) (as consulted).

And, in addition, the following is proposed:

1. Seismic surveying will be prohibited within all five Marine Mammal Sanctuaries that have been created to protect Hector's and Māui dolphins, including in the proposed extensions to the West Coast North Island and Banks Peninsula Marine Mammal Sanctuary, with exemptions for:
    a. Minerals and petroleum permit and licences and their life cycle as follows:
        i. Existing permits under the Crown Minerals Act 1991 or existing privileges (as defined under the Crown Minerals Act).
        ii. a subsequent permit that is granted in exchange for an existing permit.
        iii. a subsequent permit that is granted in exchange for a subsequent permit referred to in paragraph (ii).
        iv. Decommissioning of infrastructure even where there is no permit or existing privilege in force.
    b. Urgent hazard assessments
    c. Surveys which are approved for an exemption by the Minister of Conservation and Minister of Energy and Resources to undertake an activity that is nationally significant and the purpose of the research cannot be achieved if the activity is conducted outside of the sanctuary area. Survey's undertaken pursuant to a permit under the Crown Minerals Act cannot apply to the Ministers for an exemption.
2. Compliance with the 2013 Code of Conduct for minimising acoustic disturbance to marine mammals from seismic survey operations **will be required** within all five Marine Mammal Sanctuaries for any seismic surveys undertaken using the exemptions above.
3. Seabed mining will be prohibited in all five sanctuaries with exemptions for permits currently held under the Crown Minerals Act, any subsequent permits granted in exchange of those permits and a subsequent permit that is granted in exchange for a subsequent permit.
4. Implementation of a Toxoplasmosis Action Plan.

The proposals will be implemented through the power in section 22 of the Marine Mammals Protection Act. No other legislative tool is more appropriate than the Marine Mammals Protection Act to protect marine mammals. The Act regulates human behaviour in order to protect, conserve and manage marine mammals. This is therefore the appropriate framework

to regulate mining and seismic surveying activities in order to prevent negative potential effects on Hector's and Māui dolphins.

This revised proposal will be the subject of further public consultation

An announcement will be made of the intention to vary the Marine Mammal Sanctuaries and advising there will be a further opportunity to submit on the proposals. This will be followed by formal notification in the Gazette. All previous submitters will be advised of the plan, and notifications will be made on websites and social media. Following public consultation, the proposals will be finalised.

Tangata whenua and stakeholder views

Tangata whenua and stakeholder views are outlined in Table 2.1 below. Stakeholders who are directly affected by the preferred approach – the extractive industry - have significant concerns with the impact of the range of options on their activities.

Table 2.1: Tangata whenua and stakeholder views of preferred approach

	Group	Views
Treaty partners	Tangata whenua	Supported Marine Mammal Sanctuary extensions and banning seismic surveying and seabed mining, including applying the prohibitions to existing Crown mineral permits, within the sanctuaries. Most iwi submissions called for more extensive seismic surveying and seabed mining restrictions in dolphin habitat. Supported the development of the Toxoplasmosis Action Plan
Stakeholder groups directly affected by the proposals	Extractive industry	Did not supported extensions to the west coast North Island and Banks Peninsula Marine Mammal Sanctuaries or banning seismic surveying and seabed mining, within the sanctuaries. Argued that there is no threat to the dolphins from their commercial activities and that the status quo is sufficient to manage any potential risks. Further, the mining industry consider that seabed mining is already heavily regulated under the existing legislation and regional council plans, that mining took place in areas not known to be dolphin habitat and that the proposed options were not based on robust scientific data. Submitters accepted that it was appropriate to require compliance with the Code of Conduct for Seismic Surveying in sanctuaries and felt it was sufficiently conservative that prohibitions or a permitting regime were unwarranted. Supported the development of the Toxoplasmosis Action Plan
Stakeholder groups indirectly	Environmentalists	Supported Marine Mammal Sanctuary extensions and banning seismic surveying and seabed mining, including applying the

affected by the proposals		prohibitions to existing Crown Mineral Act permits, within the sanctuaries. Supported the development of the Toxoplasmosis Action Plan Some NGOs and individuals considered the risk assessment overstated the significance of toxoplasmosis compared to fishing.
	Independent experts	Supported Marine Mammal Sanctuary extensions and banning seismic surveying and seabed mining, including applying the prohibitions to existing Crown Mineral Act permits, within the sanctuaries. Supported the development of the Toxoplasmosis Action Plan
	General public	Supported Marine Mammal Sanctuary extensions and banning seismic surveying and seabed mining, including applying the prohibitions to existing Crown Mineral Act permits, within the sanctuaries. Supported the development of the Toxoplasmosis Action Plan

Further options to reduce the impact of seabed mining – for consultation

Although the Kaikoura Whale Sanctuary was not in scope of the Threat Management Plan proposals and consultation, in consultation with the Minister of Energy and Resources the Minister of Conservation has decided to consult on a proposal to prohibit seabed mining within the Whale Sanctuary to extend the protection for marine mammals along the Eastern Coast of the South Island.

The public submission process will commence with the notification in the Gazette of the proposal to impose a restriction and call for submissions to hear from stakeholders and the public. In addition, Department of Conservation officials have begun engagement directly with local iwi to discuss the proposal and will engage with the Kaikoura Marine Guardians before the Gazette notice is published.

5.2 Summary table of costs and benefits of the preferred approach

Affected parties *(identify)*	**Comment**: *nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks*	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*	**Evidence certainty** *(High, medium or low)*
Additional costs of proposed approach, compared to taking no action			
Regulated parties	Parties surveying for oil/gas/minerals and scientific surveys using large airgun arrays	low/medium	High
	Parties using small "Level 3" airgun arrays – primarily for scientific research	high New additional cost as these surveys currently only need to comply with the existing restrictions in the Sanctuaries, which are not as comprehensive as the Code of Conduct	High
	Prohibition of seabed mining activities	Medium Loss of potential revenue in areas where no permits currently are held	Low
Regulators	There will be costs for DOC associated with monitoring and compliance of the seismic surveying Code of Conduct. At present the EPA monitors compliance in the EEZ.	Low	High
Wider government	Total additional fiscal costs to the Government (mostly DOC), in administering the sanctuaries, the proposed toxoplasmosis plan, maintaining the risk assessment, population monitoring, including the necropsy contract with	$20 m - $25 m over five years	Medium

	Massey University, measuring public engagement with the TMP		
Other parties	There may be some cost to wider government revenue from royalties and taxes that may not be received under the new regime.	low (see note in Total monetised cost below)	Medium
Non-monetised costs	Support services (maintenance, catering, ancillary services, etc.)	unknown but likely to be low	Medium

Expected benefits of proposed approach, compared to taking no action			
Regulated parties	Greater legal certainty around decision making processes concerning approved mining and seismic surveying activities	High	High
Regulators	Improved international image for New Zealand from perceived better protection of the environment.	Medium	High
Wider government	DOC, New Zealand Government generally	High Wider sanctuaries providing additional oversight of the sub-populations, additional research to improve TMP, comprehensive plans for toxoplasmosis	High
Other parties	New Zealand's standing internationally in marine mammal protection, including in domestic and international tourism, marine mammal research	Medium	High
Total Monetised Benefit	not applicable		
Non-monetised benefits	Greater certainty and protection of the marine mammals	High	High

5.3 What other impacts is this approach likely to have?

Environmental

The preferred option will result in benefits to the marine environment generally. By addressing risks that cannot be mitigated against under the current regulatory and voluntary regime, the healthy functioning of marine ecosystems and our indigenous biodiversity will benefit.

Effectiveness

The proposed population outcomes and objectives under the Threat Management Plan may not be achieved if other human-induced threats (i.e. fishing) are not also successfully managed. If this turns out to be the case, then significant costs may be incurred with negligible benefits.

The Department of Conservation will continue to work in collaboration with Fisheries NZ under the Threat Management Plan to ensure that agencies remain aligned in efforts to manage human-induced impacts and ensure progress towards population outcomes and objectives being achieved for each subspecies and populations. Regular monitoring will enable the Department of Conservation to reassess risk and respond if necessary.

Impacts on individuals

It is not clear that the new provisions will lead to declining applications for seismic surveying. However, even the prospect of having an application declined may result in a reduction in seismic surveying applications. The impact is impossible to predict. This is also the case for any impact on sectors which provide supplies and services to seismic surveying operators.

Any declined permit applications for marine seismic surveying may have impacts on the availability of oil, gas and minerals for use in New Zealand and for export. This risk can be mitigated by reviewing the effects of the provisions after fixed period of time following implementation.

International reputation

The measures proposed for dolphins will enhance our international reputation by being able to demonstrate improvements to the protection of vulnerable and protected species.

Other

There is always the potential for new information on dolphin distribution to create the need to reassess and remodel the risk to dolphins from the lethal threat of toxoplasmosis and the sub-lethal threat of seismic surveying and seabed mining. The Threat Management Plan and the measures in place to protect dolphins may need to be reviewed in light of any new analysis that reveals a significant threat requiring a management response.

Section 6: Implementation and operation

6.1 How will the new arrangements work in practice?

Establishing or varying Marine Mammal Sanctuaries, and defining the activities that may or may not take place in them, is a legislative tool available to the Minister of Conservation (with consent of the Minister of Energy and Resources, Minister of Transport and Minister for the Environment) under the Marine Mammals Protection Act 1978.

A Gazette Notice indicating the Minister's intention to vary the sanctuaries would be issued in June 2020.

Iwi, mining, oil and gas industry representatives; environmental and other non-government organisation stakeholders and the public have had an opportunity to help shape these requirements during public consultation in June 2019. A 28-day notice period in relation to the issuing of a Gazette Notice will provide a further opportunity for stakeholders to engage with the proposals. The Department of Conservation will engage directly with Treaty partners, and targeted and detailed information will be provided to affected stakeholders.

The proposals would come into effect in the second half of 2020, following publication of a final Gazette Notice.
It is the intention to manage the operational implementation issues by collaborating closely with all agencies involved. This will also include stakeholder engagement. Implementation will be a substantial undertaking, requiring the co-operation of the Department of Conservation, Fisheries New Zealand and the Ministry of Business Innovation and Employment.

Local government bodies in Taranaki, Canterbury, Kaikoura, Marlborough, Wellington and Kapiti Coast, Horowhenua, Auckland, Kaipara and Waikato maintain a substantial interest, and the Department of Conservation will ensure these local government organisations remain informed.

The Department of Conservation will have overall responsibility for the sanctuaries as well as overall responsibility for the toxoplasmosis plan (in co-operation with MPI), and the Hector's and Maui dolphin research plan, and for measuring public engagement with the Threat Management Plan under an agreed five-year engagement plan.

Research programme

Gathering more information on Hector's and Māui dolphins and the threats impacting on them will be crucial to help ensure that the actions we undertake are appropriate and lead to the ability of subpopulations to recover and remain at the desired levels. To improve the co-ordination of research activities a national research co-ordination process will be implemented based on an agreed five-year research programme. Over the longer-term, the Department of Conservation proposes to publish a research plan for Hector's and Maui dolphins, in order to set out how it will use empirical data to determine the status of the sub-populations.

Engagement plan

Good science communication to raise awareness about dolphins and what can be done to better protect them is an important part of their recovery. An engagement plan will be developed that will ensure there are a range of opportunities for tangata whenua and local communities to contribute information and support the initiatives proposed. DOC also proposes a five-year engagement plan, to maintain the high interest among New Zealanders in the dolphins. The Department of Conservation proposes to begin work on both plans immediately.

Risk assessment

A spatial risk assessment of threats to Hector's and Māui dolphins (the risk assessment), was commissioned by Department of Conservation and Fisheries New Zealand as part of this review, and provided by a team of independent and academic scientists led by NIWA. The spatial risk assessment is a substantive advance on risk assessments that have been undertaken previously, enabling more refined estimates of the special overlap of dolphin distribution with fishing activities and some non-fishing threats. The risk assessment has been subject to peer review, including by an international panel of experts.

Fisheries New Zealand and Department of Conservation will jointly maintain the risk assessment. The risk assessment will be reviewed on a 2-3 yearly basis using information gathered from monitoring.

6.2 What are the implementation risks?

Issues regarding implementation raised through consultation

There are several key implementation risks with the proposed measures, which fall into the following categories:

- Effectiveness;
- Litigation; and
- Compliance.

Effectiveness – Toxoplasmosis Action Plan

There was criticism from submitters that the Department of Conservation and Fisheries New Zealand do not have advanced plans for reducing toxoplasmosis and that there was a lack in the detail of the consultation document about the Toxoplasmosis Action Plan.

There is likely to be criticism from fishing and extractive industry that action to address the lethal threat from toxoplasmosis does not go far, or fast, enough.

The Toxoplasmosis Action Plan is a major immediate implementation risk, given it requires a careful understanding of the epidemiology of the disease, the uncertainties around quantifying the risk, the scale of the action required to resolve the problem , and what can be done – practically – to reduce the parasite loading into the marine environment, and

slow the disease in the dolphins. Assembling sufficient expertise to draw-up such a plan presents a practical hurdle, and despite an increasing number of international situations where wildlife is threatened by toxoplasmosis, there are currently no known practical examples of how to reduce this disease.

To mitigate this risk the Department of Conservation proposes to begin assembling the expertise for the toxoplasmosis plan immediately.

Litigation

9(2)(h) [redacted]

Compliance

Successful implementation of seismic surveying and seabed mining measures requires there to be a high degree of compliance from those directly affected by the measures. Compliance issues may result from :

- Insufficient communication so parties are unaware of new requirements
- Processes being inefficient/expensive
- People not abiding by the new regime or
- Problems enforcing the new requirements.

These risks will be mitigated by a communication and engagement plan as well as the proposed exemptions that will apply. The Department of Conservation will monitor compliance.

The Marine Mammal Protection Act 1978 has established offences and penalties for non-compliance[16]. Every person who commits an offence is liable on conviction to imprisonment for a term not exceeding 1 year or a fine not exceeding $100,000 or both (for individuals) and in the case of a body a fine not exceeding $200,000. In any case, if the offence continues, the individual or body corporate may be fined up to a further $10,000 for every day on which the offence continues.

Other risks

The Department of Conservation recognise the risk of any or some of the following risks may occur over 4-5 years:

[16] Section 23 Marine Mammal Protection Act 1978.

- Falling public interest in Hector's and Māui dolphins
- The difficulties in interpreting empirical data to estimate the size and trajectory of the subpopulations

The research and public engagement plans are proposed as mitigation of these risks.

Section 7: Monitoring, evaluation and review

7.1 How will the impact of the new arrangements be monitored?

The Department of Conservation is best placed to collect information and monitor the impact of the new measures on the dolphin populations and this will take place as part of business as usual by the Department of Conservation.

The impacts will be monitored by direct feedback from industry stakeholders and there are existing monitoring and evaluation provisions currently used to monitor performance of the Marine Mammals Protection Act which can be adapted.

For the Toxoplasmosis Action Plan, performance plans are proposed which will measure progress towards achieving the two objectives.

Effectiveness of the measures will also be monitored via:

- Research (e.g. updated information on abundance and distribution, updated risk assessments) by both Fisheries New Zealand and the Department of Conservation.
- The necropsy programme managed by the Department of Conservation to determine cause of death when dolphin carcasses are able to be recovered.

Existing annual research planning processes run by Fisheries New Zealand (via the Aquatic Environment Working Group) and the Department of Conservation (Conservation Services Programme) determine new information and analysis needs, and these groups involve other stakeholders (e.g. academics, environmental groups, industry representatives) in those discussions.

Department of Conservation and Fisheries New Zealand are also proposing the establishment of North Island and South Island Stakeholder Advisory Groups made up of scientific experts and interested stakeholders that have knowledge and experience on the range of human-induced threats being managed under the Threat Management Plan.

Data will be analysed and discussed in appropriate forums (e.g. Science Working Groups, Stakeholder Advisory Groups, and/or other engagement meetings) with tangata whenua and stakeholders (or their representatives) as required.

The Department of Conservation will also undertake the research programme outlined in section 6.1.

7.2 When and how will the new arrangements be reviewed?

The Hector's and Māui dolphin Threat Management Plan (or portions of it) is reviewed by the Department of Conservation and Fisheries New Zealand approximately every five years. Revisions may be proposed if supporting information indicates the existing management measures (regulatory and voluntary) are not supporting delivery of the vision and goals of the plan.

Evidence supporting a review may include:

- New information on the abundance and distribution of the dolphin populations.
- New necropsy information indicating changes to human-induced deaths.
- New information on the distribution and intensity of human-induced threats.
- New information on the vulnerability and/or susceptibility of the dolphins to human-induced threats.
- The level of human-induced deaths exceeds the levels that would allow the population outcomes and/or fisheries objectives (for example) to be achieved.

Early reviews may also be prompted by new information that indicates:

- the Hector's and/or Māui dolphin are at a greater risk of decline;
- a sudden increase in human-induced mortalities; and
- human-induced mortalities in areas where they are unexpected.

Regular engagement by the Department of Conservation with tangata whenua and interested or affected stakeholders (commercial, recreational and environmental groups) provides an opportunity for discussion of concerns with any non-fishing measures, achievement of the objectives, and any other related matters (e.g. research, monitoring, and education).

The Minister can also vary restrictions within the sanctuaries by gazette notice.

Annex 1 - Current permits and potential subsequent permits

Permit Number	Name (if available)	Permit Type and Commodity	Owner or Operator
54068	N/A	Minerals Exploration Permit	Trans-Tasman Resources
55709	N/A	Minerals Exploration Permit	Ironsands Offshore Mining Limited
38154	Pohokura	Petroleum Mining Permit	OMV NZ Production Limited
38161	Turangi	Petroleum Mining Permit*	Greymouth Petroleum Turangi Limited
50509	Moturoa	Petroleum Mining Permit	Greymouth Petroleum Limited
51378	Kowhai	Petroleum Mining Permit*	Greymouth Petroleum Mining Group Limited
57075	Cloudy Bay	Petroleum Exploration Permit	OMV New Zealand Limited
38146	Kupe	Petroleum Mining Licence	Beach Energy Resources NZ (Kupe) Limited
38151	Rimu	Petroleum Mining Permit*	Westside New Zealand Limited
38155	Kauri	Petroleum Mining Permit*	Westside New Zealand Limited
60094	South Basin Boundary	Petroleum Exploration Permit	Todd Exploration Management Services Limited
60402	Kaheru	Petroleum Exploration Permit	Westside New Zealand Limited
381012	Maui	Petroleum Mining Licence	OMV Taranaki Limited
52717	Clipper	Petroleum Exploration Permit	NZOG Devon Limited
* denotes an onshore permit that has a component offshore. This area is usually relatively small.			

There are currently 14 active permits within the current and extended MMS. Of these, six are exploration permits with the ability to apply for subsequent mining permits. The remaining 8 are mining permits with no ability to apply for subsequent permits, with one technical exception. Section 30(5) of the CMA 1991 provides a situation where a subsequent mining permit could be applied for, but only where there is a discovery made in a mining permit and that discovery has not been permitted. This has not occurred in New Zealand before, and so is considered unlikely.