

## 7.0 Department of Conservation non-fishing-related management proposals

This section outlines the Department of Conservation's (DOC) initial proposals to protect Maui's dolphins through managing non-fishing-related threats within the Maui's dolphin range. Background information on the general biology of Maui's dolphins and the threats facing them (including both human and induced and natural threats) are provided in Section 5 of this consultation document. This chapter should be read in conjunction with Section 5.

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### 7.1 IMPLEMENTATION

Following analysis of submissions received during consultation, final advice will be provided to the Minister of Conservation. DOC will engage with stakeholders, relevant agencies, tangata whenua, local government, the public and to implement the Minister's decisions contained within the revised Maui's dolphin Threat Management Plan (TMP).

## 7.2 INTRODUCTION

### 7.2.1 Responsibilities

DOC is the leading central government agency responsible for the conservation of New Zealand's natural and historic heritage. DOC is responsible for administering and managing Hector's and Maui's dolphins, principally in accordance with the Marine Mammals Protection Act 1978 (MMPA), Marine Mammals Protection Regulations 1992 (MMPR), and in line with the Conservation General Policy. Area based additional protection to Hector's and Maui's dolphins are also provided through marine mammal sanctuaries established under the MMPA. DOC may also advocate for protection by engaging with stakeholders and encouraging protective actions through non-regulatory means.

DOC has mandate under the MMPA to manage fisheries within sanctuaries. The Ministry for Primary Industries (MPI) is the other main agency responsible for managing the protection of, and ensuring the sustainability of Hector's and Maui's dolphins. As outlined previously in section 3.3, it has been agreed that fishing-related threats will be managed by MPI under the Fisheries Act 1996. Therefore, threat mitigation options proposed by DOC in this section are those that address non-fishing human-induced impacts. The MPI consultation chapter is provided in Section 5 of this document.

In addition to DOC and MPI, local government (Territorial Authorities and Regional Councils) manage coastal and marine development (out to 12 nautical miles), and land use activities that may impact on the habitat of Hector's and Maui's dolphins.

### 7.2.2 Legislative and policy framework

Marine species management is guided by relevant legislation and key policies. Legislation and policies administered by the Department of Conservation are outlined below.

#### 7.2.2.1 Legislation<sup>146</sup>

##### *Marine Mammals Protection Act 1978 (MMPA)*

The purpose of the MMPA is to make provision for the protection, conservation and management of marine mammals within New Zealand territorial and fisheries waters. It includes the provision to establish a population management plan or marine mammal sanctuary as management tools.

##### *Marine Mammals Protection Regulations 1992 (MMPR)*

The MMPR are prepared under the MMPA and enforced by DOC. The MMPR provide the regulatory framework for behaviour around all marine mammals and permitting regime for commercial tourism.

##### *Conservation Act 1987 (CA)*

The CA was developed to promote the conservation of New Zealand's natural and historic resources. It is New Zealand's principal Act concerning the conservation of indigenous biodiversity. Amongst others, it provides for the functions of DOC and management of public conservation land in New Zealand.

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<sup>146</sup> <http://www.legislation.govt.nz/default.aspx>

#### 7.2.2.2 Policies

##### *Conservation General Policy 2005*<sup>147</sup>

DOC's Conservation General Policy 2005 was prepared under the CA and provides unified policy for the implementation of a number of Acts. It provides guidance for the administration and management of the MMPA. In developing a plan to manage Maui's dolphins, particular account should be taken of the following policies:

4.4 (e) The Department should work with other agencies and interests to promote and develop a marine protected areas network, including marine reserves, wildlife reserves, sanctuaries and other protective mechanisms.

4.4 (f) Protected marine species should be managed for their long-term viability and recovery throughout their natural range.

4.4 (j) Human interactions with marine mammals and other protected marine species should be managed to avoid or minimise adverse effects on populations and individuals.

4.4 (l) The Department should work with other agencies and interests to protect marine species.

##### *New Zealand Biodiversity Strategy*<sup>148</sup>

The strategy was prepared in response to the state of decline of New Zealand's indigenous biodiversity and reflects a commitment to the international Convention of Biological Diversity.

Theme Three of the strategy has a Desired Outcome for 2020 that "No human-induced extinctions of marine species within New Zealand's marine environment have occurred. Rare or threatened marine species are adequately protected from harvesting and other human threats, enabling them to recover.

The aim of Objective 3.7 is to "Protect and enhance populations of marine and coastal species threatened with extinction and prevent additional species and ecological communities from becoming threatened".

##### *Department of Conservation Marine Mammal Action Plan 2005-2010*<sup>149</sup>

The Marine Mammal Action Plan provides specific outputs with regard to the conservation of marine mammals. Within the plan, the key objectives listed for Hector's and Maui's dolphins are:

1. Ecology. To better understand the population ecology, key habitat requirements and threats of the species.
2. Human impacts. To effectively protect Hector's and Maui's dolphins against any recreational and commercial fisheries-related mortality and other avoidable adverse effects of tourism and other coastal use and development.
3. Species recovery. To facilitate the recovery of the species and ensure that the local and national population dynamics (including the genetic diversity) of the species are maintained and restored to a viable self-sustaining state within its natural range.
4. Science. To clarify the role of different research tools in relation to optimal management of the species within distinct geographical areas.

<sup>147</sup> <http://www.doc.govt.nz/publications/about-doc/role/policies-and-plans/conservation-general-policy/>

<sup>148</sup> <http://www.biodiversity.govt.nz/pdfs/picture/nzbs-whole.pdf>

<sup>149</sup> <http://www.doc.govt.nz/upload/documents/conservation/native-animals/marine-mammals/the-marine-mammal-action-plan.pdf>

### 7.2.2.3 Objective

The goals of this review of the Maui's portion of the TMP are:

- To ensure that the long-term viability of Maui's dolphins is not threatened by human activities (both direct and indirect); and
- To further reduce impacts of human activities as far as possible, taking into account advances in technology and knowledge, and financial, social and cultural implications.

Within the context of these overarching goals, the primary objective for DOC in the review and further development of the Maui's dolphin TMP is to recover species abundance to a viable population level throughout its historic (natural) range. Over time, as the species recovers in its current core range, it is essential to ensure protection in all other areas within the historic range to enable recovery and repopulation. The absence of recent confirmed sightings within such areas should not preclude consideration of any necessary protection measures which will significantly contribute to population recovery within the historic range.

### 7.2.2.4 Guidance on preparing a submission

The options discussed in this section are broadly broken into two main categories, the first being regulatory options, and then second being non-regulatory options. Within the regulatory section, most options are independent of one another, meaning as a submitter you would select or provide comment on your preferred option. Within the non-regulatory section the options are not independent of one another and a suite of them could be actioned, therefore you could select and provide comment on multiple options within each section.

To assist with the submission process, option tables are provided in the following sections. There are also a series of general discussion questions that can be applied to each section to help in formulating your submission.

Feedback is also encouraged on alternative options. Comments need not be limited to those presented and discussed within this document.

### **General questions for whānau, hāpu, iwi and stakeholders to consider:**

- What is the nature and extent of how the range of options proposed might have social, cultural or economic impacts?
- Where might DOC better support whānau, hāpu and iwi management of human-induced threats to the Maui's dolphin?
- Where might DOC better support management of human-induced threats to the Maui's dolphin? By other interested parties, for example, existing or ongoing forums, groups or processes.
- What information is missing or has not been considered that might impact or alter the options proposed?
- Are there additional or different human-induced threats to the Maui's dolphins that should be addressed?
- Have the key features of each option been accurately set out?
- What other methods or tools could be applied to manage the described threats?
- Are there any other geographic areas you think should be designated as a marine mammal sanctuary to protect the Maui's dolphin? Please identify these areas and indicate why you support further protection.

In each section potential costs are indicated for each range of options, though benefits are not discussed. The primary benefit of implementing any protection measure is to increase protection to Maui's dolphins to allow for their recovery. Due to the small size of the population there is insufficient data available to quantify the potential benefits for each option presented. However, given the serious risk of extinction and the urgent need for precautionary action, lack of data should not be used as a reason for postponing cost-effective measures to minimise plausible threats as far as possible.

Furthermore, for similar reasons it is extremely difficult to suggest meaningful criteria against which to measure success of options after implementation, especially as timescales for non-fishing threat mitigation are of the order of decades and the population base is so small. While DOC considers monitoring of the population following the implementation of measures important, it cautions over the ability to detect changes within a five year time frame.

### 7.3 NON-FISHING HUMAN-INDUCED THREATS

In this section potential management options are discussed for all non-fishing-related threats that arise from human activities. The objective is to inform discussions which will help identify preferred threat management options to avoid, remedy or mitigate any potential impacts on the Maui's dolphin population.

The Maui's dolphin risk assessment (discussed in Section 5) identified that non-fishing-related threats also pose a serious risk to the long-term viability of Maui's dolphins. While these threats only represented 4.5% of the estimated dolphin mortalities the median estimated of dolphin mortalities from non-fishing threats combined was 0.27<sup>150</sup>, which on its own is higher than the PBR of 1 dolphin in 10 – 23 years<sup>151</sup>. Most of these risks are perceived as occurring over longer timeframes with generally smaller effects compounding over the lifetime of individuals. While many of threats might not impact on the population directly (for example, mortality), they can impact on the population indirectly, through decreased fitness, breeding success, prey availability and habitat degradation. Therefore the cumulative effects of threats such as oil, gas and mining activities, vessel traffic, marine tourism, pollution, coastal development, and research may result in high levels of disturbance, displacement, fragmentation of the population or population decline of Maui's dolphins. See Section 5 for a detailed analysis of the threats to Maui's dolphins.

Research and the growth of knowledge over time on the impacts of non-fishing-related threats will require an adaptive management approach to adequately mitigate any known impacts as well as a collaborative approach to threat mitigation. As a result of new information acquired since the drafting of the 2007 Hector's and Maui's dolphin TMP, research needs have been assessed and new priorities have been set. These will be addressed in Section 8 (Research, monitoring and collaboration).

### 7.4 PROPOSED NON-FISHING THREAT MANAGEMENT MEASURES

The level of commercial/industrial activity within the Maui's dolphin current and historic range is relatively limited, though there remains the potential for significant impacts in the absence of effective management. Since the number and scale of activities is expected to increase in the coming years, it is critical to ensure appropriate management frameworks are in place.

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<sup>150</sup> Currey et al (2012): A risk assessment of threats to Maui's dolphins. [www.doc.govt.nz/mauirisk](http://www.doc.govt.nz/mauirisk)

<sup>151</sup> Appendix B in Currey et al (2012).

Other risks, such as those arising from terrestrial activities, recreational boating, scientific research, and the like may be harder to quantify and understand but in terms of long-term cumulative impacts there is no less need to ensure effective management.

The range of tools available includes mandatory regulations and voluntary agreements, as well as engagement and education. Depending on the specific circumstances associated with each activity and the nature of the risks identified, an integrated combination of complementary tools may need to be considered. Collaborative and adaptive management across all human-induced threats, based on stakeholder participation under the umbrella of an overarching strategy, is also a possibility.

In this section DOC is seeking input from stakeholders on a possible range of measures to manage non-fishing threats to Maui's dolphins. Some risks can be managed through regulatory means, however, a number of risks sit outside DOC's primary area of responsibility, and as such can only be addressed through processes of engagement and education. Therefore the measures discussed in this section propose a combination of methods that can include Government, industry and public initiatives. The possible range of measures includes:

- Regulatory options. For example, extending the boundaries of the West Coast North Island Marine Mammal Sanctuary and controlling certain high risk activities within.
- Code of conduct options. For example, best practice for seismic surveying and mineral mining companies.
- Strict enforcement of existing legislation. For example, Marine Mammals Protection Act and Marine Mammals Protection Regulations.
- Liaison on best practice with other agencies. For example, regional councils and Maritime New Zealand.
- Targeted engagement with public and community groups.

The options discussed below are broadly broken into two main categories, the first being regulatory options, and then second being non-regulatory options. Within the regulatory section, the options are independent of one another, meaning as a submitter you would select or provide comment on your preferred option. Within the non-regulatory section the options are not independent of one another and a suite of them could be actioned, therefore you could select and provide comment on multiple options within each area.

It should be noted that feedback is also encouraged on alternative options, and should not be limited to those presented and discussed within this document.

## 7.5 REGULATORY OPTIONS

### 7.5.1 Regulatory options using the MMPA and Marine Mammal Sanctuary tool

The MMPA provides the Minister of Conservation with various tools to protect marine mammals. Marine Mammal Sanctuaries provide one of the best options to protect Maui's dolphins as the Minister is able to restrict specific activities within it. A sanctuary defines an area that is important to a particular species of marine mammal for feeding, breeding and other important life history behaviours, and may enable the management of human induced threats to that species.

Under the MMPA the Minister of Conservation may, by way of a gazette notice, define any place to be a marine mammal sanctuary. Submissions on any proposed sanctuary (or variations to an existing sanctuary's boundaries) can be received up to 28 days following the publication of the notice. Where any other Minister of the Crown that has the control of any Crown-owned land, foreshore, seabed, or waters of the sea which is declared to be a marine mammal sanctuary or which forms part of one, the consent of that Minister to the declaration needs to be notified concurrently with any notice given by the Minister of Conservation under section 22 of the MMPA. The Minister of Conservation must then consider any written submissions received within the 28 day period. The Minister must then by notice indicate their intention to vary, redefine, or abolish the sanctuary.

### 7.5.2 West Coast North Island Marine Mammal Sanctuary Variation

The current West Coast North Island Marine Mammal Sanctuary was established in 2008 and currently extends from Maunganui Bluff in Northland to Oakura Beach in Taranaki and an offshore expanse of 12 nautical miles (see Map 1 in Appendix 1). The sanctuary establishes restrictions on seabed mining in parts and on seismic survey activities throughout, as both are known to be potential threats to the dolphins.

The Taranaki-Whanganui region was historically part of the Maui's dolphin population's distribution (Maps in Appendix 1) and decreased sightings in the area provide evidence of range restriction. Despite the infrequency of sightings in the area, they still occur and a Hector's or Maui's dolphin was incidentally caught in a set net in January 2012. To support the recovery of Maui's dolphins throughout their natural range it is therefore important to mitigate threats in the southern extent of their range.

#### 7.5.2.1 Options

##### **Option 1. *Status quo***

This option would see no change to the Sanctuary.

##### **Option 2. Extension of the West Coast North Island Marine Mammal Sanctuary**

To designate the area as important to the recovery of Maui's dolphins The Minister of Conservation could extend the boundary of the West Coast North Island (WCNI) Marine Mammal Sanctuary (MMS) south from Oakura Beach to Hawera, offshore to 12 nautical miles (Map 7.1).

Extending the southern boundary of the sanctuary to Hawera is consistent with new research on Maui's dolphin home ranges, which are larger than previously believed. Research found the maximum distance between two sightings of the same individual was 80 km, and several moved in the order of 30-40 km. Hawera is approximately 79 km from where the January 2012 dolphin mortality occurred.

There may be other spatial options for protection of Maui's dolphins, such as the protection of a corridor between the South and the North Island to facilitate gene flow between the two subspecies. While there has been evidence of Hector's dolphins within the Maui's dolphin range, there is as yet no evidence of inter-breeding. It is also unclear the origin of some of the Hector's dolphins, and thus the best spatial option for protection. DOC considers this a high priority area for research and is discussed further in Section 8.1.1.2. In addition, DOC welcomes any comment on additional spatial scales for protection that haven't addressed here.

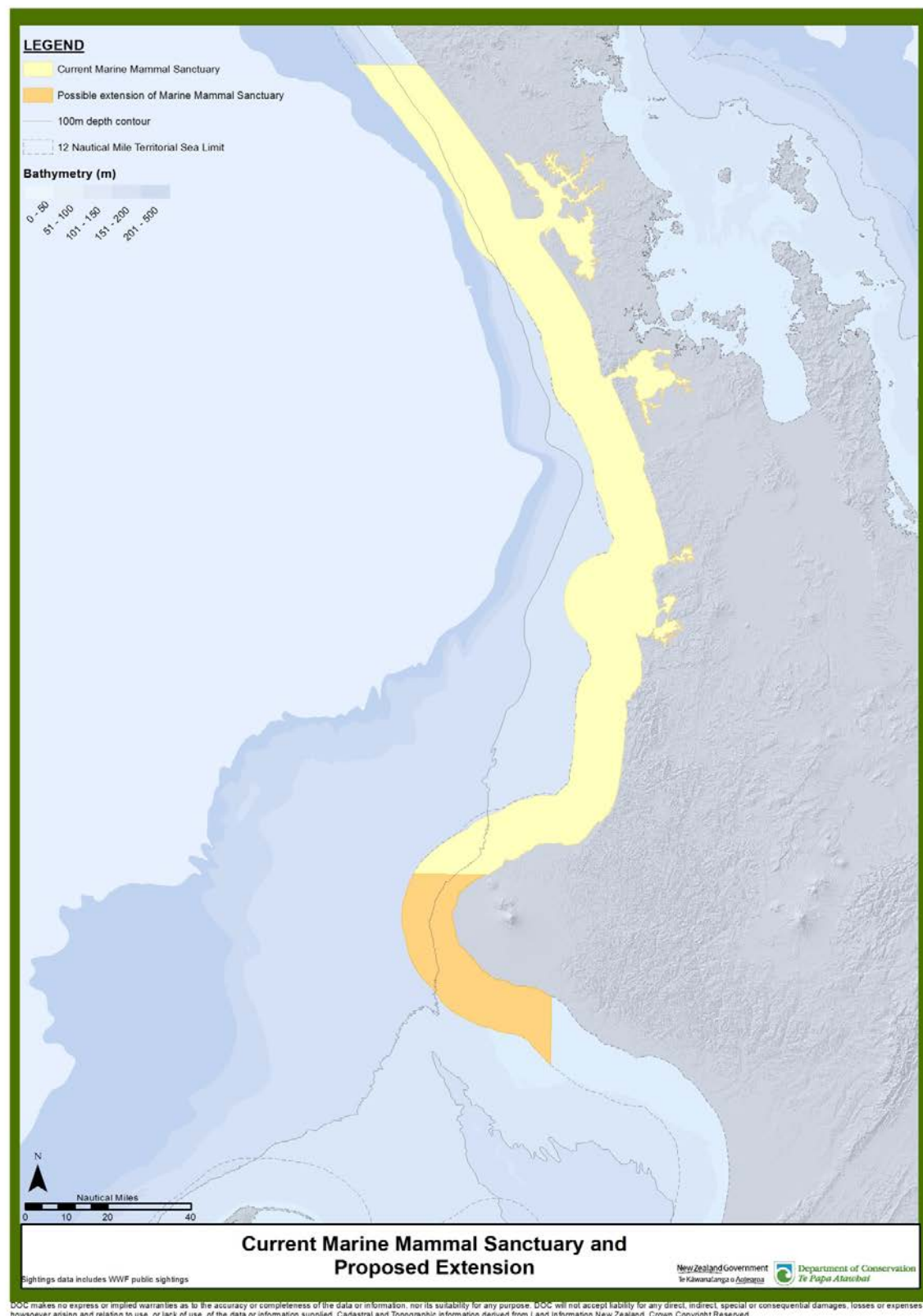
This option designates the area as being important for the survival of Maui's dolphin (for example, the existence of a MMS can act as a "flag" for decision makers in resource consent

applications under the Resource Management Act 1991 – ‘the RMA’). The presence of a sanctuary may also encourage the use of caution in other activities, for instance recreation.

The real strength of establishing a MMS is the additional protection measures that can be established for specific activities. In the area of interest for Maui’s dolphin this primarily relates to seismic surveying and seabed minerals mining. Specific issues related to each activity, along with detailed discussion of the options for addressing them within the context of the MMS, are dealt with separately below. Though dealt with individually, a final outcome of the MMS extension could involve regulations addressing both seismic surveying and seabed minerals exploitation.

West Coast North Island (WCNI) Marine Mammal Sanctuary (MMS) Variation		
MMS Option 1	<i>Status quo</i>	No MMS variation
MMS Option 2	MMS extension	Extension of the WCNI MMS south to Hawera and offshore to 12 nautical miles





**Map 7.1.** Proposed extension of the Marine Mammal Sanctuary off the west coast of the North Island.

### 7.5.3 Seismic surveying

To manage the potential effects of marine seismic surveying, in 2006 the Department of Conservation established voluntary guidelines applicable to operations in New Zealand fisheries waters (the coast to 200 nautical miles). Further to this in 2008 the West Coast North Island Marine Mammal Sanctuary (MMS) was gazetted, and the Notice contained specific regulations covering seismic survey operations<sup>152</sup>.

Subsequently in 2010, the Department of Conservation initiated a review of the voluntary guidelines with a view to establishing consistent, mandatory regulation of seismic surveying throughout New Zealand's maritime domain. As a result, the Code of Conduct for Minimising Acoustic Disturbance to Marine Mammals from Seismic Survey Operations (the Code) came into effect on 1 August 2012.

The Code is an interim measure, which will be reviewed after three years prior to the development of regulations. This is to allow sufficient time to incorporate new research on the many scientific uncertainties associated with mitigation measures; to establish the necessary training and qualification frameworks for marine mammal observers; to ensure that the regime is workable; and, for industry to become familiar with the new requirements before mandatory measures are in force. The MMS Notice (along with the other four sanctuary Notices that contain measures for seismic surveying) will be reviewed at the same time to ensure a consistent regulatory regime throughout New Zealand continental waters<sup>153</sup>.

The Code is a significant evolution from both the 2006 guidelines and the regulations contained in the MMS Notices, establishing a much more comprehensive and robust regime which increases both the level of protection for marine mammals and the reliability of data generated by independent observers. There are many areas where the Code and the MMS Notices are inconsistent, and in the majority of instances the Code is more stringent.

Though a voluntary regime, in adopting the Code operators agree to commit to its provisions. In addition, the Code is explicit that where there are inconsistencies between the Code and the MMS, the more stringent provisions apply. However, the provisions in the MMS Notice remain mandatory and enforceable as a basic level of protection. Table 7.1 highlights the primary differences between the regulations in the existing MMS and the measures established for each level of survey under the Code.

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<sup>152</sup> There is a common misconception that seismic surveys are prohibited within a MMS. However such activities are allowed providing specific conditions are met. For a full list of requirements, see: <http://www.doc.govt.nz/upload/documents/conservation/marine-and-coastal/marine-protected-areas/marine-mammals-protection-westcoastnorthisland.pdf>

<sup>153</sup> New Zealand continental waters means the territorial sea; the waters of the exclusive economic zone; and, the waters beyond the outer limits of the exclusive economic zone but over the continental shelf, of New Zealand.

**Table 7.1** – Comparison of key features of MMS & the Code where SoC is Species of Concern and OMM is Other Marine Mammal. \* denotes the more stringent provision.

	MMS	Code Level 1	Code Level 2
Notification	1 month	3 months*	3 months*
Impact Assessment (including sound transmission loss modelling)	No	Yes*	Yes*
Additional mitigation measures possible if sensitivities identified	No	Yes*	Yes*
Mitigation acoustics during line-turns	Yes	Only by agreement*	Only by agreement*
Passive Acoustic Monitoring (PAM)	Yes	Yes	Optional
PAM specifications	No	Yes*	Yes*
PAM required	During poor visibility only	At all times*	At all times (if included)*
Observers	2	4*	2 (4 with PAM)*
Marine mammal coverage	Cetaceans only (whales and dolphins)	All marine mammals (cetaceans and pinnipeds)*	All marine mammals (cetaceans and pinnipeds)*
Mitigation Zones (delayed starts and shut-downs)	1000m - cow/calf pair	1500m – SoC/calf*	1000m – SoC/calf*
	500m - cetacean	1000m – SoC* 200m – OMM*	600m – SoC* 200m – OMM*
Pre-start observations	<200m deep – 30mins >200m deep – 60 mins*	30 mins	30 mins
Soft-start required after break in firing	>5 mins*	>10 mins	>10 mins
Observer training and performance standards	No	Yes*	Yes*
Standardised recording and reporting	No	Yes*	Yes*
Authority to delay start or shutdown	Not specified	Qualified Observer*	Qualified Observer*

It should be noted that within the entire Hector's and Maui's dolphin range, depths less than 100 m are considered to be Areas of Ecological Importance for seismic survey operations. This designation triggers additional requirements in the Marine Mammal Impact Assessment stage, and further mitigation measures may be required by DOC depending on identified sensitivities.

#### 7.5.3.1 Options

For the Maui's dolphin risk assessment the impact of seismic surveying was combined within all mining and oil activities. This was estimated to contribute to the equivalent of 0.10 deaths per year (95% confidence interval 0.01-0.46), with a 61.3% likelihood of exceeding the PBR for Maui's dolphins in the absence of all other threats. The impacts from mining and oil activities were further broken down depending on how the activity could impact on the dolphins. In terms of seismic surveying, the greatest concern is noise in the marine

environment. Noise leading to trauma was scored at 0.01 deaths per year (95% CI: <0.01-0.13) and a likelihood of exceeding the PBR of 8.8%, while non-trauma noise effects was scored at 0.03 deaths per year (95% CI: <0.01-0.23) and a likelihood of exceeding the PBR of 28.6%. A number of options could be considered for reducing risks from seismic surveying within the Maui's dolphin natural range (refer to Map 7.1 above):

**Option 1.      *Status quo* - Reliance on the Code and the existing MMS regulations**

This option provides a significant level of base protection for marine mammals, and scope for additional mitigation measures specific to Maui's dolphin to be considered. However, the absence of mandatory, enforceable regulations throughout the natural range is not ideal.

**Option 2.      Current Sanctuary + possible changes to restrictions within the MMS:**

**2a)      Variation of the legal restrictions on seismic surveying within the MMS to be consistent with the Code**

This option involves maintaining the current MMS boundaries, but including the drafting of new legal restrictions within the MMS to have greater consistency with the provisions of the Code (including revocation of existing seismic survey restrictions in the MMS). This is considered premature; the regime being established under the Code needs time to build momentum, particularly in terms of training and availability of suitably qualified and experienced marine mammal observers. Development of regulations may be problematic at this time.

**2b)      Prohibit seismic surveying operations within the MMS**

This option would prohibit seismic surveying within the MMS out to 12 nautical miles (including revocation of existing regulations). This is considered to be an unwarranted response given low risks of negative impacts if seismic survey activities are managed properly through the provisions of the Code and the MMS regulations.

**Option 3.      Sanctuary extension + possible changes to restrictions within the MMS:**

**3a)      Extension of existing legal restrictions on seismic survey regulations within the MMS**

In this option, the MMS would be extended south to Hawera as mentioned in the previous section (7.4.2.1) including an extension of the existing legal restrictions on seismic surveying throughout the extent of the Sanctuary. The Code would still apply (although non-enforceable). This option offers the highest degree of protection and certainty, with specific mitigation measures able to be considered for Maui's dolphins under the Code and a base level of enforceable measures afforded by regulations.

**3b)      Variation of the legal restrictions on seismic surveying within the MMS to be consistent with the Code**

This option is the same as 2a above, but also includes the extension of the MMS south to Hawera. For the same reasons as mentioned above this option is considered to be premature.

**3c)      Prohibit seismic surveying operations throughout**

This option is the same as 2b above, but also includes the extension of the MMS south to Hawera. Likewise it is considered unwarranted at this time.

#### **Option 4. Develop stand-alone regulations under the MMPA to regulate seismic operations**

This option would involve developing a set of regulations on seismic surveying under the MMPA. The new set of regulations would be consistent with the provisions of the Code. Such regulations would apply throughout the jurisdiction of the MMPA. These regulations would override or repeal the seismic survey restrictions currently applying in any relevant MMS. This option suffers from the same drawbacks as identified in Option 3 above.

#### **Option 5. Additional option: prohibition of petroleum mining**

This option is considered an additional option as it could be implemented along with one of options 1-4 above.

In the existing MMS, while seabed minerals mining is prohibited in certain areas there is no corresponding restriction on oil and gas activities beyond regulations covering seismic surveying. It is acknowledged that both restrictions and prohibitions could be considered to control oil and gas exploration and production activities.

However, within the five year duration of the TMP DOC considers that given the relatively low levels of new activity expected to occur, the risks arising from this sector are managed sufficiently by existing regulations administered by other agencies.

Therefore, the imposition of further regulations within the context of the MMS is considered unnecessary.

#### **Options to reduce risk to Maui's dolphins from Seismic Surveying (SS), \*option can be implemented in conjunction with any of the other options**

<b>SS Option 1</b>	<i>Status quo</i>	Reliance on the Code of Conduct and the existing MMS regulations
<b>SS Option 2a</b>	Current Sanctuary + seismic restrictions consistent with Code	Maintaining the current sanctuary boundaries plus variation of the legal restrictions on seismic surveying within the MMS to be consistent with the Code of Conduct.
<b>SS Option 2b</b>	Current Sanctuary + Seismic prohibition	Maintaining the current sanctuary boundaries plus a prohibition on seismic surveying operations within the MMS.
<b>SS Option 3a</b>	Extension of MMS + extension of seismic restrictions	Extend the MMS south to Hawera and offshore to 12 nm plus extending the existing legal restrictions on seismic surveying operations within the MMS.
<b>SS Option 3b</b>	Extension of MMS + seismic restrictions consistent with Code	Extend the MMS south to Hawera and offshore to 12 nm plus a variation of the legal restrictions on seismic surveying within the MMS to be consistent with the Code of Conduct.
<b>SS Option 3c</b>	Extension of MMS + Seismic prohibition	Extend the MMS south to Hawera and offshore to 12 nm plus a prohibition on seismic surveying operations within the MMS.
<b>SS Option 4</b>	Stand-alone Regulations	Develop stand-alone regulations under the MMPA to regulate seismic operations.
<b>SS Option 5 (additional)</b>	Prohibit petroleum mining	Prohibition of petroleum mining throughout the MMS. This option could be implemented in addition to one of the options 1 to 4 above.

## Costs

Costs associated with extension of the MMS and implementation of regulations would be met within routine operations for DOC. Industry has already committed to meeting the additional compliance costs associated with the seismic survey Code of Conduct, which are higher than existing regulations. These costs are considered reasonable, being of the order of <1 to 4% of total operational costs for a typical survey programme.

### 7.5.4 Seabed minerals exploitation<sup>154</sup>

There is significant potential for development of seabed minerals projects on the west coast of the North Island, with four companies holding interests in eight separate exploration permits, plus an additional company holding a prospecting permit as of August 2012. However, none of these stakeholders has indicated that seabed mining is anticipated to occur within the five year duration of the revised TMP. While activities are limited to prospecting and exploration phases, potential impacts are at the lower end of the scale and could most likely be managed through RMA processes and voluntary measures, though the range of options does include further regulations associated with the MMS and the proposed extension. In any case, management measures should be proportional to nature and scale of effects in each instance.

The threats posed by seabed minerals exploitation are not well understood, but are believed to be more indirect than direct. The benefit of restricting seabed minerals exploitation in the MMS would be reduced risk and disturbance to Maui's dolphins inhabiting the area.

As of August 2012 there are only two seabed minerals permits in the proposed MMS extension area. One is for prospecting that has been granted and the other is a pending application for exploration that has been submitted. Neither permit is for mining.

For an explanation of the different stages of seabed minerals exploitation refer to Section 5.1.2.2.

#### *7.5.4.1. Seabed minerals exploitation management options*

As summarised in the previous section on seismic surveying the Maui's dolphin risk assessment suggests that all mining and oil activities have a 61.3% likelihood of exceeding the PBR in the absence of all other threats. In addition to noise impacts, habitat degradation was scored as contributing to 0.03 deaths per year (95% CI: <0.01-0.17) and a 26.4% likelihood of exceeding the PBR. Pollution from mining activities was scored as contributing to <0.01 deaths per year (95% CI: <0.01-0.13) and a 13.4% likelihood of exceeding the PBR.

Offshore limits of geographical restrictions associated with MMS have until now been determined based on distance from the mean high water mark, which has historically been considered a more easily implemented measure for compliance.

However, modern technology provides effective means by which to automatically monitor vessel positions relative to both depth and distance offshore. Automatic Identification System (AIS) technology is now in common use on board vessels to continually monitor vessel position, providing real time information to other maritime users and authorities. Within the

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<sup>154</sup> Within this section, any reference to mining is related only to seabed minerals exploitation, not activities associated with oil and gas exploration and production. Furthermore, 'mining' may have differing meanings depending on context. In relation to activities, 'mining' is the final commercial phase of extraction following prospecting and exploration. In relation to the MMS restrictions, 'mining' can include any prospecting, exploration or mining activity for the purposes of regulations. This is due to different definitions under the Crown Minerals Act and MMPA.

system, there is the facility to set pre-determined zones based on position, which can include charted depth contours, which would automatically alert both the vessel master and regulators (to monitor compliance) if particular vessels were approaching a prohibited zone. Using depth to determine the geographical extent of prohibition zones is also potentially easier to implement for vessel operators, as it is a simple alarm entry on standard depth sounders.

Therefore, an alternative approach to defining the extent of prohibition zones for mining activities could be to use a depth contour instead of distance offshore, the most conservative of which would be the 100 metre isobath based on the best information related to species distribution<sup>155</sup>. Other depth contours could be considered, taking into account relative risks balanced against effectively managed resource use. For example, analysis of sightings data could indicate depths at which 80% or 90% distribution is predicted. Feedback is specifically sought on issues related to suitability and definition of depth contours as offshore geographical limits for management measures.

In this context, the following options could be considered further in order to manage potential risks associated with seabed minerals exploitation (see also Map 7.2):

**Option 1.      *Status quo***

This option would involve no change to the current MMS and the restrictions on mining within it. Within the geographical extent of the existing sanctuary there are prohibitions on mining activities in specified areas, from the coast to either 4 nautical miles (core distribution area) or 2 nautical miles (everywhere else).

**Option 2.      Extension of mining restrictions further offshore within the current MMS**

Options could be considered to extend coverage of this prohibition offshore within the existing MMS.

- 2a)**      Extending the restriction to 4 nautical miles offshore throughout the current MMS would provide a consistent offshore limit and would afford greater protection to the dolphins than is currently offered.
- 2b)**      Extending the restriction to 7 nautical miles offshore throughout the current MMS would provide a consistent offshore limit and would afford greater protection to the dolphins than is currently offered.
- 2c)**      An alternative approach would be to extend the prohibition zones for mining activities using a suitable depth contour instead of distance offshore.

**Option 3.      Extension of the MMS south to Hawera and extension of mining restrictions within**

In this option the MMS could be extended south to Hawera, and the restrictions on mining within the MMS could be extended both offshore and alongshore (through the extension).

- 3a)**      Following the current offshore distance at the southern extent of the current MMS, mining restrictions could be extended through an extension of the MMS out to 2 nautical miles offshore.
- 3b)**      Extending the restriction on mining to 4 nautical miles offshore throughout the entire MMS including the extension would provide a consistent offshore limit throughout and afford greater protection to the dolphins.

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<sup>155</sup> Slooten et al (2006); Du Fresne and Mattlin (2009)

- 3c) Extending the restriction on mining to 7 nautical miles offshore throughout the entire MMS including the extension would provide a consistent offshore limit throughout and afford greater protection to the dolphins.
- 3d) Alternatively the extension of the mining restrictions could be based on a suitable depth contour.

**Option 4. Additional Option: Moratorium on the seabed mining phase within the MMS**

Given the low likelihood of actual mining (as opposed to prospecting and exploration) in the next five years, as an alternative to outright prohibition of all activities there could be a moratorium on the mining phase alone through to the next review phase of the TMP in five years' time. This would still allow for prospecting and exploration to continue. The issue of mining could then be re-examined at the time of the next review in light of experience with earlier stages. This approach would benefit significantly if implemented in conjunction with research focused on identifying and mitigating risks to Maui's dolphin associated with seabed mining.

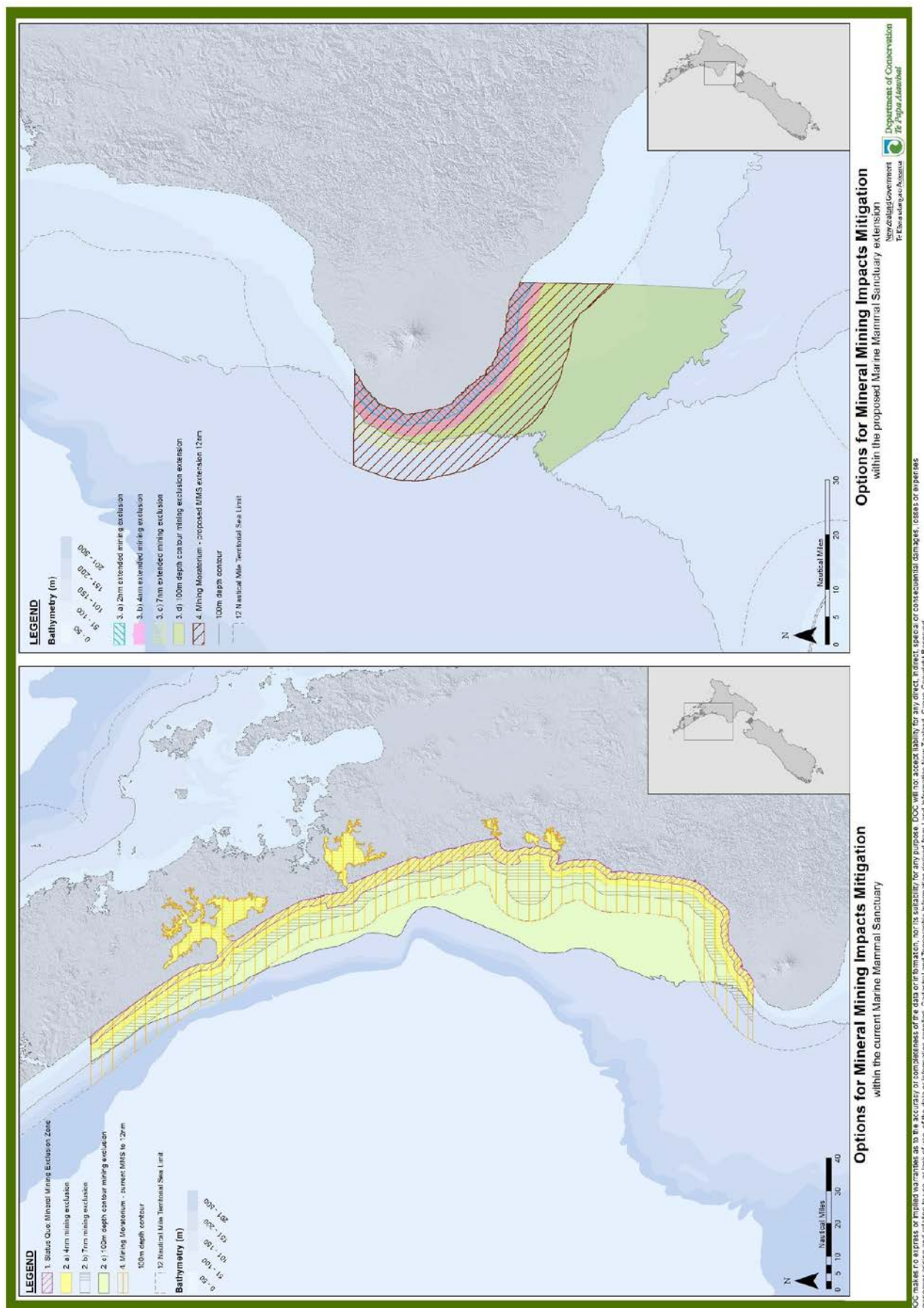
**Option 5. Code of Conduct for seabed minerals exploitation**

Recognising the successful development of the seismic survey Code of Conduct with stakeholders, the range of seabed mining activities could also be managed through a similar process. This would involve key stakeholders from across all interests in the sector, with the formation of a working group to develop draft guidelines for targeted consultation before finalisation of a Code of Conduct.

Such engagement processes are considered to be advantageous in minimising conflict and achieving a high degree of buy-in from stakeholders. In addition it is easier to create and implement subsequent regulations, if necessary at the appropriate time, with a high level of voluntary compliance already established.

It is likely that optimum management of seabed minerals exploitation would involve a combination of the measures outlined in the above options.





**Map 7.2.** Proposed options to address risk from seabed mineral exploitation off the west coast of the North Island.

Options to reduce risk to Maui's dolphins from Seabed Mineral Exploitation (SME), *option can be implemented in conjunction with any of the other options		
SME Option 1	<i>Status quo</i>	No change in MMS Restrictions in specified areas (4 nautical miles core distribution area; 2 nautical miles elsewhere).
SME Option 2a	Current Sanctuary + offshore limit 4 nautical miles	Maintain the current sanctuary boundaries plus extending the current mining restrictions to 4 nautical miles offshore within the entire sanctuary.
SME Option 2a	Current Sanctuary + offshore limit 7 nautical miles	Maintain the current sanctuary boundaries plus extending the current mining restrictions to 7 nautical miles offshore within the entire sanctuary.
SME Option 2c	Current Sanctuary + depth contour offshore limit	Maintain the current sanctuary boundaries plus extending the current mining restrictions to a suitable depth contour along the length of the entire sanctuary.
SME Option 3a	Extension of MMS + extension of mining restrictions to 2 nautical miles offshore	Extend the MMS south to Hawera and offshore to 12 nautical miles plus extending the current mining restrictions to 2 nautical miles offshore throughout the extension.
SME Option 3b	Extension of MMS + extension of mining restrictions to 4 nautical miles offshore	Extend the MMS south to Hawera and offshore to 12 nautical miles plus extending the current mining restrictions to 4 nautical miles offshore within the entire sanctuary.
SME Option 3c	Extension of MMS + extension of mining restrictions to 7 nautical miles offshore	Extend the MMS south to Hawera and offshore to 12 nautical miles plus extending the current mining restrictions to 7 nautical miles offshore within the entire sanctuary.
SME Option 3d	Extension of MMS + extension of mining restrictions to depth contour	Extend the MMS south to Hawera and offshore to 12 nautical miles plus extending the current mining restrictions to a suitable depth contour along the length of the entire sanctuary.
SME Option 4 (additional)*	Moratorium on active mining	Moratorium on the active seabed mineral mining phase within the MMS, for the five year duration of the TMP. This option could be implemented in addition to one of the options 1 to 3 above.
SME Option 5	Code of Conduct	Develop a Code of Conduct for seabed minerals exploitation similar to that for seismic surveying.

## Costs

A restriction on seabed minerals exploitation within a sanctuary extension could mean a cost to the two proponents in loss of investment in the exploration and prospecting stages if they are unable to continue on to the later stages of mining. As any restrictions on seabed minerals exploitation would not necessarily cover the full extent of the MMS, the actual impacts on stakeholders would depend on the extent of spatial overlap with any proposed operations within the MMS.

The cost of development and implementation of a Code of Conduct could be significant, though as with seismic surveying it is considered reasonable as a proportion of routine operational costs and potential profits.

### 7.5.5 Marine tourism

Marine tourism activity is very limited at present, and there are no indications that there will be any significant increase. Tourism operators specifically seeking to target Maui's dolphin as a business activity would require a permit from DOC under the MMPA, and would be controlled accordingly in order to prevent disturbance.

Opportunistic viewing by other marine tourism operators (or indeed members of the general public) does not require a permit. However, MMPR 18-20 includes requirements to minimise potential disturbance and reduce the risk of injury to marine mammals during interactions with vessels, though it is unclear how much general awareness there is about the regulation.

#### 7.5.5.1 Options

In the Maui's dolphin risk assessment, commercial tourism was considered to be applicable to Maui's dolphins, though not likely to affect population trends within the next five years. As such it was not scored as its own threat. However, two of the key elements of how tourism impacts on marine mammals are through noise and risk of boat strike and disturbance, which were considered and scored by the panel for vessel traffic in general. It was agreed that small vessels are likely to have the greatest impact on Maui's dolphins as they are generally faster, loud, and highly manoeuvrable. In addition their low profile on the water means the skipper may not be able to spot a dolphin in time to avoid it. Vessel traffic was scored as contributing to 0.07 deaths per year (95% CI: <0.01-0.19) and a 47.8% likelihood of exceeding the PBR even in the absence of all other threats.

#### **Option 1.      *Status quo***

This option would involve no regulatory change.

#### **Option 2.      *Moratorium***

It is possible under the MMPR (Reg 15) to implement a moratorium on commercial marine mammal tourism permits. This can be for operations targeting any marine mammals within a given area, or for operations specifically targeting a species. A moratorium is time bounded and research is undertaken to assess whether the current level of tourism is sustainable and whether the moratorium needs to be maintained. A moratorium is most beneficial in areas where there is a high level of tourism effort and where the effects of tourism may not be well defined. As the level of tourism on the WCNI is minimal and the effects of tourism on dolphins, including Hector's dolphins, is well understood, DOC does not consider this to be the most appropriate option to add benefits to the Maui's dolphin population.

#### **Option 3.      *Variation to MMS to include restrictions on marine mammal tourism***

The situation could be improved by a variation to the MMS Notice that would restrict marine mammal tourism activities along the following lines:

- No commercial tourism operations are allowed to target Maui's dolphins.
- No swimming with Maui's dolphins.
- For recreational boats, in addition to observing MMPR 18-20, opportunistic viewing should have a stipulated time limit of 10 minutes per vessel.

#### **Option 4.      *Additional option: increased engagement and compliance***

This option would involve increased education to raise awareness on the MMPR 18-20, as well as increased compliance and monitoring of marine mammal tourism within the Maui's dolphin range. This option could be implemented in addition to one of the options 1-3 above.

Options to reduce risk to Maui's dolphins from Commercial Marine Mammal Tourism (CT). *Option can be implemented in conjunction with any of the other options.		
CT Option 1	<i>Status quo</i>	No regulatory change.
CT Option 2	Moratorium under the MMPR	A moratorium on commercial marine mammal tourism permits under the MMPR targeting Maui's dolphins.
CT Option 3	Restrictions within MMS	<ul style="list-style-type: none"> <li>• No commercial tourism targeting Maui's dolphins.</li> <li>• No swimming with Maui's dolphins.</li> <li>• 10 minute time limit for opportunistic viewing for recreational boats, in addition to observing MMPR 18 to 20.</li> </ul>
CT Option 4 (additional)	Increased engagement and compliance	Increase education on MMPR 18 to 20; increase compliance and monitoring of marine mammal tourism in Maui's dolphins range.

### Costs

As there are currently no commercial tourism operators targeting Maui's dolphins specifically, costs of imposing additional restrictions are negligible on existing operators. Recreational boat users may be subjected to behaviour based controls, with no associated costs.

### 7.5.6 Commercial shipping

A Precautionary Area for shipping was established by the New Zealand government through the International Maritime Organisation (IMO) in 2007, from just north of the Mokau River down to Whanganui and encompassing all of the 6 offshore installations off the Taranaki coast. While no specific measures are associated with this area, its existence alerts passing vessels to the heightened risk of collision with the fixed oil and gas structures.

Various other avenues exist through the IMO to designate high-risk/sensitivity areas and establish specific measures for international vessels. This would provide opportunities to increase protection over and above minimum requirements contained in international conventions.<sup>156</sup>

#### 7.5.6.1 Options

As mentioned in the previous section under commercial tourism, large vessel traffic was considered to be less of a risk to dolphins than small vessel traffic. However, when scoring the risk of boat strike, all vessels were considered. This was scored as contributing to 0.03 deaths per year (95% CI: <0.01-0.10) and a 17.9% likelihood of exceeding the PBR.

#### Option 1. *Status quo*

No regulations on commercial shipping.

#### Option 2. **Particularly Sensitive Sea Area (PSSA)**

Due to the critically endangered status of Maui's and its limited distribution in one discrete area, its entire historic range (including a buffer zone) could be identified as a Particularly Sensitive Sea Area (PSSA) in which measures such as heightened navigational controls or prohibition of all discharges could be required.<sup>157</sup> In order to achieve this, New Zealand would have to make a submission to the IMO for assessment and approval by the Marine

<sup>156</sup> For example, the International Convention for the Prevention of Pollution from Ships – commonly referred to as MARPOL

<sup>157</sup> See the IMO website for full details: [http://www.imo.org/blast/blastDataHelper.asp?data\\_id=14692&filename=510.pdf](http://www.imo.org/blast/blastDataHelper.asp?data_id=14692&filename=510.pdf)

Environment Protection Committee. The submission must demonstrate both environmental sensitivities and potential risks from shipping, along with identification of the specific measures being sought to reduce impacts.

A PSSA in the Taranaki region would not necessarily have to be limited to providing additional protection for Maui's dolphin. It could be designed to include a suite of controls that would also benefit other key species such as Hector's dolphin, blue whales and seabirds. This would not only provide additional environmental benefits, but is also likely to significantly increase the chances of approval by the IMO.

### **Option 3. Area to be Avoided (ATBA)**

Further options such as designating an Area to be Avoided (ATBA, similar to those already existing around the Three Kings and the Poor Knights, which can be mandatory) or other vessel routing measures are also possible through IMO processes. However, since international shipping would need to be allowed continued access to the Port of Taranaki and through Cook Strait (as a freedom of the sea) there would likely be significant opposition encountered through the IMO approval process. Therefore, it is considered that a PSSA offers the most effective means to ensure increased protection.

Options to reduce risk to Maui's dolphins from Commercial Shipping (CS)		
CS Option 1	<i>Status quo</i>	No additional measures for commercial shipping.
CS Option 2	PSSA	Submission to International Maritime Organisation seeking Particularly Sensitive Sea Area (PSSA) designation, with measures such as heightened navigational controls or prohibition of all discharges.
CS Option 3	ATBA	Submission to International Maritime Organisation seeking Area to Be Avoided (ATBA) designation.

It should also be noted that international initiatives would not necessarily capture the New Zealand coastal fleet, which should be managed in a consistent manner through domestic regulatory and non-regulatory approaches.

### **Costs**

Costs for establishment of a PSSA or ATBA are limited to departmental staff time. It may be necessary to attend the relevant meeting of the IMO to support the application if the lead agency (MNZ) is not planning on attending.

Operational costs to industry are considered to be negligible or minimal, within the bounds of normal operations for international shipping (such as withholding operational discharges within specified areas). If vessel routing measures are considered, there is potential for indirect costs to increase, though these are likely to be limited given the relatively small area in question and the largely coastal distribution of the species. If it be decided that a PSSA should offer protection to other species in the region, additional measures may possibly include speed restrictions in certain areas or at specific times of the year. As just noted, indirect costs are also likely to be minimal due to the limited geographical area in question.

## 7.6 NON-REGULATORY OPTIONS

A number of risks sit outside DOCs primary area of responsibility, and as such can only be addressed through processes of engagement and education. Since the various stakeholder groups are complex, comprised of government agencies, local bodies, tangata whenua, and public/community groups, an integrated strategy could be developed to co-ordinate activities for the risks outlined below. There is scope within this for government to take the lead in some areas and provide oversight, whereas in others the community and stakeholder groups could drive the process, as outlined further in Section 8.

### 7.6.1 Collaboration with whānau, hapu and iwi

In proposing development of an engagement and education strategy it is worth highlighting the critical importance of whānau, hapu and iwi involvement. Maori have a strong spiritual and cultural connection with the moana and have stated they want to be involved with the recovery of Maui's dolphins, which are a taonga species. DOC has obligations to tangata whenua through section 4 of the Conservation Act 1987, and through Treaty Settlements legislation and Protocols which require DOC to give consideration to places and species of significance to Maori.

There is value in DOC enabling whānau, hapu and iwi to fulfil their kaitiakitanga responsibilities towards the dolphins. It is important that whānau, hapu and iwi, particularly those in coastal communities, are engaged and enabled to support or get involved in Maui's protection, research and sightings. Appropriate mechanisms for ensuring whānau, hapu and iwi engagement need to be further developed, particularly at the local level through DOCs Pou Tairangahau and area based Programme Managers' iwi networks (see Section 8.3.1 on collaboration).

DOC is particularly seeking feedback on ways of ensuring whānau, hapu and iwi are able to effectively engage in the protection of Maui's dolphins.

### 7.6.2 Oil spills

The oil industry and the maritime sector are generally regarded as being well regulated in terms of spill prevention. In addition New Zealand has a robust, comprehensive and effective oil spill response system. While the probability of a significant marine oil spill is low, consequences could be significant. For the foreseeable future there is no doubt that activities will continue that have inherent risks. In such instances DOCs interest is in mitigating risks as far as practical and possible.

#### 7.6.2.1 Options

The risk assessment addressed the risk of oil spills as a component of pollution. Pollution as a whole was scored as contributing 0.05 deaths per year (95% CI: <0.01-0.36) and a 40.2% likelihood of exceeding the PBR in the absence of all other threats. Oil spills were considered the highest risk threat under pollution, with an estimated 0.02 deaths per year (95% CI: <0.01-0.15) and a 20.4% likelihood of exceeding the PBR in the absence of other threats.

Options could be considered, both to reduce risks of a spill and facilitate better outcomes for Maui's dolphin during spill response.

#### **Option 1.     *Status quo***

This option would require no change, and would rely on the existing MNZ New Zealand Marine Oil Spill Response Strategy to continue to mitigate risks of spills.



### **Option 2.      Actively monitored zone using AIS**

As mentioned in the section on seabed mining options, AIS is a technology that could be exploited for vessel related compliance purposes. However, there is also an opportunity to use AIS to significantly reduce the risk of maritime incident and thereby reduce probability of oil spill incidents. An actively monitored zone could be set up to include maritime areas where Maui's dolphin range, with automatic alerting to vessel masters and regulatory authorities in the event of impending collisions. This would be particularly effective in preventing collisions between transiting vessels and fixed installations associated with oil and gas exploration and production.

### **Option 3.      Active involvement in the Oil Pollution Advisory Committee (OPAC)**

DOC is identified as a key stakeholder in Maritime New Zealand's Marine Oil Spill Response Strategy, and has a seat on OPAC which provides advice on the strategic and operational direction of the marine oil spill response system. DOC could use this mechanism proactively, to ensure that response planning accounts fully for the particular sensitivities associated with Maui's dolphin.

### **Option 4.      Increased involvement with Massey University Oiled Wildlife Response Team**

This could also include fostering a closer working relationship with Massey University's Oiled Wildlife Response Team (contracted to MNZ for wildlife response operations) and identification of research gaps for specific oil spill and response related issues specific to Maui's dolphins.

Options to reduce risk to Maui's dolphins from Marine Spills (Oil & Harmful Substance) (MS). A range of options could be implemented together.		
MS Option 1	<i>Status quo</i>	No additional action taken.
MS Option 2	Actively monitored zone	Using AIS for vessel related compliance purposes and to reduce risk of accidents that could cause oil and other spills in Maui's dolphins range.
MS Option 3	DOC involvement with OPAC	Active involvement in the Oil Pollution Advisory Committee (OPAC) to ensure that response planning includes consideration of Maui's dolphins.
MS Option 4	DOC involvement with OWR	Increased involvement with Massey University Oiled Wildlife Response (OWR) Team to ensure increased collaboration in responses and identification of research gaps, with respect to Maui's dolphins.

### **Costs**

Option 2 would likely entail both initial establishment and ongoing costs. It is unclear at this stage what would be necessary to incorporate the requirements of this option within the existing AIS networks. However, since it would only involve modification to existing systems, costs are likely to be minimal (international vessels are already required to be fitted with AIS transponders and two networks are currently operational within the Maui's dolphin historic range). In addition, as there are wider benefits in terms of protecting existing investments (offshore installations), there is potential for industry to share costs. Costs associated with Options 3 and 4 would primarily be considered to be within DOC routine operations.

### 7.6.3 Land-based activities and coastal development

Territorial Authorities (district and city councils) and Regional Councils control activities under the RMA, including those which may impact Hector's and Maui's dolphins. This is done through the development and implementation of statutory planning documents under the RMA (regional policy statements, regional plans and district plans), which establish a local framework for managing the environment in their area. These statutory planning documents must be given regard to when considering resource consent applications and these documents must give effect to the New Zealand Coastal Policy Statement 2010 (NZCPS)<sup>158</sup> and have regard to any relevant Conservation Management Strategy (CMS)<sup>159</sup>.

Examples of activities administered by local government that could potentially impact Maui's and Hector's dolphins include point source discharges, non-point source discharges, coastal space issues, offshore development (including acoustic disturbance and habitat degradation), marine energy infrastructure, oil and gas development and seabed minerals exploitation.

#### 7.6.3.1 Options

The major impacts of land-based coastal activities on Maui's dolphins are through agricultural and industrial run-off, sewage and stormwater discharge, and the resultant trophic effects from increased pollution and turbidity. This was assessed within the scope of pollution at the Maui's dolphin risk assessment along with the risk of oil spills. The elements of pollution associated with land-based activities and coastal development ranged between a 2-10% likelihood of exceeding the PBR in the absence of other threats. Mitigation options concerning local government agencies could include the following:

Options to reduce risk to Maui's dolphins from Land-based Activities and Coastal Development (CD). A range of options could be implemented together.		
CD Option 1	Maui's dolphins considered in resource consent applications	Advocating for Maui's / Hector's dolphin protection when consulted on any relevant resource consent applications.
CD Option 2	Engagement with Territorial Authorities and Regional Councils	Engaging with Territorial Authorities and Regional Councils during planning processes and reviews of plans to ensure adequate regard is given throughout known and potential Maui's dolphin range.
CD Option 3	NZCPS and CMS revision	Amending provisions in the NZCPS and CMSs which direct councils to identify and protect Maui's dolphin habitat.
CD Option 4	Awareness in RMA process	Ensuring that teams responsible for consent processing are aware of the potential impacts of proposed activities on Maui's dolphins.
CD Option 5	Liaison regarding pollution	Identify sources of pollution that could threaten Maui's dolphins and promote appropriate controls to the administering bodies.

<sup>158</sup> The NZCPS is a mandatory national policy statement prepared under the RMA. It is the role of the Minister of Conservation to prepare and approve the NZCPS. Its purpose, as set out in s56 of the RMA is "to state policies in order to achieve the purpose of this Act in relation to the coastal environment of New Zealand".

<sup>159</sup> Conservation management strategies are statutory 10-year regional strategies prepared by each Conservancy that provide an overview of conservation issues and give direction for the management of public conservation land and waters, and species for which the Department of Conservation has responsibility. Their purpose is to implement general policies and establish objectives for the integrated management of natural and historic resources, and for recreation, tourism, and any other conservation purposes.



## Costs

There could potentially be additional costs associated with resource consent application, approval and compliance processes. However, measures to offer further protection for Maui's dolphin from land-based effects are consistent with routinely applied measures to minimise environmental degradation arising from pollution of coastal waters. As such, implementation costs are considered negligible to minimal.

### 7.6.4 Vessel traffic

Vessel activity within the Maui's dolphin range has the potential to affect dolphins directly, through physical injury or death, or indirectly, through acoustic disturbance, altering activity budgets, masking biologically important behaviours and displacement from an area. Most boats pose some risk, but of particular relevance to Maui's dolphins are Thundercat racing and Surf Life Saving vessels, especially during events that take place in Maui's dolphin core range.

#### 7.6.4.1 Thundercat racing

Thundercat racers competing in official events use small inflatable boats, approximately 4 m in length, powered by 40-50 hp outboard engines that are required to be fitted with propeller guards. Races that take place in the Maui's dolphin zone, such as those off Piha, Karioitahi, Port Waikato and Raglan, could pose a threat as vessels may have limited visibility of dolphins when at high speed and operating in and behind the surf zone. While individual Thundercats may not necessarily be louder than comparable engines on recreational boats, the aggregate noise levels will be higher due to the concentration of vessels in limited areas, operating at top speeds in shallow waters. During events, a number of Thundercats racing in unison may compound potential affects. As Thundercats exceed the inshore speed restriction (5 knots within 200 metres of shore), permits are required for events and the MMPR (in particular 18-20) apply.

In the past DOC has worked with race organisers to develop mitigation measures. Observers have been posted at lookout points and on the water prior to and during events to keep watch for Hector's and Maui's dolphins. If dolphins are seen, vessels are required to stop. The Department proposes to continue to work with organisers to further develop mitigation measures for both practicing and the events themselves. Practicing could be of particular concern if undertaken in areas of particular sensitivity without appropriate permitting or mitigation measures.

Regulatory measures for managing the threats of Thundercat racing, including restrictions or even prohibition within the Maui's dolphin core range, could be considered. However, given the low level of perceived risks – especially in the broader context of other high-speed recreational vessels in the area – DOC considers that it would be more effective to manage risks through engagement.

#### Options

As mentioned in previous sections on commercial tourism and commercial shipping. Vessel traffic was considered to have a 47.8% likelihood of exceeding the PBR in the absence of all other threats.

In addition to the MMPA and MMPR, threat mitigation tools include non-regulatory options such as voluntary agreements, engagement options and education.

Potential mitigation measures to be considered include the following:

**Options to reduce risk to Maui's dolphins from Thundercat Racing (TR). A range of options could be implemented together.**

<b>TR Option 1</b>	'Soft-start' concept similar to seismic surveying, gradually building up noise levels prior to the start of races to give dolphins the opportunity to leave the area.
<b>TR Option 2</b>	Specified practice areas/times.
<b>TR Option 3</b>	Posting of observers to look out for Maui's dolphins.
<b>TR Option 4</b>	Aerial observation of area prior to race start to ensure no dolphins are in the area.

### **Costs**

There are potential costs for race organisers in terms of operational planning and use of observers, though given the relatively low number of events these are considered minimal in comparison to routine costs.

#### *7.6.4.2 Surf Life-Saving events*

As with Thundercat boats, inflatable Surf Life-Saving vessels generally operate at speed in and around the surf zone. These vessels are 3.8 metres in length and powered by 30 hp outboard engines fitted with propeller guards. As the hull is designed for surf rescue it is soft, not rigid. Therefore strike from the propeller guard itself is probably more of a threat to the dolphins than the hull of the vessel, and may be as great as the propeller when the vessel is moving at speed. However, at low speeds risk of injury would be reduced significantly.

### *Options*

Mitigation options are likely to be similar to those of Thundercats; non-regulatory options that allow informed stakeholder participation.

**Options to reduce risk to Maui's dolphins from Surf Life-Saving events (SLS). Both options could be implemented together.**

<b>SLS Option 1</b>	Ongoing engagement with Surf Life Saving clubs looking at educational options.
<b>SLS Option 2</b>	Utilising observers during competitions and/or training events to look out for Maui's dolphins.

### **Costs**

Similar to Thundercat racing, DOC considers that additional costs associated with use of observers during surf lifesaving events are negligible, and could be met within routine operations.

#### *7.6.4.3 Recreational boating*

As well as risks associated with boat and propeller strike (recreational vessels are seldom fitted with propeller guards), recreational vessels pose threats by approaching Maui's dolphins to view and interact with them. They have the ability to impact dolphins in much the same way as tourism; by altering activity budgets and masking biologically important behaviours.

In addition to dolphin safety, encouraging prompt reporting of Maui's and Hector's sightings or strandings may assist with improving knowledge of dolphin distribution and identification of sub-species (if prompt reporting enables biopsy opportunities), particularly at the extremes of Maui's dolphin range.

To minimise threats by vessels in general, it is imperative that recreational boaters are familiar with appropriate boating behaviour around marine mammals.

#### *Options*

Mitigation options include:

Options to reduce risk to Maui's dolphins from Recreational Boating (RB). A range of options could be implemented together.	
RB Option 1	Promotion and enforcement of the Marine Mammals Protection Regulations.
RB Option 2	Development of appropriate advocacy tools to support community engagement work.
RB Option 3	Targeted advocacy over summer months when recreational boaters are most active.
RB Option 4	Working with Maritime New Zealand and other boating interest groups (such as Coastguard, regional safe-boat forums, harbourmaster interest groups and boat shows) to effectively engage the target audience.

#### **Costs**

DOC considers that costs associated with engagement would be within routine operations, and no costs would be imposed through influencing behavioural changes in recreational boating behaviour.

#### **7.6.5 Scientific research**

Research is necessary to help decisions relating to the management of Hector's and Maui's dolphins. The interaction of researchers may result in possible impacts associated with the use of vessels and people in close contact with the dolphins. Any invasive techniques used to collect samples may also have an adverse impact. These threats are described in detail in Section 5.1.2.7.

It is imperative that risks to dolphins while undertaking research are minimised and any approved research has benefits for the long-term management of the species. Non-invasive research techniques such as boat and aerial surveys are regulated through the MMPR (Regs 18-20).

Any Hector's or Maui's dolphin research proposing to use an invasive technique such as biopsy sampling or satellite tagging would require a marine mammal research permit issued under the MMPA, as well as Animal Ethics Approval. The application process for an invasive research permit is guided by the Marine Mammal Research Permitting Standard Operating Procedures which dictates a peer review and internal consultation process as well as providing guidance to decision makers. For a permit to be granted the justification for the research needs to be clear and the benefits to the population **MUST** outweigh the risk posed to the species by the proposed technique. The application must also detail clear risk mitigation procedures. In a number of meetings held by the Maui's dolphin Recovery Group with the specific aim to discuss research priorities and methods it was agreed that the current technology with regards to satellite tagging of dolphins is not adequate to ensure the benefits outweigh the risks posed to the Maui's dolphin population.

In the Maui's dolphin risk assessment scientific research was not considered applicable to Maui's dolphins. This is because research is an important part in making decisions relating to the management of Hector's and Maui's dolphins, and due to the stringent requirements around undertaking any research. DOC considers this is already well mitigated, however, proposes some improvements that could increase the mitigation of the potential impacts to Maui's dolphins. These include:

**Options to reduce risk to Maui's dolphins from Scientific Research (SR). A range of options could be implemented together.**

<b>SR Option 1</b>	Regular engagement and training with scientists and DOC staff regarding best practice techniques for use on Hector's and Maui's dolphins.
<b>SR Option 2</b>	Ensuring anyone undertaking research is appropriately qualified.
<b>SR Option 3</b>	Strict adherence to current legislation and standard operating procedures is followed.
<b>SR Option 4</b>	Developing stricter risk assessment protocols regarding permit processing.
<b>SR Option 5</b>	Research undertaken is guided by research priorities and a researching planning process (Section 8.1 for more details of options regarding research planning).
<b>SR Option 6</b>	Any research granted a permit has to be able to demonstrate clear benefits for the population and the gains <b>MUST</b> outweigh the risk.

### Costs

DOC considers the costs associated with these options to be minimal; however feedback on the potential costs of implementing these options is invited.

#### 7.6.6 Disease

There is limited evidence on the impact of disease on this population and the full extent is not well understood. In the Maui's dolphin risk assessment disease was scored low with stress-induced diseases and domestic animal diseases each predicted to contribute <0.01 mortality a year to the population.<sup>160</sup>

There has since been evidence of *Toxoplasma gondii* related deaths to Maui's dolphins as described in Section 5.2.1.2. There is still uncertainty around the origin of the Toxoplasma oocytes in the waterways, its seasonality, how it is transmitted, and about the direct and indirect affects it may have on the dolphin population. Further research is required to have a better understanding of the impacts on Maui's dolphins and how any impacts can be mitigated. As domestic cats are a known vector of Toxoplasmosis there could be options for engagement with local councils, community groups and the general public in order to raise awareness about the issue as well as encouraging safe practices for disposing of feline faeces. However, this should be in conjunction with further research initiatives to guide what initiatives are needed.

The Maui's dolphin risk assessment scored stress-induced and domestic animal diseases low, each contributing <0.01 deaths per year, although stress-induced disease was scored a higher upper bound (95% CI: <0.01-0.35). The overall likelihood of disease exceeding the PBR was estimated to 29.5%. It is important to note that this scoring was prior to receiving information on the Toxoplasmosis related deaths in Maui's dolphins. Therefore, if rescored this threat might be considered to be of higher risk.

<sup>160</sup> Currey *et al* (2012)

Options to reduce risk to Maui's dolphins from Disease (D). A range of options could be implemented together.	
D Option 1	Ongoing necropsy of Maui's dolphins found beachcast to determine incidence of disease, including <i>Toxoplasma gondii</i> .
D Option 2	Research to understand the origin of <i>Toxoplasma gondii</i> , the impacts of it on the population, and whether there are ways to mitigate against it (Section 8.1.1.2, for further details).
D Option 3	Engagement with stakeholder groups to raise awareness and encouraging safe practices to minimise the occurrence of <i>Toxoplasma gondii</i> getting into waterways and the sea.

## Costs

As with scientific research, DOC considers the costs for implementing the above options to be minimal to stakeholders. The greatest cost being the financial undertaking of research. DOC invites feedback on the potential costs of these options and how these could be mitigated or supported.

### 7.6.7 Population recovery options

In endangered species recovery there are a number of management options that can be employed to help boost reproductive potential of the species. These options range from in-situ management (managing the species directly in their natural environment) through to the more extreme cases of ex-situ management (removing them from their natural environment and relocating to a facility). While some of the ex-situ techniques have been successful for terrestrial species, and are commonly employed for many endangered species of birds they carry more risk and are considerably less successful when dealing with marine species. DOC considers the best chance for the recovery of the species is to effectively manage the human-induced threats to Maui's dolphins in their preferred habitat and throughout their full range rather than to employ ex-situ management options. The reasons for this are discussed in more detail below:

#### 7.6.7.1 Captive breeding as a recovery tool

Captive breeding of wild animals poses several risks and DOC does not support this approach. Worldwide, captive breeding of whales or dolphins has only been successful for a limited number of species (bottlenose dolphins and orca). There is considerable risk around the safety and welfare of the dolphins throughout the process of wild-capture and relocation to a facility. It would cause considerable stress to the captured dolphins but also to the remainder of the group. Maui's dolphins are a highly social species with complex and not fully understood interactions. Once at the facility there is concern over the ability to adequately care for dolphins to a high standard.

Dolphin captures, both overseas and within New Zealand have resulted in high mortality rates during the capture, transfer to holding facilities and post capture stress. A previous attempt at housing Hector's dolphins in captivity at Napier, Marineland was unsuccessful. Marineland New Zealand held four wild-caught Hector's dolphins in captivity between 1969-1972. Three died within 2.5 months of being in captivity, the fourth died after 2.5 years in captivity. A petition in 2005 to again hold wild-caught Hector's dolphins was turned down based on the fact that the risks to the animals outweighed the benefits. New Zealand does not have any facilities that would be of suitable standard for facility-based captive breeding. The cost of upgrading or building facilities to an internationally acceptable standard would be considerable.

If the management measure is intended to support the wild population, this requires reintegration of the captured animals back into the wild. This is where the greatest risk to Maui's dolphins lies. Once back in the wild there is no guarantee of the dolphin's survival as the dolphin may have reduced ability to reintegrate socially and to find food. These are highly social, gregarious species and calves are dependent on mothers for several years. Successful reintroduction after a period of being held in captivity is unlikely. Even if successful, there is also increased risk to the wild population through introduction of disease.

It is not known how many dolphins would need to be captured to establish a viable captive population for breeding, and it is likely this management option would require the capture of several dolphins. If a single Maui's dolphin were to die as a result of an attempt of captive breeding, this is a human-induced death. The revised PBR for Maui's dolphins is one human-induced death every 10-23 years. Therefore, the risk posed through capture and captive breeding is considered unacceptable.

In order for re-introduction to occur the area of release would need to have all the human-induced threat's managed for the long-term viability of the Maui's dolphins. This would need to be over a wide spatial area and for the full historic range of the Maui's dolphins. Therefore, DOC considers that in-situ management through the TMP is the most cost-effective, beneficial and humane way to manage the recovery of the critically endangered Maui's dolphin population.

#### *7.6.7.2 Translocation of Hector's dolphins to Maui's range as a recovery tool*

Another option that has been mentioned is the translocation of Hector's dolphins to Maui's dolphin range to allow for interbreeding to boost the Maui's population. This option also has associated risks:

Translocation involves the capture and removal of an animal from its habitat and transporting it out of water. Even though the end point is to release the dolphin back into the sea, the first steps of the process are the same as for captive breeding. The capture and removal of a dolphin from the wild is highly invasive and dangerous for the animal in question. As with the release of captive dolphins, the translocation of Hector's to Maui's range also carries the risks of introducing disease into the new population.

While some stranded whales and dolphins have been transported to alternative sites for refloating this is typically over short distances, and involves animals that are in immediate danger of dying if not refloated, not healthy animals. To translocate an otherwise healthy animal putting them at risk of death is considered unacceptable. While the populations of Hector's dolphins are larger than the Maui's dolphin population, they are listed as Endangered by the IUCN, and Nationally Endangered by the New Zealand Threat Classification, the second highest category for both.

In addition, the PBR estimate for the South Island populations is also low<sup>161</sup> and a human-induced mortality to one of these populations as a result of translocation is not an acceptable risk. In considering translocation thought must be given to how many animals are required as a minimum to capture and move, as relocating only a few is not going to be beneficial to the Maui's population. Also the animals need to be breeding age, and a mix of males and females for this to be effective. Therefore, even capture and translocation of dolphins from the largest

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<sup>161</sup> From the former Ministry of Fisheries & DOC 2008, ECSI PBR = 2-4 dolphins/year, SCSI PBR = 0 dolphins/year, WCSI PBR = 7-12 dolphins/year

population with the highest PBR, (West Coast South Island, 7-12 dolphins/year), a translocation operation could put that population at risk of exceeding its PBR.

It is also important to consider that while there is no reason that the two sub-species cannot interbreed, there is no evidence as of yet that they have. Therefore, in the case of translocation and given the current lack of evidence of benefits to the Maui's dolphin population, the risks to any Hector's or Maui's dolphin population clearly do not outweigh the benefits.

DOC is not proposing captive breeding or translocation as options for population recovery as it is considered the risks are too high; however, feedback on this topic is welcome, including perceived costs and benefits associated with these proposals.

#### 7.6.8 Predation

Predation is a non-human induced form of mortality that Maui's dolphins may face. There has been evidence of shark predation on Maui's dolphins; however, this has been minimal (see Section 5.2.2. for details). Great whites, blue and broad-nosed seven-gilled sharks, are the main species that may consume Maui's dolphins.

White sharks are listed as vulnerable on IUCN Red list and have been protected in New Zealand since 2007 under the Wildlife Act 1953. Orca, which may prey on Maui's dolphins, are also listed as Nationally Critical under the New Zealand threat classification. There is concern about the status of several of the other species which may be predators of Maui's dolphins. Given predation is a natural form of mortality, there is limited evidence for the impact of predators on the Maui's dolphin population, and the potential predators are protected species with concern about the status of their populations, DOC does not consider that active control of predator populations is appropriate.

#### 7.6.9 Cumulative impacts of multiple threats

DOC acknowledges there is a lack of understanding about the interaction between threats and the potential impact of such interactions on the Maui's dolphin population (for example, displacement from seismic activity into an area of higher intensity fishing, or decreased fitness through pollution resulting in decreased ability to avoid predators). There is also limited understanding about the cumulative impacts of multiple threats on a population, as threats are often assessed and thus managed in isolation. While, the Maui's dolphin risk assessment provided an opportunity for estimating the potential impact of threats on the population both in isolation, and cumulatively, there remains benefit in better understanding how individual threats interact to affect the population. As there is limited information on this DOC considers it a research gap and is highlighted in Section 8.1.1.2.

