



Department of  
Conservation  
*Te Papa Atawhai*



**Fisheries New Zealand**

*Tini a Tangaroa*

# Protecting Hector's and Māui Dolphins



**Consultation on proposals for an updated Threat Management Plan**

**Publisher**

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# 1. Foreword

New Zealand's native dolphins are among the rarest in the world.

Hector's dolphins are found in the waters around the South Island. They number some 15,000 and are classified as nationally vulnerable.

Māui dolphins are found on the West Coast of the North Island. There are only around 63 of them left. They are classified as nationally critical and face a real threat of extinction.

These mammals are precious taonga and we need to act now to ensure they have the best chance for long-term survival.

The proposals in this consultation document draw on the latest data and expertise and give us the best picture yet of the risks to these dolphins.

This information tells us that there is a range of human-induced threats to these dolphins, including fishing, the disease *toxoplasmosis* and mining activities.

We believe we have an opportunity to make a real difference by taking action to reduce these threats.

Some of the options in this paper may have an impact on people's livelihoods.

Your feedback will help us understand these impacts as well as the risks and opportunities associated with each option.

We encourage you to make your voice heard.

Hon Stuart Nash

Hon Eugenie Sage

## 2. Consultation

The purpose of this document is to seek views and input into:

- **Part A:** The overall vision, goals and objectives of the Hector's and Māui Dolphin Threat Management Plan (TMP).
- **Part B:** Proposals for sustainability measures under the Fisheries Act 1996 to manage impacts of fishing on Hector's and Māui dolphins.
- **Part C: Proposals for a *Toxoplasmosis* Action Plan.**
- **Part D:** Proposals for the management of other non-fishing threats.

### Supporting information

More detailed information on these proposals is provided in the supporting document *Protecting Hector's and Māui Dolphins: Supporting Information and Rationale*, and the supporting science documents which are available at [www.fisheries.govt.nz/dolphintmp](http://www.fisheries.govt.nz/dolphintmp)

### How to submit on this consultation

The Department of Conservation (DOC) and Fisheries New Zealand welcome written submissions on Part A, Part B and Part C and Part D as outlined above.

The deadline for all submissions is:

**5pm on 4 August 2019.**

Submissions can be made through the online tool available at [www.surveymonkey.com/r/dolphintmp](http://www.surveymonkey.com/r/dolphintmp)

Alternatively, you can provide a submission via email, post or hand delivery.

Prompts have been included in this document to support feedback, but your submission can take any form of your choosing.

Please be sure to include the following information in your submission:

- the title of the discussion paper;
- your name and title;
- your organisation's name (if you are submitting on behalf of an organisation);
- your contact details (for example, phone number, address and email).

You can return your submission via:

Email: [DolphinTMP@doc.govt.nz](mailto:DolphinTMP@doc.govt.nz)

Post: Consultation: Hector's and Māui Dolphin  
Threat Management Plan  
Department of Conservation  
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### Official Information Act

All submissions are subject to the Official Information Act and can be released, if requested, under the Act.

If you have specific reasons for wanting to have your submission withheld, please set out your reasons in the submission. DOC and Fisheries New Zealand will consider those reasons when making any assessment for the release of submissions if requested under the Official Information Act.

DOC and Fisheries New Zealand will analyse all submissions and develop joint recommendations for the Minister of Fisheries and the Minister of Conservation to consider.

### 3. Treaty of Waitangi

Māori have interests in both the protection of Hector's and Māui dolphins and the management of, and involvement in, activities that are discussed within this discussion paper. Ensuring partnership and delivery of commitments and obligations is important across all these aspects.

The Department of Conservation has important responsibilities in terms of:

- Section 4 of the Conservation Act 1987;
- the Marine and Coastal Area (Takutai Moana) Act 2011;
- Treaty settlements;
- relationships with whānau, hapū and iwi.

Under the Marine and Coastal Area (Takutai Moana) Act 2011, any whānau, hapū or iwi, who consider they exercise kaitiakitanga in a part of the common marine and coastal area affected by the proposals in this discussion paper have a right to participate in the process and provide their views on the proposals. The Minister of Conservation must have particular regard to the views of affected whānau, hapū and iwi in considering the proposals.

Views by any whānau, hapū or iwi who consider they are affected may provide that advice to the Director-General of Conservation and their views on the proposals in this discussion document by **5pm on 4 August 2019 to this email address: [marine@doc.govt.nz](mailto:marine@doc.govt.nz)**.

Fisheries New Zealand also has specific agreements and obligations under the Fisheries Act 1996.

When implementing sustainability measures, including to manage impacts on marine mammals or other wildlife under the Fisheries Act 1996, the Minister of Fisheries is required to:

- consult with such persons or organisations as the Minister considers are representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Māori, environmental, commercial, and recreational interests; and
- provide for the input and participation of tangata whenua having:
  - a non-commercial interest in the stock concerned; or
  - an interest in the effects of fishing on the aquatic environment in the area concerned;
  - have particular regard to kaitiakitanga.

Furthermore, various Treaty of Waitangi settlements are underpinned by legally enforceable Treaty Settlement Protocols that provide for input and participation in fisheries management decisions by specific iwi with rights and interests in the marine environment.

#### Treaty settlements

DOC and Fisheries New Zealand have commitments in historical Treaty of Waitangi settlements, particularly through protocols and relationship agreements, which require the both agencies to engage early on the matter for consultation; ensure sufficient information and time is provided to enable effective participation, engage with an open mind, and report back on the outcome.

In addition, many Treaty settlements between iwi and the Crown recognise the cultural significance of marine mammals, including Hector's and Māui dolphins. DOC and Fisheries New Zealand have processes for engaging with affected whānau, hapū or iwi to incorporate their views into the TMP and agree a process for ongoing engagement.

#### Embedding Mātauranga Māori in the Threat Management Plan

##### Acknowledging whakapapa and including mātauranga māori in management

Tangata whenua have extensive knowledge of the life cycle, role and distribution of the dolphin populations in the marine ecosystem, and the impacts of perturbation of the ecosystems on populations. In addition many Māori consider all the elements of the ecosystem are related through whakapapa. Collectively this approach underpins mātauranga Māori (Māori knowledge and world view). Mātauranga Māori in respect of the dolphin populations and associated ecosystems has been developed over hundreds of years of interactions with the populations and associated ecosystems and forms a significant information base and management approach to mitigating threats to the affected dolphin populations.

The legislative base for many actions in the TMP require decision makers to use best available knowledge when making decisions. Best available knowledge should include mātauranga Māori. Progress has been made on these elements for the management of Māui and Hector's dolphins but there are still significant opportunities to partner and work more closely with tangata whenua through the development and implementation of the TMP.

##### Working alongside tangata whenua

Māui and Hector's dolphins are a taonga species to Māori. Māori have several names for the dolphins: Tutumairekurai, Aihe, Papakanua, Upokohue, Tukuperu, Tūpoupou and Hopuhopu are some.

The Principles of the Treaty require the Crown to act in good faith, provide for input of tangata whenua into the development of policies and programmes that affect their interests, act with an open mind, make informed decisions and protect Māori rights and interests. In addition, within the range of the dolphin populations affected by the TMP, the Crown has entered into Treaty settlements which specify which representatives of tangata whenua the Crown should engage with and how engagement should proceed. The Treaty agreements are legally binding on both parties while in effect. To give effect to these agreements Iwi and the Crown have established a number of Forums across most of the range of threatened dolphin populations.

In addition the Government has recently provided guidance on the optimal approach to engagement with tangata whenua when Māori rights and interests are affected.

In total the agreements and principles of the Treaty are likely to require involvement of Tangata whenua early in the process to identify areas of threat to the dolphin population, possible mitigation options, affects on Māori rights and interests, and proposed solutions.

Officials from DOC and Fisheries New Zealand will work with representatives of tangata whenua to establish and maintain effective input of tangata whenua into the management of threatened dolphin populations consistent with the Principles of the Treaty of Waitangi and Treaty settlement agreements with relevant iwi, and to recognise the value of Mātauranga Māori in management of threats.

## 4. Overview

Hector's and Māui dolphins are only found in New Zealand. Together they are one of the world's rarest dolphin species (Māui dolphins and Hector's dolphins are subspecies).

In response to public and government concern about the effect of human-induced deaths on these dolphins, the Hector's and Māui Dolphin Threat Management Plan (TMP) was developed in 2008. The Māui dolphin component was reviewed in 2012, and the current process is the first complete review of the TMP since it was established.

### The problem

The Hector's dolphin (mainly South Island) is ranked as nationally vulnerable in the New Zealand Threat Classification System, and is estimated to consist of around 15,700 individual dolphins. Population trends are uncertain but may be declining. The Māui dolphin (found on the west coast of the North Island), is estimated to have a population of around 63 individuals above one year of age and is ranked as nationally critical in the New Zealand Threat Classification System. Population trends are uncertain, but it remains vulnerable to any human-induced deaths.

There are a number of threats facing the dolphins including fishing-related threats and non-fishing related threats. Some of these threats are a direct cause of dolphin deaths (see Table 1). Other threats may have a more indirect negative impact on the population (for example, by reducing reproductive success). *Toxoplasmosis*, a parasite transmitted through cat faeces, has emerged as a significant risk.

### Roles and responsibilities

The Hector's and Māui dolphin TMP is led by the Department of Conservation (DOC) and Fisheries New Zealand. The partnership between these agencies reflects their respective roles and responsibilities. It is DOC's role and responsibility to manage the populations overall. It is Fisheries New Zealand's role and responsibility to manage fishing. Historically, fishing has been a significant human-induced threat to the dolphins.

In addition to DOC and Fisheries New Zealand, various other central and local government agencies have mandates and responsibilities that affect the coastal and marine environment and, therefore, marine mammals.

The TMP review has resulted in a proposed new guiding vision, goals and objectives, as well as specific measures under relevant legislation to address threats to the dolphins.

### Threat Management Plan review

The TMP is intended as a medium-term planning document, subject to review approximately every five years. The review allows the Government to consider the appropriateness of the plan and the effectiveness of measures implemented to achieve the plan, particularly in light of new information.

Ministers have signalled their desire for a review of the TMP for a range of reasons, including to continue engagement with iwi in shaping the successful management of this taonga species, to provide direction on future research and monitoring needs, and to assess new information to ensure the measures are effective.

For this review, agencies developed an extensive independent research, risk assessment and evaluation process. The process involved contributions from a range of scientific experts from New Zealand and overseas, as well as opportunities for tangata whenua and stakeholder input. The science work that was undertaken is outlined in the next section.

North Island (Māui) and South Island (Hector's) Stakeholder Forums comprised of experts from environmental non-government organisations (eNGOs), non-commercial fishers, commercial fishing representatives, and tourism operators were established to provide input into the management aspects of the review. Initial engagement has also taken place directly with iwi, and through iwi fisheries forums in both the North Island and the South Island. Feedback from this process has been incorporated into this draft for wider consultation.

**Table 1: Hector's and Māui dolphin annual deaths from various causes**

	Mean annual deaths (5th to 95th percentile estimates)		
	Commercial Set Net	Inshore Trawl	<i>Toxoplasmosis</i> *
Māui	0.10 (0 - 0.25)	0.02 (0 - 0.05)	1.9 (1.1 – 3.0)
Hector's	44 (21 – 80)	14 (1 – 43)	334 (132 – 625)

\* It is important to note that commercial fisheries mortalities (set net and inshore trawl) are based on fisheries observer data and have been estimated with high certainty. *Toxoplasmosis* deaths have been estimated from necropsy results, which relies on the relative detectability of dolphin carcasses that have died from various causes, resulting in uncertainty that may not be reflected in the ranges above.



Consultation on this discussion paper allows those with an interest to have their say on the proposed plan and measures.

Following consultation, agencies will prepare final advice to Ministers incorporating the views obtained during consultation and the views of agencies. Ministers will then make decisions on the plan and associated management measures. A process to implement the agreed measures will then occur. It is expected that any revised measures will be implemented in early 2020.

### Information underpinning the review

New information and data to inform this review of the TMP has been used. This includes:

- new aerial surveys to estimate the spatial distribution and population abundance of Hector's dolphins;
- new genetic analyses to estimate the population size and trend of Māui dolphins;
- updated fishing effort data and observations from fisheries observers, to estimate fisheries capture rates;
- use of fisher survey data to estimate relative levels of recreational set-net fishing effort in different parts of New Zealand;
- new use of public sightings and fisheries observer sightings data to understand the spatial distribution of the dolphins, including in locations outside their normally recognised range;
- acoustic sensor data to detect the presence of dolphins in different parts of the historical range of Māui dolphins;
- updated necropsy information to identify the cause of death of beachcast dolphin carcasses;
- improved understanding of the biology of the dolphins to estimate the response of the dolphin populations to different threat levels;
- recently revised threat classification for Hector's dolphins.

The update of the TMP is informed by a new multi-threat risk assessment that allows decision-makers to understand the nature and location of threats to the dolphins, and the level of impact on different dolphin populations from threats caused by humans. The assessment was led by NIWA in collaboration with numerous New Zealand and international scientists over 18 months.

As part of the review, we have also identified where the structure of the assessment model is uncertain and where the uncertainty cannot be expressed statistically, so that decision-makers can take that into account.

An aerial photograph of a vast, turbulent ocean. The water is a deep, dark blue, with numerous white-capped waves and swells visible across the surface. The perspective is from directly above, looking down at the churning water. The text is overlaid on the left side of the image.

# **Part A: Summary of proposals for the guiding vision and objectives**



We are proposing to update the guiding vision and goals of the TMP to ensure that they reflect what tangata whenua, stakeholders and the wider public want the TMP to achieve.

We also propose population outcomes to guide the setting of objectives and performance measures to help ensure the effective delivery of the TMP vision and goals. The objectives and performance measures will support more transparent monitoring of the plan, help to inform responses to events that may occur, and identify whether any additional action is needed.

### Proposed vision statement

The vision statement used in previous iterations of the Threat Management Plan was “Hector’s and Māui dolphins should be managed for their long-term viability and recovery throughout their natural range”.

The proposed new vision statement is:

**New Zealand’s Hector’s and Māui dolphin populations are resilient and thriving throughout their natural range.**

### Proposed goals

Since 2002, Hector’s and Māui dolphins have been designated as separate sub-species in recognition of the genetic differences between the population found on the west coast of the North Island and the population found primarily around the South Island.

The existing TMP operates on a “subpopulation” scale. This means it differentiates between the two sub-species and recognises the east, west and south coasts of the South Island as separate Hector’s dolphin biological subpopulations, consistent with genetic evidence. In updating the TMP, we propose to also recognise a distinct subpopulation on the north coast of the South Island.

We propose to continue to manage at a subpopulation scale, noting that:

- genetic diversity that occurs between subpopulations is a consideration to support overall viability of the species;
- nature and level of human activities and other threats varies between areas;
- interests of tangata whenua and local communities focus on how activities and risks are managed at the local level, including at scales that are smaller than the recognised subpopulations.

The goals in the initial TMP were to: ensure that the long-term viability of Hector’s and Māui dolphins is not threatened by human activities; further reduce impacts of human activities as far as possible, taking into account advances in technology and knowledge, and, financial, social and cultural implications.

To better reflect the scale of management, the proposed long-term goal for the plan seeks to ensure that:

**Hector’s and Māui subpopulations are thriving or increasing, supported by an enduring, cohesive and effective threat management programme across New Zealand.**

Beneath the long-term goal, four medium-term goals have been identified:

- 1. Ensure known human-caused threats are managed within levels that allow subpopulations to thrive and recover:** There are a range of human-induced threats that may result in adverse effects to the dolphins. This goal is intended to help ensure that those threats are managed at levels that allow the subpopulations to collectively achieve the overall desired outcome expressed in the vision statement.
- 2. Engage all New Zealanders in Hector’s and Māui dolphin conservation:** There is a need to engage the public of New Zealand to help understand and, where possible, support the management of human-induced threats to the dolphins. This goal will drive objectives around the ongoing use of stakeholder forums; transparency and accessibility to information on the plan and its performance; education about the dolphins and the threats facing them; and what the public can do to support threat management.
- 3. Understand how tangata whenua wish to exercise kaitiakitanga of Hector’s and Māui dolphins:** Feedback to agencies reflects that there is need to understand whānau, hapū and iwi expectations on exercising kaitiakitanga for the dolphins. In discussions, both agencies hope to hear about how they can work with tangata whenua to enable them to strengthen their participation in efforts to understand the threats to the dolphins and better protect them, based on mātauranga Māori values and concepts.
- 4. Improve knowledge of poorly understood threats:** There are some human-induced threats to the dolphins that are poorly understood. The intent of this goal is to identify and resource new research and monitoring to improve our understanding of the nature and extent of those threats.

### Desired population outcomes

Setting desired population outcomes helps to further define the goal “Ensure known human-caused threats are managed within levels that allow subpopulations to thrive and recover” by setting the level at which management will aim to keep threats below for each population. The outcomes will help to drive specific objectives to reduce threats.

A range of population outcomes could be chosen. Managing human induced mortality with a high level of certainty at a level sufficient to ensure the population is maintained at 50 percent of the maximum number of dolphins the environment can support would ensure the population remains above a viable level (i.e. avoids extinction). A further reduction of threats to allow populations to increase or remain closer toward their maximum number, would be a better reflection of the vision and goals of the plan, but will increase the impacts and restrictions on some activities.

We propose setting a very high population outcome to guide management of impacts on Māui dolphins, to reflect the importance of the species and the very small current population size.

For the purposes of consultation, the following population outcome for Māui dolphins is proposed:

- **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.

A population outcome of 95 percent means the human-induced deaths need to be near as practicable to zero. This outcome is comparable to the most precautionary approaches proposed in other jurisdictions, in particular, the standard the United States uses under the Marine Mammal Protection Act.

The population of Hector's dolphin is much larger than Māui's. Therefore, the acceptable level of impact on the population can be larger while still allowing the population to be managed at very high proportion of the maximum number of dolphins the environment can sustain. This provides an opportunity to set a different balance between rebuilding Hector's dolphin populations and the socioeconomic impacts of measures that need to be put in place to do so.

For the purposes of consultation the following population outcome for Hector's dolphins is proposed:

- **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.

Further background information on the outcomes described and the corresponding level of impact is contained in the supporting documents.

## Objectives

Agencies propose that, where possible, the TMP contains detailed objectives that are specific, measurable and time-bound in relation to each of the work areas linked to the goals. Performance measures are proposed where appropriate for each objective.

Monitoring information associated with these objectives will be publicly accessible and reported to iwi and stakeholder advisory groups at regular intervals.

### Fisheries management objectives

Historically, fishing has been regarded as the greatest human-induced threat of deaths of Māui and Hector's dolphins. To address this threat the proposed overarching objective is to:

Ensure that dolphin deaths arising from fisheries threats do not:

- exceed population sustainability thresholds set to achieve the applicable population outcome with 95 percent certainty;
- cause localised depletion;
- create substantial barriers to dispersal or connectivity between subpopulations.

The objective will require very accurate information to be available to assess fisheries impacts. Most countries, including the United States, do not explicitly consider the level of certainty of information required in making this assessment.

For the benefits of this reduction in fisheries risk to be fully realised all other human induced deaths will also need to be effectively managed to close to zero.

### Toxoplasmosis management objectives

*Toxoplasmosis* is a parasitic disease that is spread by cat faeces and transported into the coastal environment through runoff from land. It can infect dolphins when they ingest contaminated food or water and is a confirmed cause of death in Hector's and Māui dolphins.

Although there is some uncertainty in the estimated number of *Toxoplasmosis*-related deaths, the risk assessment indicates that this disease is a significant human-caused threat to Māui dolphins and to some subpopulations of Hector's dolphins.

Mitigating the threat of *Toxoplasmosis* will require a multi-disciplinary and collaborative approach, working with a range of agencies and organisations.

DOC proposes to develop a *Toxoplasmosis* Action Plan, with the following objectives:

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

DOC will co-ordinate a workshop focused on *Toxoplasmosis*, involving national and international experts, to refine and prioritise research identified in the *Toxoplasmosis* Action Plan, within six months of the TMP being updated.

Performance plans are proposed to measure progress towards achieving the two objectives. These will include:

- testing all dolphin carcasses for *Toxoplasmosis*, even if it wasn't the primary cause of death;
- reporting on research results through existing science working groups and provide opportunities for stakeholders to engage;
- re-evaluating the *Toxoplasmosis* Action Plan against the above two objectives within five years of the TMP being updated.

See Part C for more information on how we propose to achieve these objectives.

### Management objectives for other non-fishing threats

The proposed overarching objective for management of other non-fishing threats is to:

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

Other threats may affect Hector's and Māui dolphins through various overlapping direct and indirect mechanisms. These threats include injury, disease, disturbance, noise, habitat modification, impacts on prey distribution and abundance, reduced foraging success, displacement, and habitat fragmentation.

This objective may be met through, among other things, interventions under:

- the Marine Mammals Protection Act 1978, for example, changes to marine mammal sanctuary boundaries and restrictions.
- the Marine Mammals Protection Regulations 1992 (MMPR).
- the Resource Management Act 1991 (RMA) and
- the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act).

Changes must comply with the Crown's Treaty obligations including under Section 4 of the Conservation Act, the Marine and Coastal Area (Takutai Moana) Act 2011, and Treaty settlements. It is therefore not possible to fix a timeframe for these aspects of the TMP.

See Part D for more information on how we propose to achieve these objectives.

### Engagement objectives

By better engaging the public, there are a range of opportunities for tangata whenua and local communities to contribute information and support initiatives proposed in the TMP.

Proposed engagement objectives are:

- New Zealanders are aware of, and can identify, Hector's and Māui dolphins;
- improved public understanding of the reasons and processes to report sightings;
- improved public understanding of the reasons and processes to report live strandings and beachcast dolphin carcasses;
- improved public understanding of how threats from activities that can cause human-induced effects on the dolphins are being managed.

Proposed performance measures are:

- high rates of reporting by the public of beachcast dolphin carcasses, and that carcasses are recovered in fresh condition leading to successful necropsy;
- regularly published fisheries compliance statistics, especially when set netting is involved;
- regular standardised reporting of fisheries capture events;
- regular standardised reporting of sightings;
- stakeholder advisory group operating from 2020;
- regular engagement with iwi, including through a possible tangata whenua advisory group.

The performance of the plan will be reviewed annually by a tangata whenua and stakeholder advisory group.

## Research objectives

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 take are appropriate and lead to the ability of subpopulations to recover and remain at the desired population levels.

To improve co-ordination of research activities, we propose a national research co-ordination process based on an agreed five-year research programme.

Proposed research objectives are to:

- improve information on cause of death of beachcast dolphins;
- improve understanding of diseases impacting Hector's and Māui dolphins;
- improve information on dolphin distribution and movements;

- improve information on distribution of dolphin prey;
- continue monitoring population size, trends and factors important to population growth for Māui and Hector's dolphins;
- improve information on fisheries impacts;
- improve estimation of dolphin subpopulation status and trends;
- research advisory group operating from 2020.

These objectives and associated measures will be further developed by a tangata whenua and stakeholder research advisory group that will provide input into research objectives, research planning and prioritisation.

### Consultation Questions:

- Do you agree with the new vision statement and goals for the TMP? Why or why not? Are there any changes you would suggest?
- Do you agree with the desired population outcomes? Why or why not? Are there any changes you would suggest?
- Do you agree with the updated objectives? Is there anything else that should be considered?

# Part B: Proposals for sustainability measures under the Fisheries Act 1996





## The risk

Historically, fishing has been regarded as the greatest human-induced threat of death of Māui and Hector's dolphins. In particular, set nets are not visible in the water and dolphins can get caught in them and drown. Hector's dolphins have also been reported caught in trawl nets<sup>1</sup>. In recognition of the threat from these fishing methods, area-based restrictions have been put in place. The total area covered by restrictions has increased over time, reflecting improved information on the nature and extent of the risks. In addition, there are voluntary protocols in place in the trawl fishery off the east coast of the South Island, designed to reduce the risk of death in that fishery.

In general, commercial set-net fisheries have been assessed as posing a substantially greater risk to dolphins than trawl fisheries. The assessment estimates that in the fisheries where most set-net deaths occur, a typical set net is 20 to 30 times more likely to capture or kill a dolphin than a single trawl in the same location.

The TMP risk assessment estimates that commercial fishing currently accounts for approximately:

- one Māui dolphin death every 9 years<sup>2</sup> from a population of approximately 63 animals;
- 59 Hector's dolphin deaths per year<sup>3</sup> from a population of roughly 15,000 animals.

The large majority of fishing-related deaths of Hector's dolphins occur on the east coast of the South Island. Set netting is thought to account for approximately 80 percent of fishing-related deaths, despite lower fishing effort levels and larger spatial closures. However, the TMP risk assessment also identifies specific locations where trawl risk is elevated.

Recreational set-net fishing is also a known threat, but available information is insufficient to inform quantitative estimates of this risk. We propose all restrictions on set netting to apply to both commercial and recreational fishing. Further discussion of the information on recreational fishing risk, which is estimated on a relative scale between subpopulations is available in the supporting paper *Protecting Hector's and Māui Dolphins: Supporting Information and Rationale*.

## Māui dolphin (west coast North Island)

The proposed outcome for the Māui dolphin population is:

**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.** The proposed objectives for managing fishing threats are to

Ensure that dolphin deaths arising from fisheries threats do not:

- exceed population sustainability thresholds set to achieve the population outcome, with 95 percent certainty;
- cause localised depletion;
- create substantial barriers to dispersal or connectivity between subpopulations.
- The risk assessment estimates:
- That to achieve this objective fishing must result in less than one dolphin death every seven years;
- the current average rate of deaths from commercial fishing is one dolphin every nine years;
- the 95 percentile estimate of current impact is one dolphin death every four to five years;

Although there is uncertainty in the information, the TMP risk assessment estimates that the number of deaths attributable to commercial fishing is low relative to those attributed to *Toxoplasmosis*. However, because the population of Māui dolphins is very small, there is rationale to reduce the risk of all human-induced deaths to as close as possible to zero to provide the best chance of preventing further population decline, and allow the population to increase as rapidly as possible.

Based on the above estimates, this means to achieve the proposed outcome we need to reduce the current level of fisheries risk by at least 50 percent.

A range of options have been developed to complement measures already in place and reduce the residual risk from both set netting and trawling (see Table 1). The options use the new information on spatial distribution (see Figure 1) and successively reduce the risk to the dolphins from commercial and recreational set nets and trawling, but also successively increase the level of impact on fishers and quota holders (see Table 2). The measures extend across the entire west coast North Island coastline in recognition of the potential alongshore range of Māui dolphin and/or Hector's dolphin. The options outlined are examples from the range available.

Set net fishing contributes 84 percent of the total commercial fisheries risk. Accordingly, options that prohibit the use of set nets result in the highest reduction in fisheries risk relative to socio-economic impact. Trawl fishing contributes a smaller portion of fisheries risk. Measures that prohibit trawl fishing result in proportionally greater socio-economic impacts relative to the level of risk reduction.

A further management approach, in combination with the options proposed, is implementation of a trigger mechanism where setnet and trawl fishing would be halted throughout the range of the dolphins if a fisheries capture occurred. This trigger mechanism would be used in combination with a high level of independent monitoring.

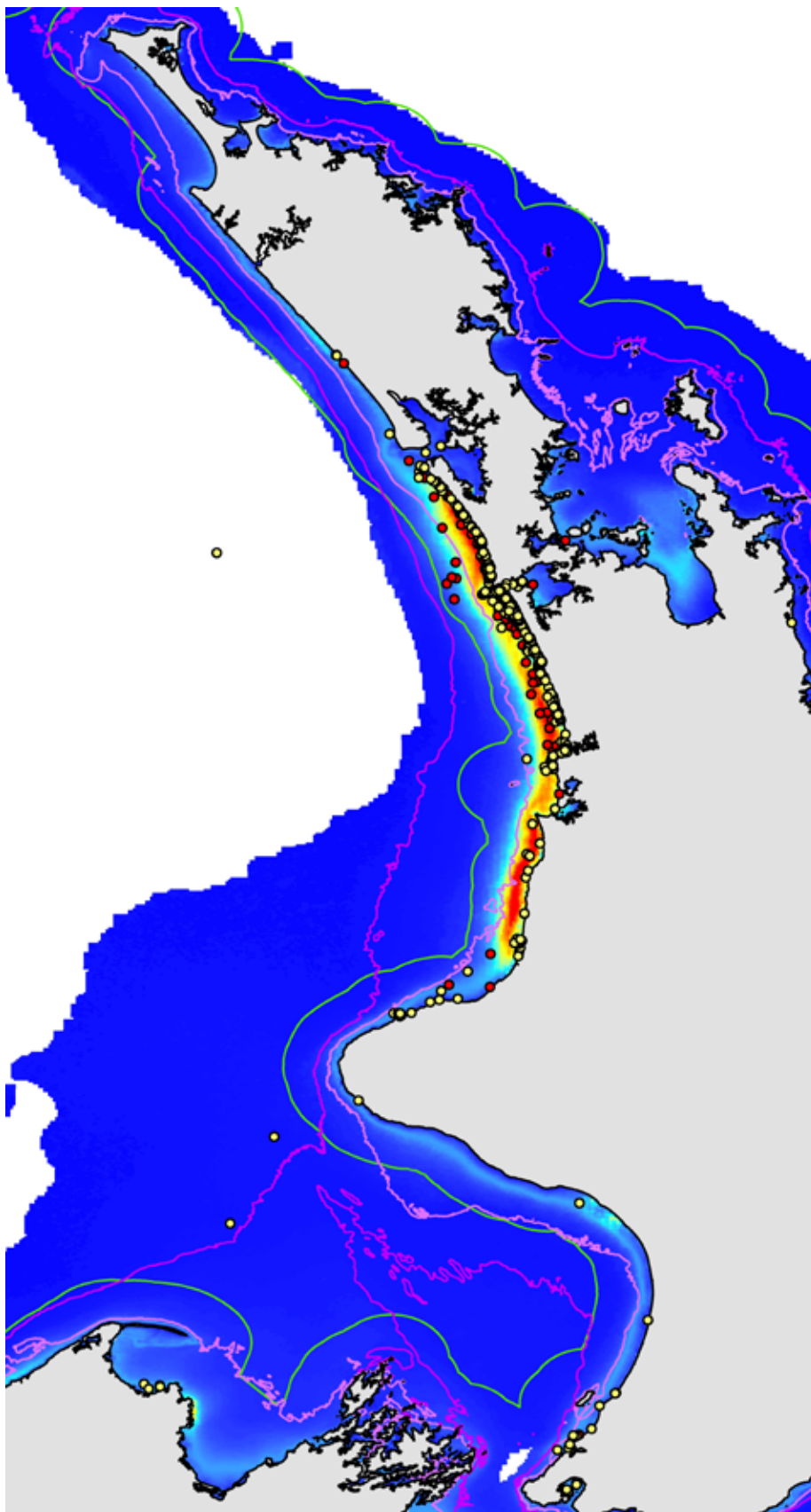
<sup>1</sup> For records of observed or reported fishing-related deaths see <https://www.doc.govt.nz/our-work/hectors-and-māui-dolphin-incident-database/>

<sup>2</sup> Range: one death per three to 50 years.

<sup>3</sup> Range: 23 to 122 deaths per year.



Figure 1: Estimated (winter) spatial distribution of Māui dolphins, including validated public sightings (summer sightings in yellow, winter sightings in orange), also shown are the 12 nautical miles offshore limit (in green) and the 50- and 100-metre depth contours (in purple)



**Table 1: West coast North Island (Māui dolphin) proposed method restrictions by fishing type**

Proposed area where fishing method would be prohibited

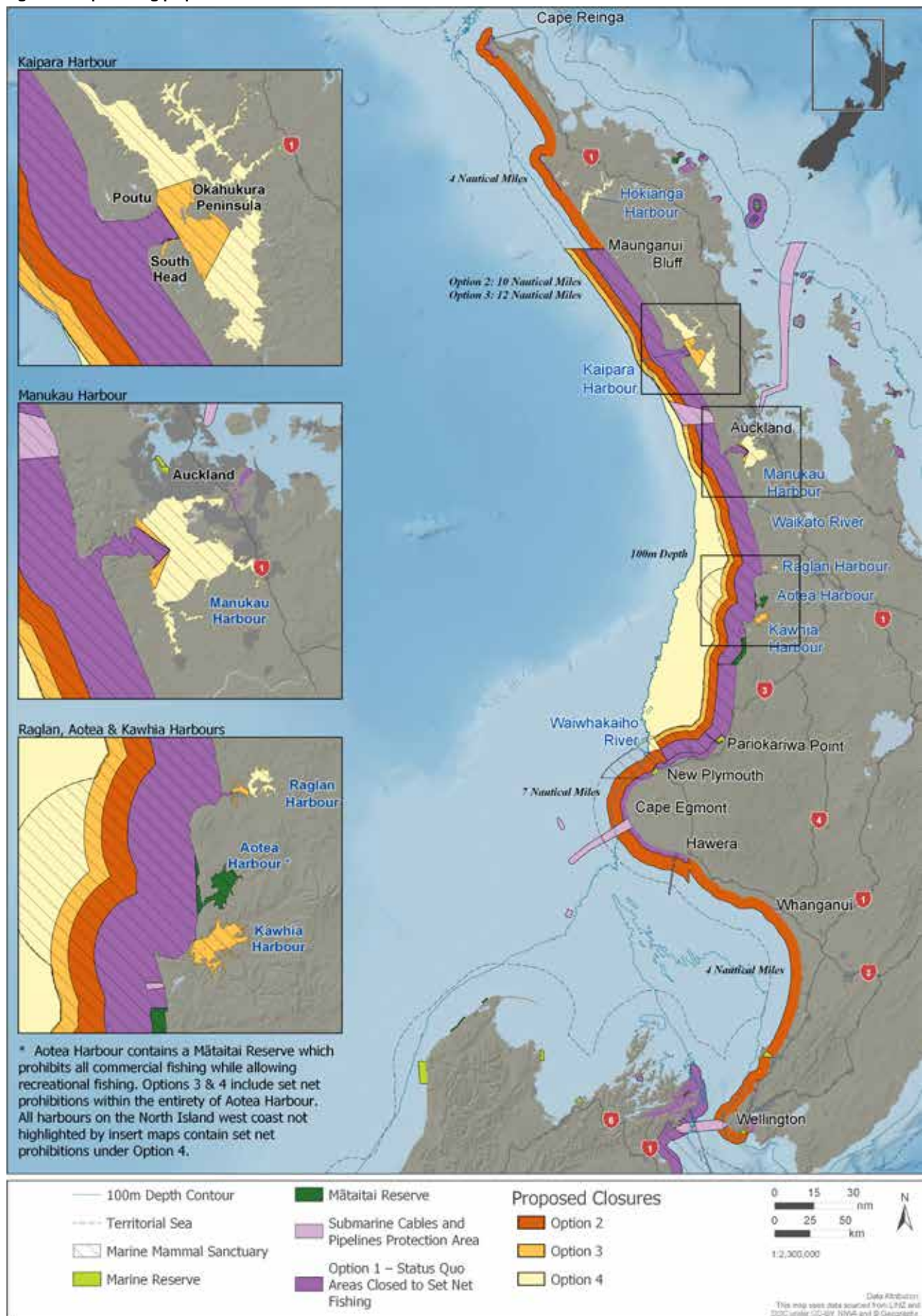
Set net (commercial and recreational)

Trawl

Location	Option 1 (status quo)	Option 2	Option 3	Option 4	Option 1 (status quo)	Option 2	Option 3	Option 4
Coast between Cape Reinga and Maunganui Bluff (potential habitat)	0–2 nautical miles offshore	–	✓	✓	Closure to 1 nautical mile	No change	✓	✓
	2–4 nautical miles offshore	–	✓	✓	–	–	–	–
Coast between Maunganui Bluff and New Plymouth (core area of distribution)	0–4 nautical miles offshore	✓	✓	✓	Closure varies between 2 and 4 nautical miles	✓	✓	✓
	4–7 nautical miles offshore	✓	✓	✓	–	–	✓	✓
	7–10 nautical miles offshore	–	✓	✓	–	–	✓	✓
	10–12 nautical miles offshore	–	✓	✓	–	–	–	✓
Harbours (Potential habitat – low number of sightings)	12 nautical miles – 100–metre depth	–	–	✓	–	–	–	✓
	Partial extension (refer to map)	–	✓	✓	✓	✓	✓	✓
	Remaining harbours	–	–	✓	✓	✓	✓	✓
Coast between New Plymouth and Cape Egmont (southern tail of distribution – low number of sightings)	0–2 nautical miles offshore	✓	✓	✓	–	–	✓	✓
	2–4 nautical miles offshore	Mandatory observer	✓	✓	–	–	✓	✓
	4–7 nautical miles offshore	Mandatory observer	✓	✓	–	–	–	–
Coast between Cape Egmont and Hawera (Hector's moving north may transit through this area)	0–2 nautical miles offshore	✓	✓	✓	–	–	✓	✓
	2–4 nautical miles offshore	Mandatory observer	✓	✓	–	–	✓	✓
	4–7 nautical miles offshore	Mandatory observer	✓	✓	–	–	–	–
Coast between Hawera and Wellington (potential habitat)	0–2 nautical miles	–	✓	✓	–	–	✓	✓
	2–4 nautical miles offshore	–	✓	✓	–	–	–	–

## Proposals for restricting commercial and recreational set netting under the Fisheries Act – west coast North Island

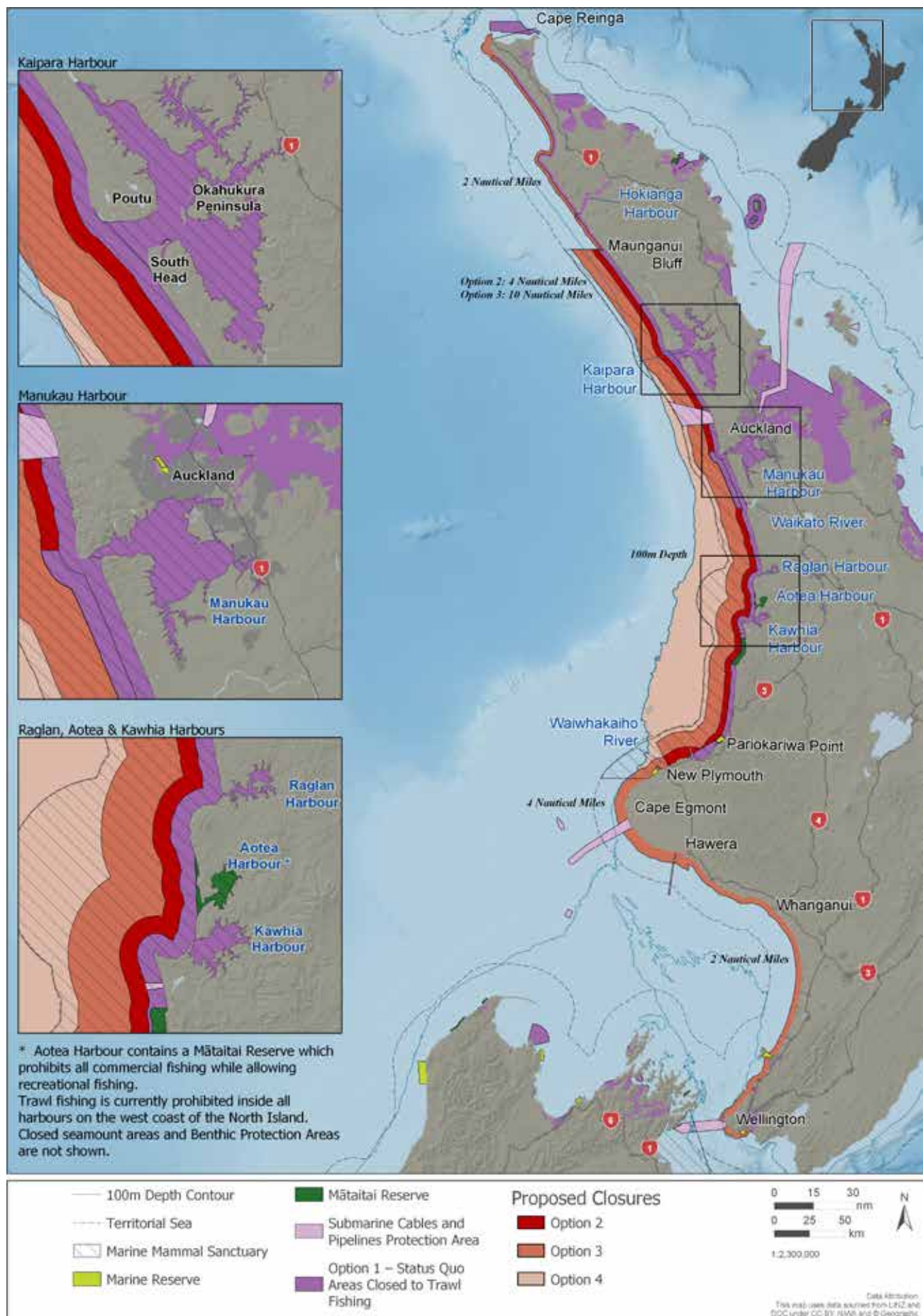
Figure 2: Map showing proposed boundaries of commercial and recreational set net closures





## Proposals for restricting trawling under the Fisheries Act – west coast North Island

Figure 3: Map showing proposed boundaries of trawl closures



## Socio-economic impacts

Table 2 uses information from average catch (last five years) and the price fishers receive for the species caught, to estimate revenue from the affected area. The Total Economic Value takes into account other value from processing and supply. A full explanation is provided in the supporting paper *Protecting Hector's and Māui Dolphins: Supporting Information and Rationale*.

It should be noted that the impacts calculated in Table 2 are estimates, and also will not fall equally on all parts of the industry or take account of the wider impacts on small communities. The estimates also do not take into account any adjustments that may be able to be made in relation to fishing using alternative methods or in alternative locations. More informed and detailed economic analyses will be required for the final advice.

The analysis also does not take account of the socioeconomic impacts of restricting recreational fishing. Information is sought on these impacts through the consultation process.

## Comparison of options

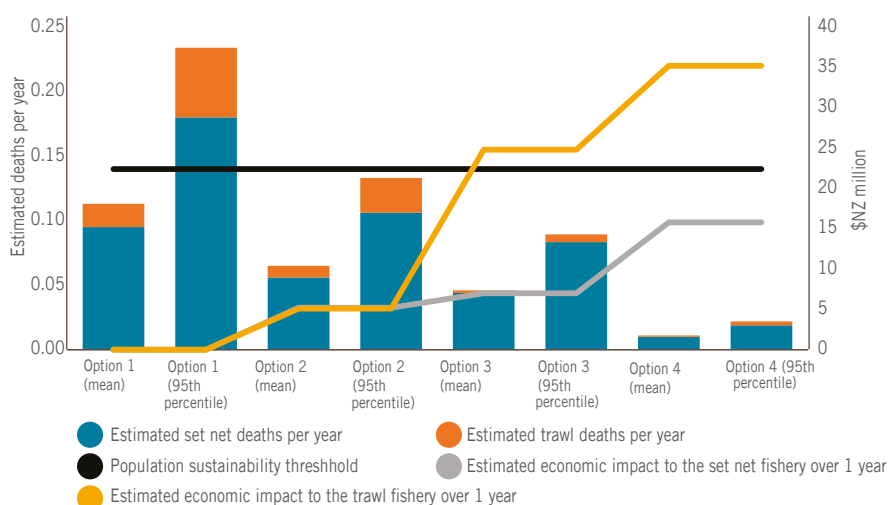
Figure 4 shows the outcome of each option at the mean level of estimated set net deaths (blue) and trawl deaths (orange) and at the upper 95<sup>th</sup> percentile. Making a decision at the 95<sup>th</sup> percentile is the most precautionary approach.

The black line shows the population sustainability threshold to achieve population recovery to 95 percent of the un-impacted level (0.14 deaths per year). Estimated deaths caused by fishing need to be below this line to ensure populations can rebuild to the desired level.

Set netting is considered to be a higher risk fishing method than trawling. The economic impacts on set netting and trawling are similar for Option 2, but become much higher for trawling for Option 3 and 4, even though the estimated number of deaths from trawling is much lower compared to the estimated number of deaths from set netting.

It should be noted that there is uncertainty in the information used to assess reduction in risk. The graph should be considered as broadly indicative of outcomes. When considering which option might be preferred, the relative cost and benefits of each option should be considered i.e. the socio-economic impact of option three for set net is similar to option two but results in a greater level of risk reduction. If implemented, option three for set net would result in measures extending further into harbours to cover areas where sightings and dolphin detections have occurred. It would also extend measures south from Hawera to Wellington, which sightings data suggests Hector's dolphins may use to traverse from South Island populations.

**Figure 4: Estimated deaths by year and economic impact by option for west coast North Island. Population sustainability threshold = the maximum number of dolphin deaths possible per year from fishing-related activities while still achieving the desired population objective.**



**Table 2: Estimated impacts on commercial fishing from proposals for set net and trawling closures off the west coast of the North Island**

	Set net			Trawl		
	Option 2	Option 3	Option 4	Option 2	Option 3	Option 4
Additional area closed (for each option separately)	6700km <sup>2</sup>	8400km <sup>2</sup>	14,600km <sup>2</sup>	1400km <sup>2</sup>	8100km <sup>2</sup>	14,500km <sup>2</sup>
No. of fishing permit holders with:						
>10% landings affected	78	112	160	8	15	18
>70% landings affected	28	30	96	0 (2>50%)	3	6
Landings of Quota Management Stocks currently taken in proposed closed area (highest impacts listed only)	Approx 40%SP08 (rig) and WAR8 (blue warehou)	43%SP08 (rig), 40%WAR8, 32%WAR1 (blue warehou)	41%SP01, 38%FLA1 (flatfish) 69%WAR8, 50%WAR1 (blue warehou)	8%TRE7 (trevally), GUR1 (gurnard), SNA8 (snapper)	60% TRE7(trevally) & SNA8 (snapper), 45% GUR8 (gurnard),	60% TRE7 (trevally) & SNA8 (snapper), 50% GUR8 (gurnard),
Estimate of total annual revenue	↓\$1.8mil	↓\$2.5mil	↓\$5.6 mil	↓\$1.8 mil	↓\$8 mil	↓\$12.5 mil
Total Economic Value Year 1	↓\$5.2 mil	↓\$7 mil	↓\$15.8 mil	↓\$5.1mil	↓\$24.8 mil	↓\$35.2 mil
Total Economic Value 3 years	↓\$13.7 mil	↓\$18.5mil	↓\$41.5 mil	↓\$13.5.5mil	↓\$65.1mil	↓\$92.5. mil
Total Economic Value 5 years	↓\$21.2mil	↓\$28.7mil	↓\$64.4 mil	↓\$20.9mil	↓\$101mil	↓\$143.5mil

## Hector's dolphin – South Island

Hector's dolphins occur around most of the South Island in three recognised subpopulations along the east, west and south coasts of the South Island. The north coast South Island Hector's dolphins may constitute a fourth subpopulation.

The proposed overall Hector's dolphin population outcome is:

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.

The proposed objectives for managing fishing threats are to ensure that dolphin deaths arising from fisheries threats do not:

- exceed population sustainability thresholds set to achieve the population outcome, with 95 percent certainty;
- cause localised depletion;
- create substantial barriers to dispersal or connectivity between subpopulations.

Local populations are important to local communities, local ecosystems and to enable connectivity between populations. A specific population objective for three local populations in the east coast of the South Island is proposed to ensure that these populations are not overly depleted.

Reduce fisheries risks to allow local Hector's dolphin populations to recover to and remain at or above 80 percent of the maximum number of dolphins the environment can support, with 95 percent certainty.

Table 3 shows the risk assessment estimates to achieve the overall and local population outcomes compared to current estimated fisheries-related deaths.

**Table 3: Estimated current annual commercial fisheries deaths (mean and 95th percentile estimates) and mean estimates of the number of annual fisheries-related deaths that would allow recovery to proposed population outcomes**

Subpopulation	Subpopulation size (mean estimate)	Estimate of current annual commercial fisheries deaths – mean (and 5 <sup>th</sup> -95 <sup>th</sup> percentiles)	Mean estimate of the number of annual fisheries-related deaths that would allow recovery to proposed population outcomes
Hector's			
east coast	9728	51 [22 – 105]	49
west coast	5482	6 [0 – 17]	27
south coast	332	1 [0.5 – 2.6]	2
north coast	214	1 [0.4 – 2.2]	1
east coast South Island – local populations*			
Kaikōura	757	11 [5 – 21]	10
Banks Peninsula	4505	17 [8 – 33]	56
Timaru	2725	20 [8 – 42]	34

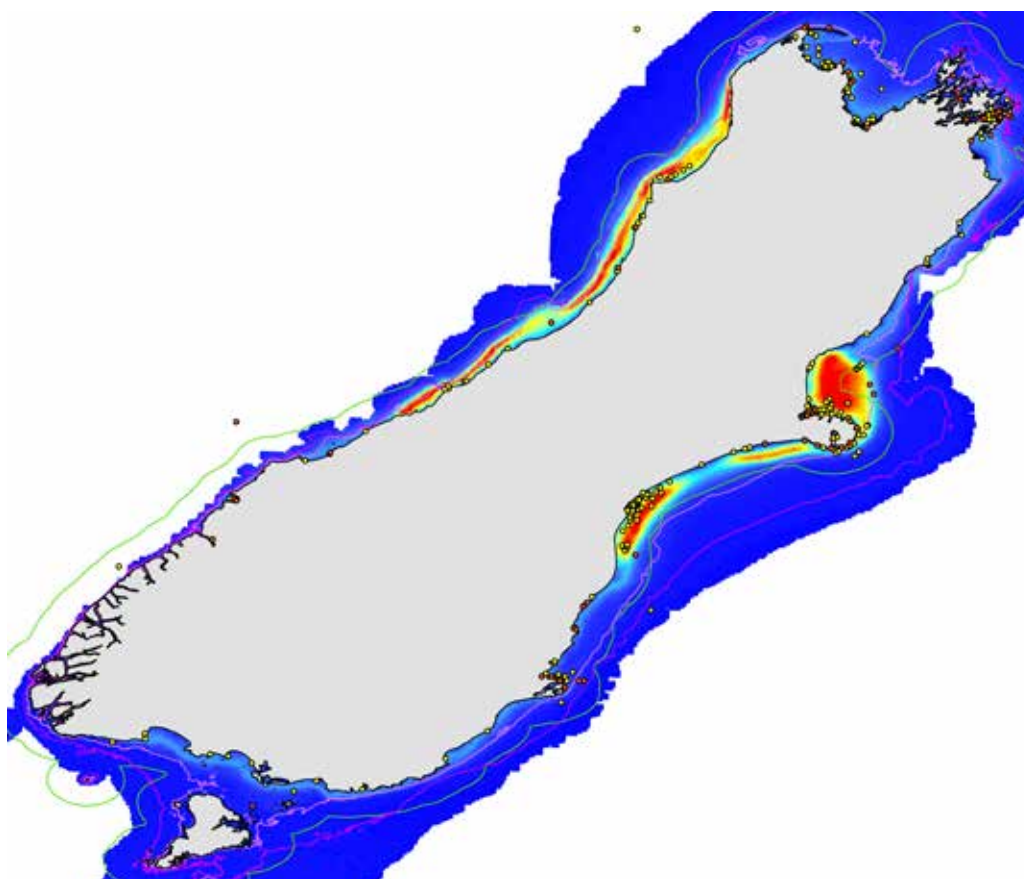
## Overview of options

Three broad options for management response are shown in Table 4.

- **Option 1** is to maintain the status quo for spatial management, and to require additional monitoring.
- **Options 2 and 3** provide different combinations of set-net and trawl closures designed to remove fisheries risk in areas where the remaining risks are highest (refer figure 5).

Alternatively, decision-makers may choose different combinations of area closures.

**Figure 5: Estimated (winter) spatial distribution of Hector's dolphins, including validated public sightings (summer sightings in yellow, winter sightings in orange), also shown are the 12 nautical miles offshore limit (in green) and the 50- and 100-metre depth contours (purple)**



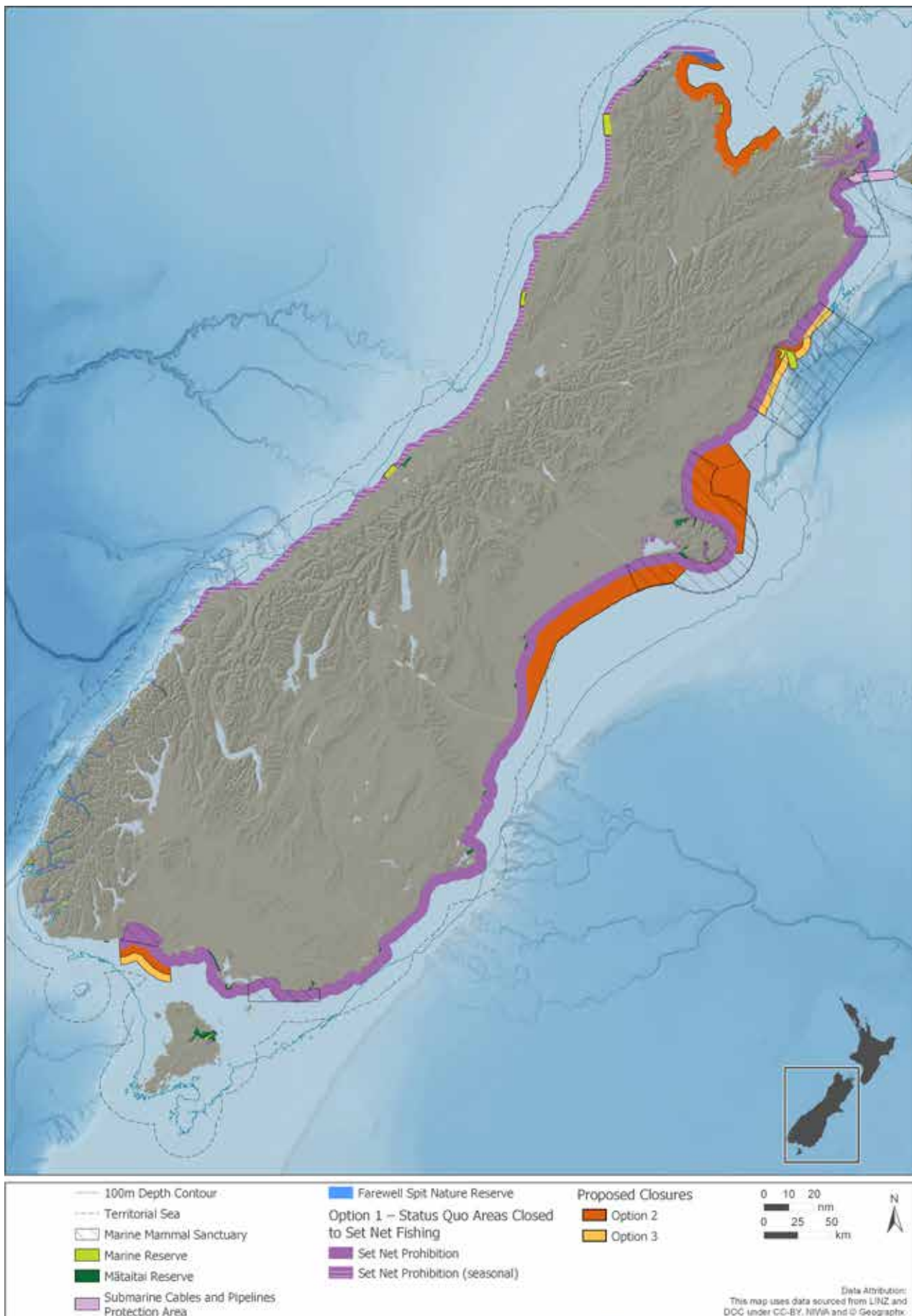
**Table 5:** South Island (Hector's dolphin) proposed method restrictions by fishing type

Proposed method restrictions					
Set net (commercial and recreational)	Trawl			Option 1 (status quo)	Option 2
	Option 1 (status quo)	Option 2	Option 3		
Kaikōura – refer to map (east coast South Island)	0–4 nautical mile	Exemption in Kaikōura Canyon	✓	✓	No change
	4–7 nautical mile	–	–	✓	–
Pegasus Bay (east coast South Island)	0–2 nautical miles	✓	✓	✓	No change
	2–4 nautical miles	✓	✓	✓	–
	Entire bay (refer to map)	–	✓	✓	–
south from Banks Peninsula to Timaru	0–2 nautical miles	✓	✓	✓	✓
	2–4 nautical miles	✓	✓	✓	✓
	Extended closures (refer to map)	–	Banks Peninsula – Waitaki River (refer to map)	Same as Option 2	southern closure only (refer to map)
Golden Bay and Tasman Bay (north coast South Island)	0–2 nautical miles	–	✓	✓	–
	2–4 nautical miles	–	✓	✓	–
Te Waewae Bay (south coast South Island)	0–2 nautical miles	✓	✓	✓	✓
	in bay (refer to map)	✓	✓	✓	✓
	4 nautical miles offshore	✓	✓	✓	✓
	7 nautical miles offshore	–	✓	✓	–
	10 nautical miles offshore	–	–	✓	–



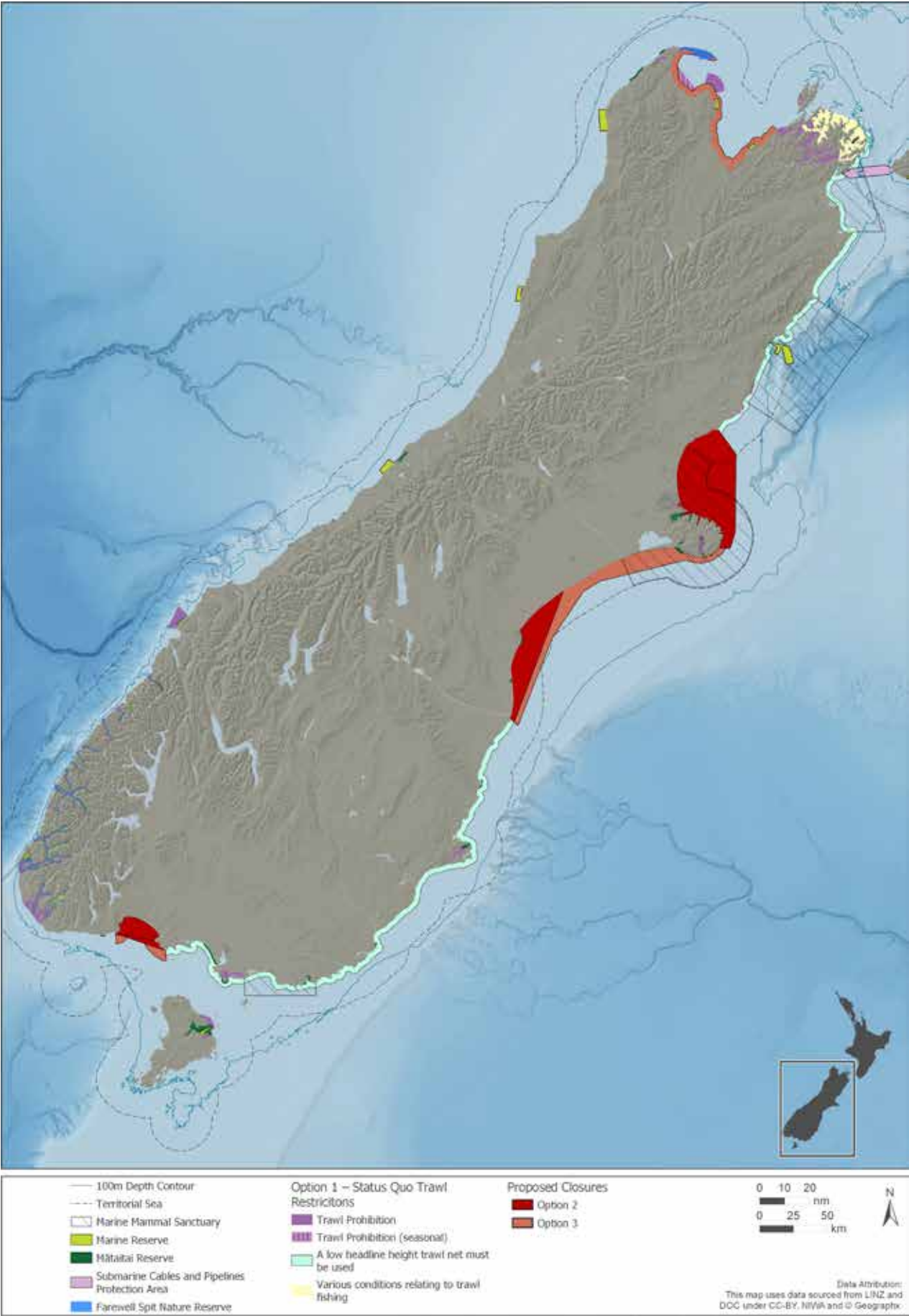
## Proposals for restricting commercial and recreational set netting under the Fisheries Act – South Island

Figure 6: Map showing proposed boundaries of commercial and recreational set net closures



Proposals for restricting trawling under the Fisheries Act – South Island

Figure 7: Map showing proposed boundaries of trawl closures



## Socio-economic impacts

Table 5 uses information from average catch (last five years) and the price fishers receive for the species caught, to estimate revenue from the affected area. The Total Economic Value takes into account other value from processing and supply. A full explanation is provided in the supporting paper *Protecting Hector's and Māui Dolphins: Supporting Information and Rationale*.

It should be noted that the impacts calculated in Table 5 below are estimates, and also will not fall equally on all parts of the industry or take account of the wider impacts on small communities. The estimates also do not take into account any adjustments that may be able to be made in relation to fishing using alternative methods or in alternative locations. More informed and detailed economic analyses will be required for the final advice.

The analysis also does not take account of the socioeconomic impacts of restricting recreational fishing. Information is sought on these impacts through the consultation process.

**Table 5: Estimated impacts on commercial fishing from proposals for set net and trawling closures in the South Island**

Additional area closed (for each option separately)	Set net		Trawl	
	Option 2 6000km <sup>2</sup>	Option 3 3600km <sup>2</sup>	Option 2 6500km <sup>2</sup>	Option 3 6300km <sup>2</sup>
No. of fishing permit holders with:				
>10% landings affected	28	29	45	77
≥70% landings affected	5	7	9	13
Landings of Quota Management Stocks currently taken in proposed closed area (highest impacts listed only)	Approx. 30% MOK3 (moki), 20% SCH3 (school shark), 18% SPO3 (rig), HPB3 (hapuku bass) 15% SPO7	Approx. 44%MOK3 (moki),, 25% HPB3 (hapuku bass), 24% SCH3 (school shark), 20% SPO3,15% SPO7 (rig)	Approx. 28% ELE3 (elephantfish), 20% RSK3 (rough skate), 18% GUR3 (gurnard), FLA3 (flatfish), 9% RCO3 (red cod)	Approx. 42% ELE3 (elephantfish),, 29% RSK3 (rough skate),25% GUR3 (gurnard), FLA3(flatfish), 16% RCO3, RCO7 (red cod), 13% SNA7 (snapper), SPO3 (rig)
Estimate of total annual revenue	\$2.7mil	\$3.5mil	\$5.8mil	\$8.7mil
Total Economic Value Year 1	\$7.5mil	\$9.8mil	\$16.3mil	\$24.48mil
Total Economic Value 3 years	\$19.8mil	\$25.7mil	\$19.8mil	\$64 mil
Total Economic Value 5 years	\$30.7mil	\$39.9mil	\$30.7mil	\$99.3mil

## Comparison of options

**Figure 8: Estimated deaths by year and economic impact by option for South Island. Population sustainability threshold = the maximum number of dolphin deaths possible per year from fishing-related activities while still achieving the desired population objective.**

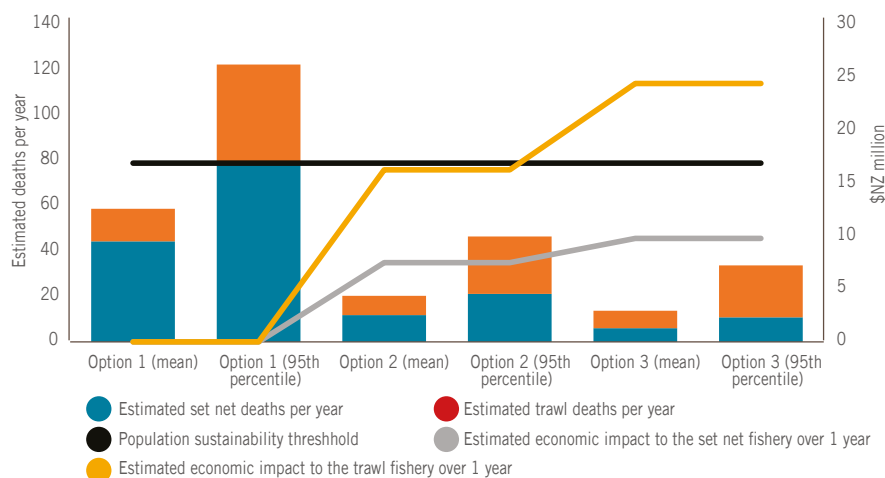


Figure 8 shows the outcome of each option at the mean level of estimated set net deaths (blue) and trawl deaths (orange) and at the upper 95<sup>th</sup> percentile for South Island. Making a decision at the 95<sup>th</sup> percentile is the most precautionary approach.

The black line shows the population sustainability threshold to achieve population recovery to 95% of the un-impacted level (79 deaths per year). Estimated deaths caused by fishing need to be below this line to ensure populations can rebuild to the desired level. This means the South Island Hector's dolphin population can sustain no more than 79 fisheries caused deaths each year. However, this broad geographical approach does not take into account subpopulation structure or the potential for localised depletion which is shown above in Table 3 and 4. Finer scale management approaches are appropriate to manage impacts within smaller areas.

Set netting is considered to be a higher risk fishing method than trawling. The economic impacts are much higher for trawling for Option 2 and 3.

## Monitoring fishing threats

Monitoring fishing-related impacts helps us understand whether measures to manage the risk of fisheries-related deaths are achieving the desired population outcomes. Fishers are legally required to report all captures of protected species.

The level of fisher-reported deaths of dolphins has significantly increased since 2008, following publicity around obligations and clarification of reporting requirements. However, there remains a strong likelihood of under-reporting. Independent monitoring remains the best source of data on total fishing-related deaths and the performance of management measures, and ultimately, whether the plan is on track to achieve the desired outcomes.

Government has recently announced a requirement for the use of on-board cameras for commercial fishing vessels using high-risk fishing methods in areas that potentially overlap with Māui dolphins. This requirement comes into effect from 1 November 2019.

The proposed fisheries monitoring objectives are:

- Fishing activity using methods known to pose a risk to Māui and Hector's dolphins (trawl and set net) within the dolphin distribution range is monitored at a level sufficient to ensure robust information on total fisheries-related deaths.
  - Develop a five-year plan outlining priority areas for monitoring, coverage levels, monitoring tools and strategies to improve the effectiveness of monitoring by 1 December 2019.
- Monitoring information in aggregate form is available online as soon as possible after it has been collected.

## Other matters

Fisheries New Zealand proposes two further regulatory changes to support implementation of the revised TMP.

### Ring netting

**It is proposed to allow commercial ring netting in areas prohibited to set netting.**

Ring netting is a common fishing method used to target mullet and kahawai in the Manukau and Kaipara harbours. When ring netting, a fisher is more actively involved throughout the fishing activity compared to a “passive” set net. This allows dolphins to be avoided or released alive if accidentally captured. There have been no records of a dolphin capture using this method. We seek views on whether this method should be allowed to operate, regardless of whether any area is closed to set netting more generally.

### Driftnet fishing

**It is proposed to prohibit driftnet fishing.**


Use of a driftnet is currently allowed if it is less than one kilometre long and used outside of Port Waikato. While not known to be a common activity, we consider that driftnetting (including nets less than one kilometre in length) should be explicitly prohibited due to the limited ability to control and mitigate threats to Hector’s and Māui dolphins. We propose to further specify that driftnetting (including nets less than one kilometre) cannot be used for fishing either:

- in the areas subject to set net prohibitions; or
- in New Zealand.

### Consultation Questions:

- Do you have additional information about the subpopulation sizes and/or fishing-related deaths that you would like to share?
- Which of the options do you prefer for Māui dolphins? Why? Would you make any changes to your preferred option?
- Do you agree with the local population outcomes for Hector’s dolphins? Why or why not?
- Which of the options do you prefer for Hector’s dolphins? Why? Would you make any changes to your preferred option?
- Do you agree with the proposed fisheries monitoring objectives? Why or why not?
- Do you have additional information about fisheries monitoring that you would like to share?
- Do you agree that driftnet fishing should be explicitly prohibited? If so, should it be prohibited only in the areas subject to set-net prohibitions or should there be a complete prohibition in New Zealand?



An aerial photograph of a coastal town and river estuary. The foreground shows a wide, shallow river estuary with a sandy beach and some small islands. The river flows through a green landscape with fields and some buildings. In the background, there are rolling hills and mountains under a blue sky with white clouds. The text "Part C: Proposal for a Toxoplasmosis Action Plan" is overlaid in orange on the left side of the image.

# Part C: Proposal for a *Toxoplasmosis* Action Plan

*Toxoplasmosis* is a parasitic disease that is spread by cat faeces and transported into the coastal environment through runoff from land. It can infect dolphins when they ingest contaminated food or water and is a confirmed cause of death in Hector's and Māui dolphins.

Although there is more uncertainty in the estimated number of *Toxoplasmosis*-related deaths compared to fisheries-related mortalities, the risk assessment indicates that this disease is a significant human-caused threat to Māui and Hector's dolphins.

Coastal areas adjacent to large river mouths and near to high-density cat areas (such as cities and large towns) are likely to be specific hot spots of high potential exposure to *Toxoplasmosis*; for example, the Waikato River, and rivers on the west coast of the South Island.

Mitigating the threat of *Toxoplasmosis* covers terrestrial, freshwater and marine domains, as well as agriculture and human health. As such, it will require a multi-disciplinary and collaborative approach, working with a range of agencies and organisations.

Acknowledging the urgency for the Māui dolphin in particular, DOC proposes to develop a *Toxoplasmosis* Action Plan with the following objectives:

- Reduce the number of dolphin deaths attributable to *Toxoplasmosis* to near zero.
- Improve knowledge on *Toxoplasmosis* to increase ability to take actions to reduce this threat.

The *Toxoplasmosis* Action Plan will include a range of workstreams, focused on targeted research, direct actions, improving awareness, and understanding the overall impacts of *Toxoplasmosis* on New Zealand's native wildlife.

Informed by feedback from submissions, the final *Toxoplasmosis* Action Plan will be developed as part of the TMP. DOC will co-ordinate a workshop focused on *Toxoplasmosis*, involving national and international experts, to refine and prioritise research identified in the *Toxoplasmosis* Action Plan, within six months of the TMP being updated. DOC will also co-ordinate implementation of the *Toxoplasmosis* Action Plan across central and local government.

Under the overarching vision, goal and objectives of the TMP, DOC and Fisheries New Zealand propose to have threat-specific objectives to measure progress against. These objectives also act as decision trigger points, at which time an additional action might be taken. Given the large amount of uncertainty that remains around the impact of *Toxoplasmosis* on the dolphins, it is difficult to develop specific performance measures that are meaningful. Instead, performance plans are proposed to measure progress towards achieving the two objectives.

## Performance plan: Reduce the number of dolphin deaths attributable to *Toxoplasmosis* to near zero.

The monitoring of success related to this objective is dependent on examination of beachcast carcasses. Acknowledging that this is a long-term objective, DOC recommends a process to monitor progress and identify points where a change in approach might be made.

Given the highest risk of *Toxoplasmosis* is likely to be on the west coast of the North Island in Māui dolphin habitat, implementation of the action plan will be prioritised here in the first instance and expanded to other areas as possible.

Causes of death to Māui and Hector's dolphins will continue to be monitored through DOC's necropsy contract with Massey University. All dolphin carcasses will be tested for *Toxoplasmosis*, even if it wasn't the primary cause of death.

Should there be more than two deaths a year from *Toxoplasmosis* on either the east or west coast of the South Island, we would evaluate what actions could be taken or re-prioritised for that area.

Should there be two or more deaths of a Māui dolphin, or five or more of Hector's dolphins, in a year from *Toxoplasmosis*, then a re-evaluation of the whole action plan would be initiated.

## Performance plan: Improve knowledge on *Toxoplasmosis* to increase ability to take actions to reduce this threat.

Research in the *Toxoplasmosis* Action Plan is intended to fill critical gaps and support the identification and prioritisation of effective action. Research results will be reported through science working groups, with opportunities for engagement by tangata whenua and stakeholders. As new information comes to light from any of the workstreams, actions may be adapted or re-prioritised.

The action plan would be evaluated against the above two objectives within five years of the TMP being updated.

DOC is working through a process to establish the costs of, and funding mechanisms to implement, the *Toxoplasmosis* Action Plan. There will not be one solution to reducing *Toxoplasmosis* impacts on dolphins. Greater benefits will be realised by focusing management actions at points in the *Toxoplasmosis* pathway (for example, at the cat) that will benefit other species in addition to the dolphins. Wetland restoration or riparian plantings may also reduce risks from *Toxoplasmosis*. Where prioritisation of workstreams is required to meet financial demands, it is proposed that actions with a direct influence on Māui dolphin habitat take precedence.

DOC would like to hear from submitters on this proposal, including ideas on potential research or actions. Additionally, DOC is interested to hear of any other well-aligned work programmes, or funding mechanisms to support components of the work that may not be absorbed within DOC's current baseline. Following the consultation process, DOC will develop a final *Toxoplasmosis* Action Plan, with associated costings and funding schemes.

#### **Consultation Questions:**

- Do you agree with the establishment of a *Toxoplasmosis* Action Plan? Why or why not?
- Do you agree with the two objectives and associated performance plans? Why or why not?
- Do you have any suggestions for specific research or actions that could be incorporated into the *Toxoplasmosis* Action Plan?



## Part D: Management of other non-fishing threats





## The risk

Threats to Hector's and Māui dolphins other than from fishing or *Toxoplasmosis* include:

- 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 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. The severity of impacts can be context and scale dependent and will vary depending on a range of interrelated factors (for example, location, spatial extent, 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.

Seismic surveying is currently managed through several regulatory and non-regulatory processes. Compliance with the 2013 Code of Conduct for Minimising Acoustic Disturbance to Marine Mammals from Seismic Surveying Operations (the Code) is mandatory in the EEZ but voluntary in the territorial sea. Conditions cannot be imposed through the Code. There are separate restrictions on seismic surveying in existing marine mammal sanctuaries (Figure 9), but sanctuary restrictions generally provide less protection than the Code. The current regime (including in marine mammal sanctuaries) provides limited powers for the Government to exercise discretion, particularly where greater protection may be appropriate.

Under the RMA and the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012, the effects of seabed mining on Māui and Hector's dolphins are considered alongside other environmental effects, as well as economic matters, on a case-by-case basis under different regional plans and resource consent processes. Providing for additional controls to protect Hector's and Māui dolphins specifically in sanctuaries (as opposed to managing adverse effects on the environment generally) is appropriate under the MMP Act given its purpose of protecting, conserving and managing marine mammals.

The other threats listed above are mostly managed under a range of other existing regulatory regimes that are generally considered appropriate for managing the risks to Hector's and Māui dolphins.

## Proposals

The following tables presents a range of proposals for managing threats to Hector's and Māui dolphins other than from fishing or *Toxoplasmosis*. Their overall objective is to ensure adverse effects on dolphins from other anthropogenic threats are avoided or minimised.

The proposals involving prohibitions to seismic surveying or seabed mining would not apply to existing Crown Minerals Act permit holders or any subsequent permits granted with respect to those existing permits. This approach would enable a transition to a new management regime for mining activities while providing greater protection for Hector's and Māui dolphins than exists under the status quo. Residual risks to dolphins from activities undertaken pursuant to existing Crown Minerals Act permits would remain but can be reduced for seismic surveys by applying Option 1 (compliance with the Code) or Option 2 (a permit under the MMP Act).

The economic effects of the proposals will vary depending on the specific details, including location and spatial extent. There are likely to be greater economic consequences for those proposals involving prohibitions on seabed mining off the west coast of the North Island, increasing with distance offshore, given the known interest in offshore mining for iron sand (and co-occurring vanadium) along this coast.

Further details on these proposals and their rationale are outlined in the supporting document *Protecting Hector's and Māui Dolphins: Supporting Information and Rationale*.

Proposals	Benefits for dolphins
<b>Marine mammal sanctuary extensions</b>	
Extend 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; see below). Figure 10.	Restrictions in this southern area may reduce barriers to population connectivity and facilitate more frequent occupancy throughout the dolphin's range.
Extend the Banks Peninsula Marine Mammal Sanctuary north to the southern boundary of the Te Rohe o Te Whānau Puha / Kaikōura Whale Sanctuary, south to Timaru, and offshore to 20 nautical miles throughout. Figure 11.	Risk reduction through sanctuary restrictions across a greater portion of Hector's dolphin distribution.
<b>Seismic surveying</b>	
<b>Option 1:</b> Compliance in sanctuaries with the 2013 Code of Conduct for Minimising Acoustic Disturbance to Marine Mammals from Seismic Surveying Operations.	Improved protection in marine mammal sanctuaries. However, conditions could not be imposed on surveys nor could a seismic survey be stopped if risks cannot be appropriately mitigated.
<b>Option 2:</b> Permitting system for seismic surveying in sanctuaries, with the ability to impose conditions on permits or decline applications.	Allows for greater protection of dolphins in sanctuaries through: <ul style="list-style-type: none"> <li>• consent conditions to mitigate adverse effects;</li> <li>• the ability to decline consent if necessary.</li> </ul>
<b>Option 3:</b> Prohibition on seismic surveying in marine mammal sanctuaries with exemptions for: <ul style="list-style-type: none"> <li>• urgent hazard assessments in sanctuaries.</li> <li>• existing Crown Minerals Act permit holders, as well as any subsequent permits granted with respect to those existing permits.</li> </ul>	Effects of seismic surveying for petroleum exploration on Hector's and Māui dolphins would be avoided in sanctuaries.  Exemptions will mean residual risks to dolphins would remain, but these could be reduced by applying Option 1 (compliance with the Code) or Option 2 (a permit under the MMP Act).
<b>Seabed mining</b>	
<b>Option 1:</b> The status quo, including maintaining the current 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 minimum impact activities). Figure 10.	Effects of seabed mining on Hector's and Māui dolphins would continue to be avoided within the existing prohibited area.  Elsewhere, effects on dolphins would continue to be managed through RMA and EEZ Act consent processes.
<b>Option 2:</b> prohibition on mining within the existing West Coast North Island Marine Mammal Sanctuary out to 8 nautical miles (and maintaining the current exceptions for mining for petroleum and minimum impact activities). Figure 10.	This proposal 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).
<b>Option 3:</b> 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). Figure 10.	This proposal would 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).
<b>Option 4:</b> 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). Figure 10.	Having 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.

Proposals	Benefits for dolphins
<b>Option 5:</b> 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 the proposed extensions noted above) (and maintaining the current exceptions for mining for petroleum and minimum impact activities).	A near-shore corridor would help retain connectivity between areas and reduce the risk of subpopulation fragmentation in these core Hector's dolphin areas.
<b>Dolphin watching and vessel traffic</b>	
Moratorium on new permits for viewing Māui dolphins under the Marine Mammals Protection Regulations 1992.	Avoids the possibility of Māui dolphins being exposed to commercial marine mammal watching effort.=
No other changes are proposed to the current regulatory regime for dolphin watching and vessel traffic.	Existing risk to Hector's and Māui dolphins remains but is managed under the existing regulatory regime.
<b>Oil spills, coastal development, pollution, sediment run-off, infectious diseases, and climate change.</b>	
The status quo (managed under the existing regulatory regimes).	Existing risk to Hector's and Māui dolphins remains but is managed under the existing regulatory regimes.

### Consultation Questions:

- Do you agree or disagree with the proposal relating to marine mammal sanctuary extensions? Why or why not?
- Do you agree or disagree with the offshore distances in the proposal relating to marine mammal sanctuary extensions? Why or why not?
- What suggested amendments do you think should be considered and why?
- Which of the options do you prefer for seismic surveying? Why? Would you make any changes to your preferred option?
- Which of the options do you prefer for seabed mining? Why? Would you make any changes to your preferred option?
- Do you agree or disagree with the offshore distances in the proposal? Why or why not?
- Do you agree with a moratorium on new permits for viewing Māui dolphins? Why or why not?
- Do you agree with no other changes for dolphin watching and vessel traffic for Māui and Hector's dolphins? Why or why not?
- Do you agree or disagree with the proposal above? Why or why not?
- What suggested amendments do you think should be considered and why?
- What alternative proposals relating to non-fishing threats, beyond those set out above, do you think should be considered and why?

**Figure 9: New Zealand mainland sanctuaries for protecting marine mammals. Note the Ōhau New Zealand Fur Seal Sanctuary is too small to be seen at this scale**

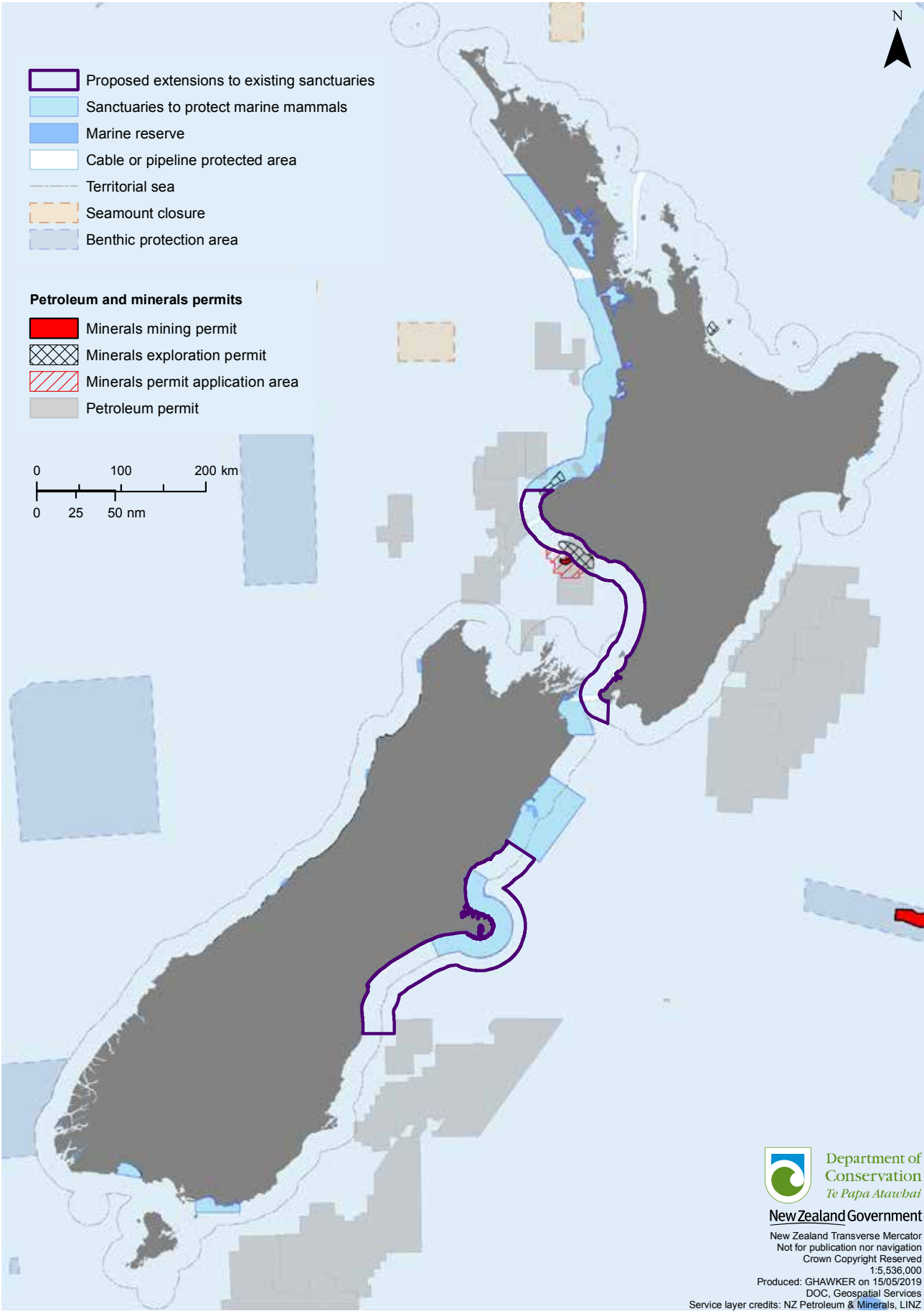


Figure 10: West Coast North Island Marine Mammal Sanctuary showing existing boundaries and proposed southern extension to the sanctuary

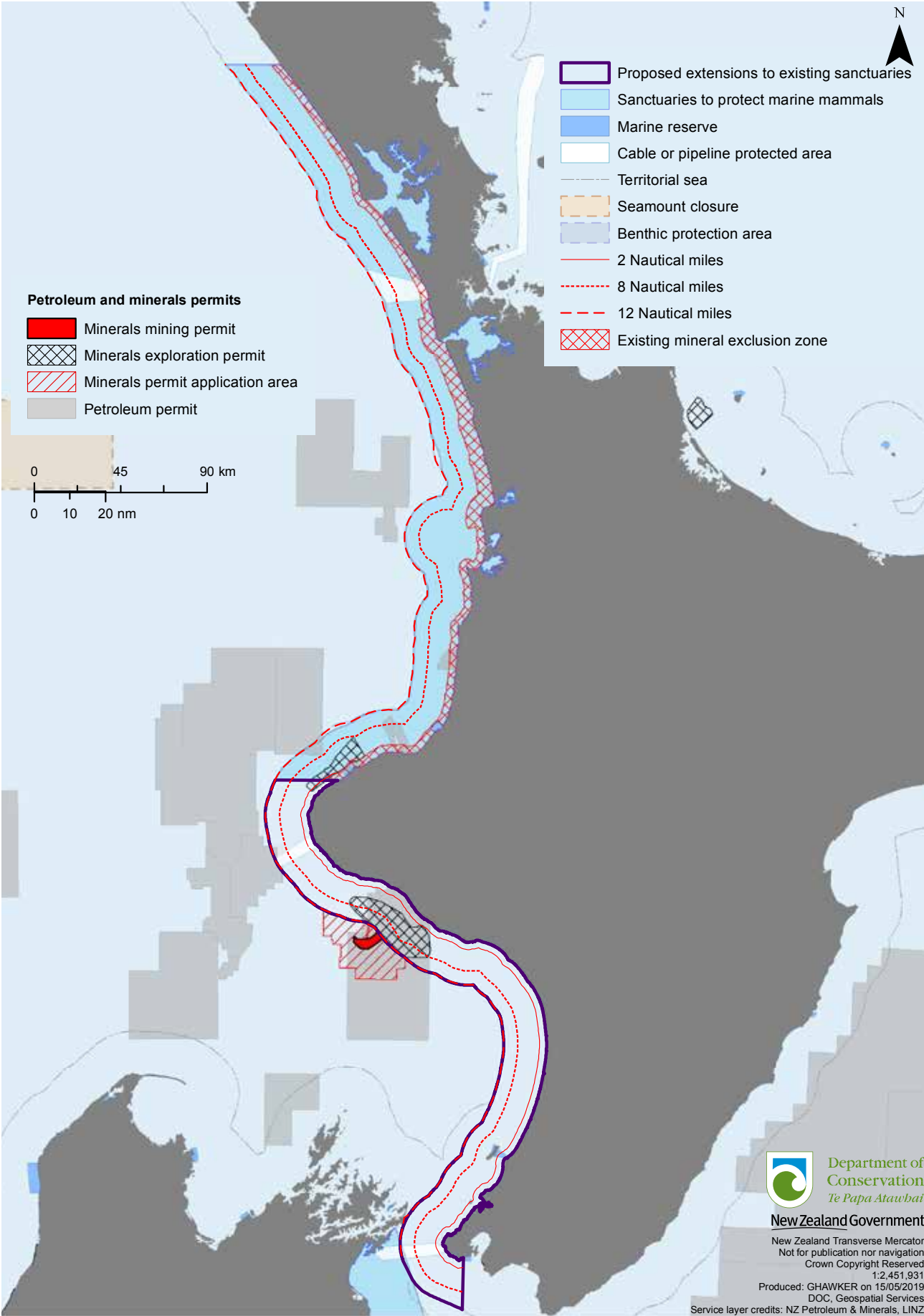


Figure 11: Banks Peninsula Marine Mammal Sanctuary showing existing boundaries and proposed extensions to the sanctuary

