



Department of Conservation
Te Papa Atawhai

Maui's Dolphin Conservation

Consultation on a proposed variation to the West Coast North Island Marine Mammal Sanctuary to prohibit commercial and recreational set net fishing between two and seven nautical miles offshore between Pariokariwa Point and the Waiwhakaiho River, Taranaki.

6 September 2013

Department of Conservation
PO Box 10420
Wellington 6143

www.doc.govt.nz/sanctuary-consultation

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DOC/DM -1260687

Executive Summary

- 1.1. The Minister of Conservation may declare a marine mammal sanctuary under Section 22 of the Marine Mammals Protection Act 1978 (MMPA) and may restrict specified activities within the sanctuary that could adversely affect marine mammals. The Minister is also able to vary an existing sanctuary pursuant to the same section (subject to the consent of other relevant Ministers).
- 1.2. Due to concerns about the future viability of the critically endangered Maui's dolphin population, the Minister of Conservation has asked the Department of Conservation (DOC) to consult on a proposal to vary the existing West Coast North Island Marine Mammal Sanctuary to *prohibit commercial and recreational set net fishing between two and seven nautical miles offshore between Pariokariwa Point and the Waiwhakaiho River, Taranaki*. The area of the proposed variation is outlined in **Appendix 1**.
- 1.3. The purpose of the proposed variation is to provide greater protection to Maui's dolphins from the risks resulting from set net fishing (commercial and recreational). The risk of fishing-related mortality on Maui's dolphins is dependent on the degree to which fishing activity and Maui's dolphin distribution overlap.
- 1.4. The Minister believes this proposed variation to the sanctuary is necessary under the MMPA for the protection, conservation and management of Maui's dolphin, given:
 - the critical situation of the Maui's dolphin population (55 individuals aged one-year or greater; 95% CI 48-69);
 - the presence of four reliable sightings of Maui's or Hector's dolphins (three groups and one individual) in the defined area between 2006 and 2013;
 - the susceptibility of Maui's dolphins to entanglement and mortality from set net fishing; and
 - the overlap between set net fishing activity and Maui's/Hector's dolphin sightings in the defined area.
- 1.5. This proposed variation to the West Coast North Island Marine Mammal Sanctuary will be notified in the New Zealand Gazette on 12 September 2013 (**Appendix 2**). There is a 28-day period for public submissions.
- 1.6. Submissions on the proposed variation close at **1600 hours on 10 October 2013** and may be submitted to the Minister of Conservation by:
 - Completing an online submission form on the DOC website ([Marine Mammal Sanctuary Submission](#)); or
 - Emailing your submission to: mauisdolphin@doc.govt.nz with "Marine Mammal Sanctuary Submission" in the subject line; or
 - Posting your submission to:
Marine Mammal Sanctuary Submissions
Department of Conservation
PO Box 10420
Wellington 6143.

2. Background

2.1. Introduction

- 2.1.1. The following subsections summarise background information useful for understanding the history and context of the proposed variation including: legislative and policy considerations; information on the biology, status and threats to Maui's dolphins; and the history of the Threat Management Plan (TMP) process and its relationship to this current process.
- 2.1.2. Further detailed information is available on the [Department of Conservation](#) and [Ministry for Primary Industries](#) (MPI) websites. Particularly relevant information, including key reference documents and past consultation papers, may be viewed by following the various hyperlinks provided throughout this consultation paper, as well as in **Appendix 3**.
- 2.1.3. Particular attention is drawn to the [Review of the Maui's Dolphin Threat Management Plan Consultation Paper](#) published in September 2012 which provides a comprehensive overview of information relating to the biology, distribution, threats to, and management of Maui's dolphins up until that date. The Overview section of the TMP consultation paper is also appended for reference (**Appendix 4**). Submissions on the 2012 consultation paper closed on 12 November 2012.
- 2.1.4. The Minister of Conservation and Minister for Primary Industries have yet to finalise their decisions on the Maui's dolphin TMP review. The current proposal to vary the West Coast North Island Marine Mammal Sanctuary is being considered by the Minister of Conservation within the wider context of the TMP review but is a new proposal over and above the TMP proposals.
- 2.1.5. The Department of Conservation's web page for the proposed variation is www.doc.govt.nz/sanctuary-consultation.

2.2. Legislative and policy considerations

- 2.2.1. DOC is the leading central government agency responsible for the conservation of New Zealand's natural and historic heritage. DOC is responsible for managing Maui's dolphins, principally in accordance with the MMPA, Marine Mammals Protection Regulations 1992, and in line with the Conservation General Policy. All marine mammals, including Maui's dolphins, are protected under the MMPA. Hector's (including Maui's) dolphin was gazetted a threatened species under the MMPA in 1999.
- 2.2.2. The MMPA sets out tools (including marine mammal sanctuaries) which the Minister of Conservation might apply to provide for the protection, conservation and management of marine mammals. The Minister of Conservation can declare a marine mammal sanctuary under Section 22 of the MMPA and within it restrict specified activities (e.g. fishing, mining, and seismic surveys) that could adversely affect marine mammals. The Minister is able to vary, redefine or abolish a sanctuary pursuant to the same section (subject to the consent of other relevant Ministers).

2.2.3. The Minister of Conservation is also able to approve population management plans under Section 3E of the MMPA. There is no population management plan for Maui's dolphin.

2.2.4. The Minister for Primary Industries may, after consultation with the Minister of Conservation, take such measures as he or she considers are necessary to avoid, remedy or mitigate the effect of fishing-related mortality on any protected species (e.g. Maui's dolphin). In making any decisions under the Fisheries Act 1996, the Minister for Primary Industries must bear in mind and conform to the purpose of the Fisheries Act to provide for the utilisation of fisheries resources while ensuring sustainability. He must also take into account the Act's environmental principles including: "*associated or dependent species should be maintained above a level that ensures their long-term viability.*"

2.2.5. The Fisheries Act and the MMPA contain tools to protect species by managing the impacts of fishing and other non-fishing risks. The Fisheries Act and the MMPA have very different legislative frameworks, principles and purposes. The purpose of the Fisheries Act is to provide for the utilisation of fisheries resources while ensuring sustainability, whereas the purpose of the MMPA is the protection, conservation and management of marine mammals.

2.2.6. During and following the development of the [Hector's and Maui's Dolphin Threat Management Plan 2007](#) (refer below), the effect of fishing-related mortality on protected species was considered and managed under the Fisheries Act 1996 rather than the MMPA. Fisheries Act restrictions were preferred due in part to their stronger penalties, the greater capability for enforcement, to remove the potential for duplication, and to provide greater certainty to stakeholders by managing fishing-related threats under a single framework.

2.2.7. The Conservation (Natural Heritage Protection) Bill currently under consideration, if passed in its current form, will increase penalties under the MMPA bringing them into line with penalties under the Fisheries Act. Fisheries Officers are also warranted Marine Mammal Officers under the MMPA.

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

2.2.9. Further legislative and policy information is outlined in the [Review of the Maui's Dolphin Threat Management Plan Consultation Paper 2012](#).

2.3. Maui's dolphins

2.3.1. Maui's dolphin (*Cephalorhynchus hectori mau*), a subspecies of the endemic Hector's dolphin, is one of the world's rarest dolphins. Various population estimates have been published over the last two decades, based on different methodologies. The most recent population estimate (55 individuals aged one-year or greater; 95% CI 48-69) reaffirms the population's very small size.

Moreover, recent research estimates the Maui's dolphin population to be declining at 3% per year (with a probability of decline of 75%).

2.3.2. Maui's dolphins are classified as '*nationally critical*' by DOC and '*critically endangered*' by the International Union for the Conservation of Nature (IUCN). It is estimated Maui's dolphins can sustain only one human-induced mortality every 10 to 23 years without impacting on the population's ability to rebuild to its optimum sustainable size.

2.3.3. Maui's and Hector's dolphins are short lived (maximum reported age 22 years) and reach maturity at a relatively late age (males 6-9 years; females 7-9 years). Females give birth to a single calf every 2-3 years thereafter (sometimes longer). These biological attributes mean Maui's dolphins have a very low reproductive potential.

2.3.4. Confirmed records of Maui's dolphins (historical mortalities and sightings, confirmed by DNA testing) extend from the Kaipara Harbour to South Taranaki (**Appendix 5**). Greatest numbers of records occur from south of the Kaipara Harbour to Raglan. The highest concentration of confirmed records is found between Manukau Harbour and Port Waikato within one nautical mile of the shore. Although two live and two beach-cast Hector's dolphins (*Cephalorhynchus hectori hectori*) have been recorded from between Maunganui Bluff and Hawera, around 95% of tissue samples taken from live or beach-cast Maui's or Hector's dolphins north of Hawera have been Maui's dolphins.

2.3.5. Maui's and/or Hector's dolphins off the west coast of the North Island are most prevalent in the area between shore and four nautical miles offshore (**Appendix 6**; refer also [Review of the Maui's Dolphin Threat Management Plan Consultation Paper 2012](#)). They are also present in lower numbers between four and seven nautical miles but the full extent of their offshore distribution is largely unknown. The estimated offshore distribution to seven nautical miles is based on:

- reliable research sightings of Maui's and/or Hector's dolphins from aerial and boat surveys;
- reliable public sightings of Maui's and/or Hector's dolphins;
- the modelled offshore distribution as agreed by an expert risk assessment panel to account for limitations in the research and public sightings data (refer paragraph 2.4.4).

2.3.6. Maui's dolphins are susceptible to various human-induced threats including fishing (primarily set netting and trawling), boat strike, mining, construction, coastal development, pollution, marine tourism, marine farming and climate change. The risk of fishing-related mortality on Maui's dolphins is dependent on the degree to which fishing activity and Maui's dolphin distribution overlap. Net fishing methods, especially set netting, are considered the greatest threat to Maui's dolphins and are estimated to account for 95% of the risk of human-induced mortality for Maui's dolphins (refer paragraph 2.4.4).

2.4. Threat Management Plan

2.4.1. In 2007, DOC and the then Ministry of Fisheries (now MPI) developed the [Hector's and Maui's Dolphin Threat Management Plan](#) to guide management of human-induced threats to Hector's and Maui's dolphins. The 2007 TMP process culminated in the implementation of various management measures including *inter alia*:

- The [West Coast North Island Marine Mammal Sanctuary](#) between Maunganui Bluff in the north and Oakura in the south, and offshore to twelve nautical miles (**Appendix 7**). The sanctuary introduced measures to manage seismic surveys and seabed mining within its boundaries. It is approximately 1,200,086 hectares in area and covers 2,164 km of coastline.
- a [prohibition on commercial and recreational set netting](#) out to seven nautical miles between Maunganui Bluff and Pariokariwa Point (including the entrances to the Kaipara, Manukau and Raglan Harbours) (**Appendix 8**).
- a [prohibition on trawling](#) between Maunganui Bluff and Pariokariwa Point (offshore to two nautical miles and to four nautical miles between Manukau Harbour and Port Waikato) (**Appendix 8**).

2.4.2. Initially, a review of the full TMP was signalled for 2013/14, dependent on new information being available. In 2012, the review of the Maui's dolphin component of the TMP was brought forward as a result of new information becoming available (a new, lower population estimate and the accidental capture of a Maui's or Hector's dolphin off the coast of Taranaki in January 2012).

2.4.3. In the same year (2012), the Minister for Primary Industries also implemented [interim protection measures from set net fishing](#) in the Taranaki region between Pariokariwa Point and Hawera (**Appendix 8**). These interim measures entail:

- a prohibition on commercial and recreational set netting out to two nautical miles;
- a prohibition on commercial set netting without a MPI observer on board between two and seven nautical miles.

2.4.4. A risk assessment of threats to Maui's dolphins was undertaken to help inform the Maui's dolphin TMP review ([Currey et al 2012](#)). A workshop was convened in June 2012 using an expert panel of domestic and international experts in marine mammal science and ecological risk assessment, as well as representatives from a range of stakeholders. After assessing all information available, the panel concluded that net fishing (set, trawl and drift) accounted for 95% of the risk of human-induced mortality for Maui's dolphins. Of these fishing methods, commercial set netting was considered the highest risk, with an 89% likelihood of exceeding the potential biological removal estimate. The panel considered the residual risk to Maui's dolphins from set net fisheries was greatest off the northern Taranaki coastline out to seven nautical miles and close to the entrance of the Manukau Harbour.

- 2.4.5. The [Review of the Maui's Dolphin Threat Management Plan Consultation Paper](#) was published in September 2012 and outlined various proposals to reduce the threats to Maui's dolphins and support the recovery of the dolphin population (**Appendix 4**). The option which proposed the greatest level of protection to Maui's dolphins from set net fishing was to:
- prohibit commercial and recreational set netting out to four nautical miles between Pariokariwa Point and Hawera; and
 - prohibit commercial set netting between four and seven nautical miles between Pariokariwa Point and Hawera without a MPI observer on board.
- 2.4.6. The other fishing-related threat management options consulted upon covered the same geographical extent but offered reduced levels of protection for the Maui's dolphin population.
- 2.4.7. Public consultation on the Maui's dolphin TMP review occurred between 24 September and 12 November 2012 and is now closed. Over 70,000 submissions were received. The Minister of Conservation and Minister for Primary Industries are currently considering this review within their respective portfolios, including the submissions received and advice from their departments.

3. New Information

- 3.1. Since the public consultation process undertaken in the second half of 2012 (refer paragraph 2.4.5), the following information has become available:
- a summer season of public sightings;
 - validation of existing and new sightings;
 - the results of DOC-led boat and aerial surveys over the summer of 2012/13; and
 - fisheries observer results.
- 3.2. **Appendix 9** provides a summary of this new information. A detailed discussion of the Maui's (and Hector's) dolphin sightings database is also appended (**Appendix 10**).
- 3.3. There are five recorded sightings of Maui's and/or Hector's dolphins between two and seven nautical miles offshore between Pariokariwa Point and the Waiwhakaiho River, all in the last seven years (**Appendix 6** and Table 1). These sightings involved both individual dolphins (one sighting) and groups of dolphins (four sightings). Only two of these five sightings were included in the 2012 consultation paper; the remaining three records were not included because they either had not been validated at the time (two sightings) or post-dated the consultation process (one sighting). Four of the five sightings have a validation category of 3 and are considered reliable.
- 3.4. A boat survey undertaken by DOC in the Manukau to Raglan area over the summer of 2012/13 recorded sightings of 30 adult Maui's/Hector's dolphins and two calves (**Appendix 9**). No Maui's/Hector's dolphins were sighted during boat and aerial surveys in the Taranaki region. The particular survey tracks and sightings locations may be viewed on the DOC website ([Maui's dolphin surveys](#)).

Table 1. Maui's/Hector's dolphin sightings within the area of the proposed variation

ID number	Sighting date (year)	Validation category	Number of dolphins	Distance from shore (nautical miles)	Included within the information supporting the 2012 consultation paper?
133	2006	2	4	4.39 nm	No (not validated at the time, but were recorded on the DOC website)
803	2008	5	7	4.67 nm	No (not validated at the time, but were recorded on the DOC website)
735	2011	3	1	6.81 nm	Yes
812	2012	3	8 (approx)	2.55 nm	Yes
952	2013	3	4	2.62 nm	No (after consultation process)

- 3.5. Since July 2012, there has been mandatory MPI observer coverage for any commercial set net fishing between two and seven nautical miles offshore between Pariokariwa Point and Hawera. From July 2012 to May 2013, a total of 419 observer sea days were conducted across five fishing vessels that fished off the south and north Taranaki coasts (**Appendix 9**). No Maui's or Hector's dolphins were recorded by fisheries observers over this period.
- 3.6. Fisheries observers recorded a total of 325 set net fishing events from July 2012 to May 2013 off the south and north Taranaki coasts. A combined total of 255,700 metres of net was set over this period. Set net fishing effort was not evenly spread and tended to be concentrated in four general areas: south and west of Hawera, west of Oakura, north of New Plymouth; and beyond seven nautical miles offshore from the Mokau and Awakino Rivers. Over this period, four vessels undertook a total of 118 observed set net fishing events (with a combined total of 103,750 metres of net) out to seven nautical miles between Pariokariwa Point and the Waiwhakaiho River; the majority of these events were at the south-western end of this area closest to New Plymouth.

4. Proposal to vary the West Coast North Island Marine Mammal Sanctuary

- 4.1. During the expert panel risk assessment (refer paragraph 2.4.4), [Curry et al \(2012\)](#) mapped the intersection of Maui's dolphin distribution with all set net effort between 2008 and 2011; their map is reproduced in **Appendix 11**. (Note: this assessment did not include set net effort in later fishing years and does not account for any shift in effort since the interim fisheries measures were introduced. The broad distribution of set net fishing effort from July 2012 to May 2013 is summarised in paragraph 3.6 above). [Curry et al \(2012\)](#) concluded that the residual risk to Maui's dolphins from set net fisheries was greatest off the northern Taranaki coastline out to seven nautical miles and close to the entrance of the Manukau Harbour. While the [Review of the Maui's Dolphin Threat Management Plan Consultation Paper](#)

[2012](#) outlined a number of options for mitigating threats to Maui's dolphins (refer paragraphs 2.4.5 and 2.4.6), an option of prohibiting all commercial and recreational set netting out to seven nautical miles off the north Taranaki coast was not considered.

- 4.2. There have been five sightings of Maui's and/or Hector's dolphins (one individual dolphin and four groups) between two and seven nautical miles offshore between Pariokariwa Point and the Waiwhakaiho River since 2006, four of which are considered reliable (paragraph 3.3). Only two of these five sightings were included in the 2012 consultation paper. Given that around 95% of tissue samples taken from live or beach-cast dolphins in the area north of Hawera have been found to be Maui's dolphins (paragraph 2.3.4; refer also **Appendix 5**), it is reasonable to assume that some or all of these north Taranaki sightings were Maui's dolphins.
- 4.3. From July 2012 to May 2013, fisheries observers recorded a total of 118 set net fishing events (with a combined total of 103,750 metres of net) out to seven nautical miles between Pariokariwa Point and the Waiwhakaiho River, mostly towards the south-western end of this area (refer paragraph 3.6).
- 4.4. In recent years, restrictions under the Fisheries Act 1996 have been used to avoid, remedy or mitigate the effect of fishing-related mortality on Maui's dolphins (refer paragraph 2.2.6). However, due to concerns about the future viability of the critically endangered Maui's dolphin population, the Minister of Conservation believes it is appropriate in this circumstance to take a precautionary approach and, pursuant to Section 22 of the MMPA, vary the West Coast North Island Marine Mammal Sanctuary to *prohibit commercial and recreational set netting between two and seven nautical miles offshore between Pariokariwa Point and the Waiwhakaiho River* (**Appendix 1**). This small scale proposal was not an option considered through the 2012 TMP review process.
- 4.5. The Minister believes this variation (over and above whatever measures may be decided upon and implemented through the Maui's dolphin TMP review) is necessary for the protection, conservation and management of the Maui's dolphin, given
 - the critical situation of the Maui's dolphin population (55 individuals aged one-year or greater; 95% CI 48-69);
 - the presence of four reliable sightings of Maui's or Hector's dolphins (three groups and one individual) in the defined area between 2006 and 2013;
 - the susceptibility of Maui's dolphins to entanglement and mortality from set net fishing; and
 - the overlap between set net fishing activity and Maui's/Hector's dolphin sightings in the defined area.
- 4.6. The boundaries and relevant coordinates of the area of the proposed variation are shown in **Appendix 1**. Such a prohibition would align with the current set netting restrictions out to seven nautical miles extending north from Pariokariwa Point to Maunganui Bluff (refer paragraph 2.4.1).

- 4.7. Any variation to the West Coast North Island Marine Mammal Sanctuary would be subject to the consent of the Minister of Energy and Resources, Minister for Primary Industries, and Minister of Transport.

5. Effects of the proposed variation on fishing

- 5.1. MPI has provided an economic impact assessment for the proposed variation to the marine mammal sanctuary (**Appendix 12**) and estimates “*approximately five fishers operating six to eight commercial vessels have previously operated in this area over the last four years and may be directly affected by the proposed set net restrictions. In the last year, since the interim measures were put in place, four vessels have operated in the proposed area.*”
- 5.2. MPI also states: “*The ability for commercial set net fishers to adjust their fishing behaviour by moving further offshore beyond seven nautical miles, or alongshore south of Waiwhakaiho River, may be constrained. The species mix caught outside of this area may not align with their annual catch entitlement (ACE) packages, which enable them to target and land certain species without financial penalties.....The potential shift in harvested species composition versus their ACE packages may disproportionately affect their operations and make their businesses unviable.*”
- 5.3. The potential revenue loss and associated economic impacts (annual value and capitalised future value losses) have been estimated by MPI as follows:

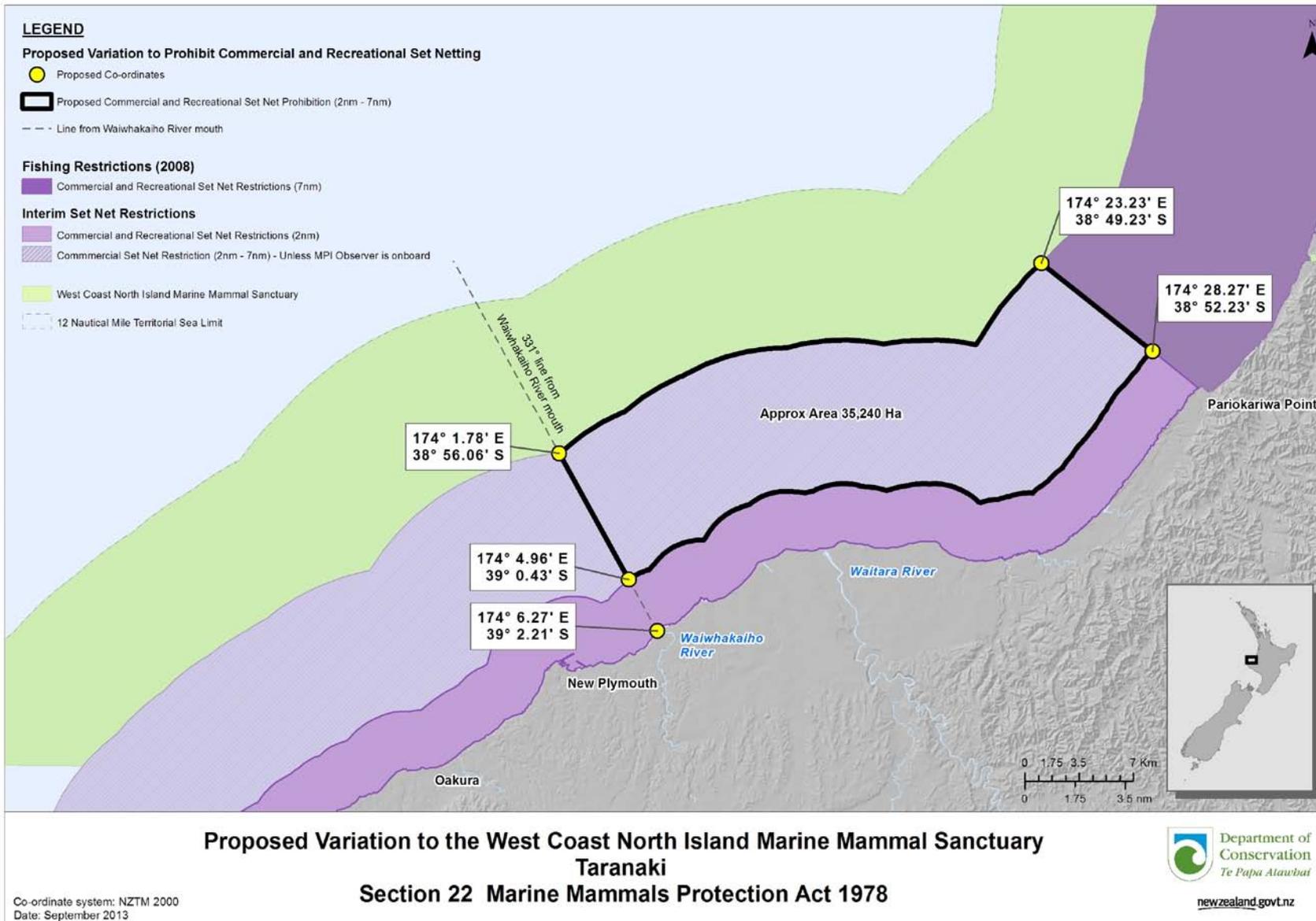
Estimated impact (loss)	
Annual revenue	\$81 024
Annual value add	\$136 121
Capitalised future value	\$431 024
Total Cost	\$567 144

- 5.4. MPI notes these estimates are indicative only because they:
- a. “do not account for any shift in effort beyond 2 nautical miles that has occurred in the last fishing year (2012/13) since the interim measures came into effect;
 - b. do not account for any change in harvest (volume or species composition) in the proposed area that has occurred since the interim measures came into effect, and
 - c. do not fully account for the ability of fishers to shift their effort outside of the proposed closed area, noting that the remaining set net closures off the west coast of the North Island has already resulted in a large area loss.”
- 5.5. The value and amount of recreational set net fishing in this area is unable to be quantified. However, recreational set net activity is considered to be low given recreational vessels are generally smaller, and logistical and safety issues mean they are less likely to undertake set net activity this far offshore. Any recreational set net activity displaced under this proposal would likely result in increased costs from travelling further afield to continue set net fishing and may make the activity cost-prohibitive. Submissions may be made on whether or not recreational set net fishing should be considered as part of the proposed variation.

6. Public submissions and Minister's consideration

- 6.1. Pursuant to Section 22 of the MMPA, the Minister of Conservation proposes to vary the West Coast North Island Marine Mammal Sanctuary to *prohibit commercial and recreational set net fishing between two and seven nautical miles offshore between Pariokariwa Point and the Waiwhakaiho River, Taranaki* (**Appendix 1**).
- 6.2. The Minister's intention to vary the Marine Mammal Sanctuary will be notified in the New Zealand Gazette on 12 September 2013 (**Appendix 2**). There is a 28-day period for public submissions.
- 6.3. Submissions on the proposed variation close at **1600 hours on 10 October 2013** and may be submitted to the Minister of Conservation by:
 - Completing an online submission form on the DOC website ([Marine Mammal Sanctuary Submission](#)); or
 - Emailing your submission to: mauisdolphin@doc.govt.nz with "Marine Mammal Sanctuary Submission" in the subject line; or
 - Posting your submission to:
Marine Mammal Sanctuary Submissions
Department of Conservation
PO Box 10420
Wellington 6143
- 6.4. Submissions should include:
 - Your full name;
 - The organisation you represent (where relevant);
 - Contact address (postal and/or email);
 - Contact phone number;
 - Whether or not you support or oppose (in full or in part) the proposed variation to the West Coast North Island Marine Mammal Sanctuary, including the proposed boundaries;
 - The reasons why you support or oppose the variation, including any supporting information.
- 6.5. All submissions form part of a public process and may be released into the public domain. Commercially sensitive information may be kept confidential and should be marked clearly.
- 6.6. Please note the present submission process relates only to the proposed variation to the West Coast North Island Marine Mammal Sanctuary to *prohibit commercial and recreational set net fishing between two and seven nautical miles offshore between Pariokariwa Point and the Waiwhakaiho River, Taranaki*. Consultation on the Maui's dolphin TMP review has closed.
- 6.7. All submissions will be provided to the Minister of Conservation for consideration. Dependent on the information provided, the Minister may decide it is necessary to consult further or to obtain further information.

- 6.8. The Minister of Conservation's final decision on the proposed variation will be implemented alongside the wider package of protection measures which he and the Minister for Primary Industries are jointly considering as part of the Maui's dolphin TMP review. Any variation to the West Coast North Island Marine Mammal Sanctuary would be subject to the consent of the Minister of Energy and Resources, Minister for Primary Industries, and Minister of Transport.
- 6.9. DOC will provide an update on Ministerial decisions and the future conservation management of the Maui's dolphins through the [Department of Conservation website](#).



APPENDIX 2

Copy of Gazette Notice

(Note: the signed Gazette Notice will be notified in the New Zealand Gazette on 12 September 2013)

Conservation Marine Mammals Protection Act 1978 section 22 Notice of Intention to Vary the West Coast North Island Marine Mammal Sanctuary

Pursuant to section 22(1) of the Marine Mammals Protection Act 1978 I propose to vary the West Coast North Island Marine Mammal Sanctuary declared by the Marine Mammals Protection (West Coast North Island Sanctuary) Notice 20082 (the "principal notice") by banning commercial and recreational set net fishing in all of the area of sea specified in **Schedule 1** (with the consent of the Minister for Primary Industries, the Minister of Transport, and the Minister of Energy and Resources). This area encompasses five sightings of Maui's dolphins that have occurred further than 2 nautical miles offshore in the Taranaki region.

A map of the area referred to in **Schedule 1** is available for inspection on the website of the Department of Conservation at www.doc.govt.nz. The map is indicative only. If there is a discrepancy between the map and the description of the area in this notice, the description prevails.

I will consider any written submission on my intention, set out in this notice, if:

(a) it is addressed to the Minister of Conservation as follows:

(i) Marine Mammal Sanctuary Submissions
Department of Conservation
PO Box 10420
Wellington; or

(ii) mauisdolphin@doc.govt.nz ; or

(iii) completing an online submission form on the Department of Conservation website; and

(b) I receive it within 28 days after the publication of this notice in the *New Zealand Gazette*.

Schedule 1

The area of the sea which is the subject of the proposal is enclosed by a line:

- (i) commencing at a point 2 nautical miles from mean high water springs (approximately 174° 4.96'E and 39° 0.43' S)³ which is the continuation of a line extending at 331° from the mouth of the Waiwhakaiho River, Taranaki (approximately 174° 6.27'E and 39° 2.21' S);and
- (ii) proceeding along that line to a point 7 nautical miles (approximately 174° 1.78'E and 38° 56.06' S) from mean high water springs; and
- (iii) proceeding generally north-east along a line 7 nautical miles from mean high water springs to the point with the co-ordinates 174° 23.23'E and 38° 49.23' S; and
- (iv) proceeding generally south-east in a straight line to the point with the co-ordinates 174° 28.27'E and 38° 52.23' S; and
- (v) proceeding along a line 2 nautical miles from mean high water springs back to the point of commencement.

Dated at Wellington this _____ day of _____ 2013.

HON NICK SMITH, Minister of Conservation.

1 SR 2008/328

2 SR 2008/96

3 All co-ordinates are expressed in terms of NZTM 2000.

APPENDIX 3

Further information

Further relevant information (for example on the biology of Maui's dolphins, the threats to Maui's dolphins, and the development of current protection measures) can be viewed on the [Department of Conservation](#) and [Ministry for Primary Industries](#) websites.

The following links take you to particularly relevant information sources including key reference documents and past consultation papers.

[Threats and facts about Maui's dolphins](#)

[Hector's dolphin Threat Management Discussion Document April 2007](#)

[Hector's and Maui's dolphin Threat Management Plan: Draft for public consultation 29 August 2007](#) (consultation closed)

[Threat Management Plan Review for Maui's dolphins](#) (consultation closed)

[Review of the Maui's dolphin threat management plan consultation paper September 2012](#) (consultation closed)

[Currey, R.J.C.; Boren, L.J.; Sharp, B.R.; Peterson, D. 2012: A risk assessment of threats to Maui's dolphins. Ministry for Primary Industries and Department of Conservation, Wellington. 51 p](#)

[Hamner, R.M.; Oremus, M.; Stanley, M.; Brown, P.; Constantine, R.; Baker, C.S. 2012: Estimating the abundance and effective population size of Maui's dolphins using microsatellite genotypes in 2010–11, with retrospective matching to 2001–07. Department of Conservation, Auckland. 44 p](#)

[An updated, annotated bibliography for Hector's \(*Cephalorhynchus hectori hectori*\) and Maui's \(*C. hectori mau*\) dolphins](#)

[West Coast North Island Marine Mammal Sanctuary](#)

[Maui dolphin sightings](#)

[Hector's and Maui's dolphin incident database](#)

APPENDIX 4

Overview (Section 3 from the [Review of the Maui's dolphin threat management plan consultation paper September 2012](#))

Source: MPI website

Note: public submissions on this consultation paper have closed. Submissions and departmental advice are currently being considered by Ministers.

Review of the Maui's Dolphin Threat Management Plan: Consultation Paper

September 2012

3.0 Overview

3.1 WHAT IS THE HECTOR'S AND MAUI'S DOLPHIN THREAT MANAGEMENT PLAN (TMP)?

Hector's and Maui's dolphins are endemic to New Zealand and are considered to be one of the world's rarest dolphin species. They were gazetted in 1999 as a threatened species under the Marine Mammals Protection Act 1978. Maui's dolphins are listed as Nationally Critical under the New Zealand Threat Classification System, and Critically Endangered under the International Union for the Conservation of Nature Red List Categories and Criteria.

The government's Vision Statement¹ for the management of Hector's and Maui's dolphins includes:

“Hector's and Maui's dolphins should be managed for their long-term viability and recovery throughout their natural range.”

As part of a long-term strategy to achieve this vision, and public and government concern over the effect of human-induced mortality on these dolphins, the Hector's and Maui's dolphin Threat Management Plan (TMP) was developed in 2008². The Hector's and Maui's TMP is led by the Department of Conservation (DOC) and the Ministry for Primary Industries (MPI). The TMP is not a statutory document; rather it is management plan that identifies human-induced threats to Hector's and Maui's dolphin populations and outline strategies to mitigate those threats.

The goals of the Hector's and Maui's dolphin TMP are to:

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

3.2 WHY ARE WE REVIEWING THE MAUI'S DOLPHIN PORTION OF THE TMP?

The Hector's and Maui's dolphin TMP is designed to:

- describe the nature and extent of threats to Hectors and Maui's dolphins; and
- put in place strategies to reduce those threats which are human-induced.

On 13 March 2012, in light of new information, the Minister for Primary Industries and the Minister of Conservation announced that the review of the Maui's dolphin portion of the TMP would be brought forward from 2013 and undertaken in 2012.

The review of the Maui's portion of the TMP will reconsider the management strategies and/or research that will support the recovery of the Maui's dolphin population. In considering how to deliver on the TMP goals for the Maui's portion the Minister for Primary Industries and Minister of Conservation each must consider and meet their legislative obligations. The relevant statutory considerations for the Minister for Primary Industries are described in Section 6, and for the Minister of Conservation in Section 7 of this document.

¹The Vision Statement is derived from the DOC's Conservation General Policy.

²The previous Ministry of Fisheries and DOC: <http://www.fish.govt.nz>

3.2.1 New information available

3.2.1.1 Maui's dolphin mortalities

On 2 January 2012, a Hector's or Maui's dolphin died in a commercial set net off Cape Egmont, Taranaki ('the January mortality')³. The mortality was reported by the fisher to be a Hector's dolphin but the dolphin was not retained to confirm subspecies identity. It is however, not possible to visually distinguish between Hector's and Maui's dolphins. This mortality occurred outside of the area subject to fishing-related closures put in place during the 2008 TMP review.

On 26 April 2012, an unrelated dolphin stranding (cause of death was found to be natural) was discovered south of where the January mortality occurred (Kina Road Beach, near Opunake, Taranaki). DNA testing on this dolphin found it to be a Hector's dolphin.

Given the DNA findings from the Opunake stranding in April, the likely subspecies identity (a Hector's or Maui's dolphin) of the January mortality is equivocal.

3.1.1.2 Maui's dolphin abundance estimate

A new estimate of the population abundance of Maui's dolphins has been released by DOC⁴. The abundance of Maui's dolphins' over 1 year of age is estimated to be 55 (with a 95 percent confidence that the number of dolphins over 1 year old is between 48 and 69).

An updated Potential Biological Removal (PBR) estimate was commissioned by DOC based on the new population abundance estimate⁵. The PBR analysis estimates the maximum number of dolphins, not including natural mortalities, which may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population size with high probability⁶.

The updated PBR analysis estimates the Maui's dolphin population can sustain one human-induced mortality every 10 to 23 years without impacting on its ability to rebuild to its optimum sustainable population size.

3.2.2 Risk assessment report

To support the review of the TMP, a risk assessment workshop was held in June 2012 with the purpose of identifying, analysing and evaluating all threats to Maui's dolphins found off the west coast of the North Island (WCNI)⁷. All new information on Maui's dolphin biology and potential threats was evaluated and incorporated in the risk assessment workshop process, and was used to estimate the level of impact and corresponding risk posed by these threats, individually and collectively. The risk assessment scoring was conducted by an expert panel of domestic and international specialists in marine mammal science and ecological risk assessment. The method for the risk assessment involved five key steps: defining Maui's dolphin distribution, threat identification, threat characterisation including the spatial distribution of the threat, threat scoring, and subsequent analysis.

The outcome of the panel's threat scoring was used to assess the cumulative impact and associated population risk posed by all threats combined (and also disaggregated the impacts

³ Reported by-capture of a Hector's or Maui's dolphin off Taranaki: Nov 2011-Jan 2012 Incident Update.

⁴ Hamner et al (2012): <http://www.doc.govt.nz/mauis-dolphin-abundance-estimate-report.pdf>

⁵ Wade et al Appendix 1 in Currey et al (2012).

⁶ Wade (1998).

⁷ Currey et al (2012).

of the respective threats) to identify those threats that pose the greatest risk to the Maui's dolphin. It also identified several threats that may have a low likelihood, but which, given the small population size of Maui's dolphins, may have detrimental consequences for the population. Further information on the risk assessment outcomes is discussed in Section 5.

3.3 SUMMARY OF MANAGEMENT OPTIONS AND OTHER TOOLS

A range of management options has been developed for consideration to manage the effects of human-induced mortality on Maui's dolphins. It is acknowledged, that:

- The nature and extent of human-induced threats to Maui's dolphins is still highly uncertain, due to gaps in available information.
- Through the Marine Mammals Protection Act 1978, and a range of other legislative instruments and policies (outlined in Section 7), the Minister of Conservation can consider and seek to put in place measures that may be necessary to manage species recovery to a viable population size throughout its natural range.
- The Minister for Primary Industries may, after consultation with the Minister of Conservation, take such measures he or she considers are necessary to avoid, remedy, or mitigate the effects of fishing-related mortality on any protected species.
- A precautionary approach is available to the Minister for Primary Industries when considering the extent to which utilisation threatens the sustainability of a protected species population⁸.

MPI and DOC consider a combination of the tools available under the Fisheries Act 1996 and the Marine Mammals Protection Act 1978 will allow an integrated approach to the management of human-induced threats to the Maui's dolphin population. MPI and DOC consider an integrated approach is the best way to meet the goals of the review of the Maui's portion of the TMP.

A similar approach has been adopted in the past through the Hector's and Maui's TMP where both Acts were utilised to address and manage the fisheries-related and non-fishing-related risks, by MPI and DOC, respectively. It is recognised that MPI is better placed in terms of resourcing (primarily through fisheries officers and observers) to actively enforce and monitor any fishing restrictions. MPI control of fishing restrictions also removes regulatory duplication and any on the water confusion as to who enforces such restrictions. Although fishing restrictions could be put in place within a Marine Mammal Sanctuary under the Marine Mammals Protection Act 1978, for the purposes of the TMP it has been agreed by Ministers that fishing restrictions will be considered under the Fisheries Act 1996, which has stronger penalties and more capability for enforcement.

⁸ The Court of Appeal (*Squid Fishery Management Co v Minister of Fisheries* (13 July 2004, CA39/04, para 79) has recognised that a precautionary approach is available to the Minister. The context of this case was the impact of squid fishing on the New Zealand sea lion population. This approach was followed by Mallon J in the High Court in 2009 when considering measures put in place to protect Hector's and Maui's dolphins (*New Zealand Federation of Commercial Fishermen Inc et al v Minister of Fisheries and Chief Executive of Ministry of Fisheries* High Court, Wellington, 23 February 2010, CIV 2008-485-2016, para 19).

3.3.1 Fishing-related threat management options

Scientific and anecdotal information indicates fishing is the greatest known human-induced impact on Maui’s dolphins. The risk of fishing-related mortality on Maui’s dolphins is dependent on the degree to which fishing activity and Maui’s dolphin distribution overlap. To address these risks a range of options to reduce the risk of fishing-related mortality for the Maui’s dolphin population are considered, summarised below and explained in more detail in Section 6. For context on any place names referenced in the body of this paper, refer to Map 1 in Appendix 1.

Commercial and Amateur Set Netting (Coastal)	
Option 1	<p><i>Status quo:</i> Keep existing management, including the interim measures to:</p> <ul style="list-style-type: none"> retain the set net ban between 0 and 2 nautical miles offshore from Pariokariwa Point to Hawera; prohibit the use of commercial set nets between 2 and 7 nautical miles offshore from Pariokariwa Point to Hawera without an observer onboard, and; pay for observer services costs with Crown-funding. <p>The interim measures would be reviewed in 2015 to inform management going forward.</p>
Option 2	<p>Keep existing management, and put the interim measures in place via regulation to:</p> <ul style="list-style-type: none"> retain the set net ban between 0 and 2 nautical miles offshore from Pariokariwa Point to Hawera; prohibit the use of commercial set nets between 2 and 7 nautical miles offshore from Pariokariwa Point to Hawera without an observer onboard, and; require observer services costs to be cost-recovered from industry beginning 1 October 2013.
Option 3	<ul style="list-style-type: none"> Extend the set net ban between 0 and 4 nautical miles offshore from Pariokariwa Point to Hawera. Prohibit the use of commercial set nets between 4 and 7 nautical miles offshore from Pariokariwa Point to Hawera without an observer onboard.

Commercial and Amateur Set Netting (Harbours)	
Option 1	<i>Status quo:</i> Keep existing management.
Option 2	Improve information on Maui’s dolphin distribution and set net activity in the west coast North Island harbours, with a focus in the Manukau Harbour.
Option 3	<ul style="list-style-type: none"> Extend the existing set net ban in the entrance of the Manukau Harbour further into the harbour. Improve information on Maui’s dolphin distribution and set net activity in the west coast North Island harbours, with a focus in the Manukau Harbour.

Commercial Trawling	
Option 1	<i>Status quo:</i> Keep existing management.
Option 2	Put in place extensive monitoring coverage in the commercial trawl fishery between 2 and 7 nautical miles offshore from Maunganui Bluff to Pariokariwa Point.
Option 3	<ul style="list-style-type: none"> Extend the trawl ban from 2 and 4 nautical miles offshore from Kaipara Harbour to Kawhia Harbour. Put in place extensive monitoring coverage in the commercial trawl fishery between 2 and 7 nautical miles offshore from Maunganui Bluff to Pariokariwa Point.

MPI also discusses additional sustainability measures that may support reducing the risk of fishing-related mortality on the Maui's dolphin population. These additional measures would be considered in conjunction with the broader options discussed above where they may further mitigate the potential fishing-related impacts on dolphins while allowing for the use of fisheries resources. The options discussed include:

(1) Fishing gear exemptions:

- Exclude some fishing methods from the set net prohibitions if they are likely to avoid, remedy or mitigate any adverse effects of fishing on the Maui's dolphin population.
- For example, exclude the activity of ring netting from the set net prohibitions in the Manukau Harbour, and other WCNI harbours.

(2) Finer spatial-scale reporting requirements for commercial set net fishers:

- Improve information on the distribution and intensity of fishing effort in areas of potential overlap with Maui's dolphin distribution.
- For example, require commercial set net fishers to report the start and end position of each set net they deploy.

(3) Changes to fishing behaviour practices:

- Consider changes to fishing behaviour or practices that are likely to avoid, remedy or mitigate any adverse effects of fishing on the Maui's dolphin population.
- For example:
 - reduce the total length and/or number of set nets that can be deployed at any one time,
 - introduce seasonal closures in the commercial and amateur set net fishery, and/or
 - introduce maximum headline heights for trawl nets.

Section 6 of this document provides more detail of each of these options.

3.3.2 Non-fishing-related threat management options

While fishing-related threats are the greatest known human-induced impact on Maui's dolphins, they are not the only potential source of impact. The risk assessment workshop held in June 2012 suggested that each of the non-fishing-related human-induced threat had between 30% and 60% likelihood of exceeding the PBR, even in the absence of all other threats⁹. To reduce the risk to Maui's dolphins from these threats a range of options are proposed, summarised below and explained in more detail in Section 7.

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

Options to reduce risk to Maui's dolphins from Seismic Surveying (SS), *option can be implemented in conjunction with any of the other options. See also Figure 7.1.		
SS Option 1	<i>Status quo</i>	Reliance on the Code of Conduct for seismic survey operations (the Code) and the existing MMS regulations.
SS Option 2a	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.
SS Option 2b	Current Sanctuary + Seismic prohibition	Maintaining the current sanctuary boundaries plus a prohibition on seismic surveying operations within the MMS.
SS Option 3a	Extension of MMS + extension of seismic restrictions	Extend the MMS south to Hawera and offshore 12 nm plus extending the existing legal restrictions on seismic surveying operations within the MMS.
SS Option 3b	Extension of MMS + seismic restrictions consistent with Code	Extend the MMS south to Hawera and offshore 12 nm plus a variation of the legal restrictions on seismic surveying within the MMS to be consistent with the Code.
SS Option 3c	Extension of MMS + Seismic prohibition	Extend the MMS south to Hawera and offshore 12 nm plus a prohibition on seismic surveying operations within the MMS.
SS Option 4	Stand-alone Regulations	Develop stand-alone regulations under the Marine Mammals Protection Act to regulate seismic operations.
SS Option 5 (additional)*	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.

⁹ Currey et al (2012).

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. See also Figure 7.2.

SME Option 1	<i>Status quo</i>	No change in MMS Restrictions in specified areas (4 nm core distribution area; 2 nm elsewhere).
SME Option 2a	Current Sanctuary + offshore limit 4 nautical miles	Maintain the current sanctuary boundaries plus extending the current mining restrictions to 4 nm 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 nm 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 2nm offshore	Extend the MMS south to Hawera and offshore to 12 nm plus extending the current mining restrictions to 2 nm offshore throughout the extension.
SME Option 3b	Extension of MMS + extension of mining restrictions to 4nm offshore	Extend the MMS south to Hawera and offshore to 12 nm plus extending the current mining restrictions to 4 nm 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 nm plus extending the current mining restrictions to 7 nm 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 nm 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 5 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.

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 Marine Mammals Protection Regulations (MMPR) targeting Maui's dolphins.
CT Option 3	Restrictions within MMS	<ul style="list-style-type: none"> • No commercial tourism targeting Maui's dolphins. • No swimming with Maui's dolphins. • 10 minute time limit for opportunistic viewing for recreational boats, in addition to observing MMPR 18 to 20.

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.
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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.

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 Automatic Identification System (AIS) technology 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.

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 New Zealand Coastal Policy Statement (NZCPS) and Conservation Management Strategies (CMS)s which direct councils to identify and protect Maui's dolphin habitat.
CD Option 4	Awareness in RMA process	Ensuring that teams responsible for Resource Management Act (RMA) 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.

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

TR Option 1	'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.
TR Option 2	Specified practice areas/times.
TR Option 3	Posting of observers to look out for Maui's dolphins.
TR Option 4	Aerial observation of areas prior to race start to ensure no dolphins are in the area.

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

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

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.

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

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

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 (see research, Section 8.2.1.2, 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.
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3.4 RESEARCH, MONITORING, AND COLLABORATION

3.4.1 Research

MPI and DOC propose to develop an annual planning and review process to provide a more systematic procedure for determining future research and monitoring requirements to support management of the Maui's dolphin.

The annual planning and review process would:

- Develop an ongoing review framework for an overarching strategy for research, monitoring and collaboration.
- Review the current management questions of both DOC and MPI to identify and prioritise the key information needs to aid future management decisions.
- Develop an adequate programme for monitoring the population and compliance of any mitigation measures, noting that due to small population size of the Maui's dolphin it will be difficult to reliably assess the effectiveness of current management measures.
- Outline approaches to address the information needs to assist DOC and MPI in developing research proposals or monitoring programmes for the following year(s).
- Review the performance (that is quality, deliverables, and targets) of any research projects and monitoring programmes that were undertaken and/or completed in the current year.

3.4.2 Monitoring

MPI proposes to continue 100 percent observer coverage in the set net fishery off the Taranaki coast between Pariokariwa Point and Hawera, as well as work with industry to develop an extensive monitoring programme in the WCNI trawl fishery.

MPI will also continue to work on compliance, and act on information from the public to determine where compliance with both mandatory and voluntary mitigation measures need to be improved.

DOC proposes to use a combination of boat and aerial surveys, community engagement programme and commercial fisher liaison programme to continue to improve information on Maui's dolphin distribution off the WCNI.

MPI and DOC propose the annual planning and review process for research also be used as a tool to develop effective and targeted monitoring programmes where information is most required.

3.4.3 Collaboration

3.4.3.1 Iwi Partnerships

MPI and DOC recognise their statutory and regulatory obligations to Māori and the important contribution made by tangata whenua to fisheries and non-fisheries management, and the wider environment.

The Fisheries Act 1996 provides for input and participation, consultation and regard to Kaitiakitanga. Section 4 of the Conservation Act 1987 recognises the obligations of the Crown to Māori as Treaty of Waitangi partners, providing the basis for government (among other objectives) to enable whānau, hapū and iwi to fulfil their kaitiakitanga responsibilities towards Maui's dolphin, as one part of a broader responsibility for protecting the health of the marine environment.

MPI and DOC are seeking input from tangata whenua into the development, review and implementation of the TMP and encourage participation by whānau, hapū and iwi into the active protection of Maui's dolphins.

3.4.3.2 Other stakeholders

Furthermore, DOC and MPI consider the review of the TMP as providing a platform for all stakeholders to engage and take action to reduce threats to Maui's dolphins. To support this discussion DOC and MPI have listed some suggestions for various groups that share an interest in protecting this unique subspecies. Collaborative projects or initiatives may be possible where these groups have a shared interest in a region or on a particular activity. For example, there is uncertainty about Maui's dolphin distribution and use of the WCNI harbours, but the harbours and catchments are areas of intensive use in which tangata whenua and various stakeholder bodies have an interest.

Suggestions for collaboration include:

- Report sightings and strandings of dolphins.
 - Review the named research priorities, comment on their suitability and undertake or support projects where possible.
- Provide input into the research planning process.
- Help develop better tools for reporting sightings or raising public awareness.
 - Seek opportunities to collaborate with others, government, industry, community groups, whānau, hapū and iwi to increase the capacity of research.

3.5 IMPLEMENTATION

The updated Maui's portion of the Hector's and Maui's dolphin TMP will outline the management framework for managing human-induced threats to Maui's dolphins. The plan will outline: the biological characteristics, the vulnerability of the species to human-induced threats and provide a characterisation of those threats, the management measures in place to reduce the risk of human-induced mortality, and research and monitoring sections that provide both a framework for gathering and reviewing new information to update the plan.

The Minister for Primary Industries will consider all submissions and best available information on fishing-related threats and the Minister of Conservation will consider all submissions and best available information on non-fishing-related threats. The Ministry for Primary Industries will, after consultation with the Minister of Conservation, decide on what management measures will be put in place to address fishing-related threats. The Minister of Conservation will decide what management measures will be put in place to address non-fishing-related threats.

The Minister for Primary Industries and Minister of Conservation can choose different management measures for each type of fishing or non-fishing-related threat, respectively, and could also choose to bring in measures immediately or over time. The Minister for Primary Industries decision(s) to address fishing-related threats will be based on the level of risk they

consider appropriate for the Maui's dolphin population as a whole. Likewise for the Minister of Conservation who will choose management measures to address non-fishing-related threats.

Increased levels of monitoring (for example, observer coverage and/or electronic monitoring on fishing vessels) and research will be recommended to analyse the effectiveness of any management measures.

The resulting TMP for Maui's dolphins will contain those management measures agreed to by Ministers and will be available in 2013. The TMP will be of five years' duration and aspects such as the research and monitoring programmes will be subject to ongoing, annual review. As new information comes to light, the TMP may be modified at any stage to better reflect current understanding.

APPENDIX 5
DNA confirmed samples of Maui's and Hector's dolphins,
West Coast North Island

DNA Confirmed Samples of
Maui's and Hector's Dolphins
West Coast North Island

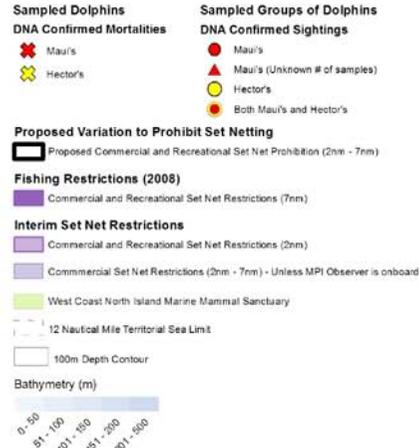


Table of the number of individual Hector's and Maui's dolphins sampled live or dead along the west coast of the North Island. This removes duplicate samples where an individual may have been sampled more than once.

	Maui's dolphin individuals	Hector's dolphin individuals
Sampled live 2001-2012	74	2
Sampled dead pre-2001	10	0
Sampled dead post-2001	13	2
Totals	97	4

Source Sighting and Mortalities:

- Maui's Dolphins Sighting Database (1970-2013) Extract 24/07/2013
- Hector's and Maui's Dolphins Incident Database (1921-2013) Extract 09/07/2013

DNA Samples:

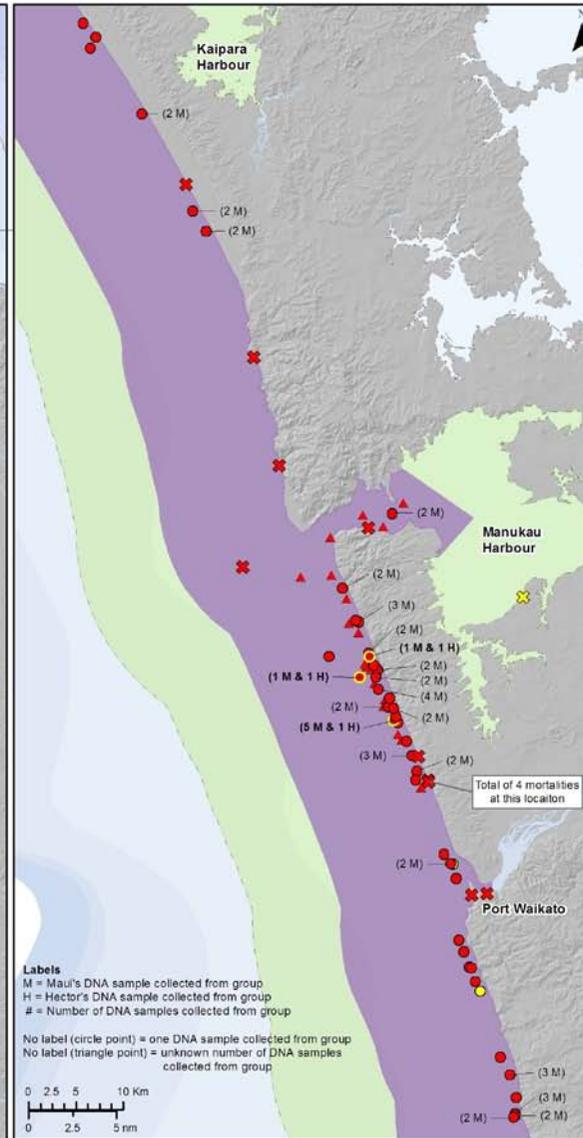
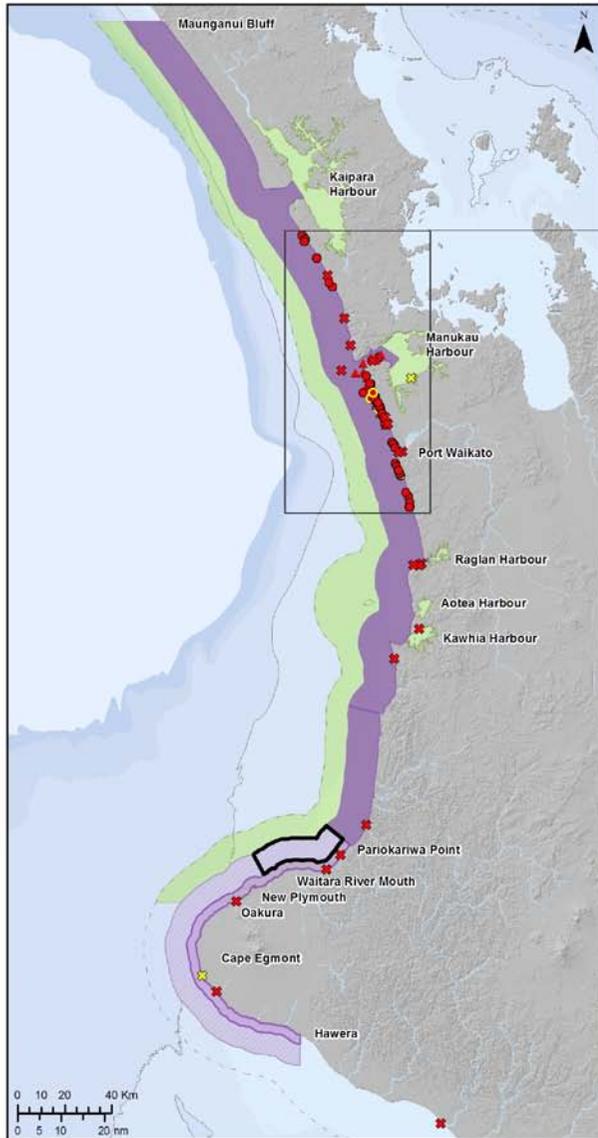
DNA information from multiple sources. Each Sighting point feature represents a group from which one or more individuals had DNA samples taken. Some individuals have duplicate entries in the database as they have been sampled on more than one occasion

Date: September 2013

DOC makes no express or implied warranties as to the accuracy or completeness of the data or information, nor its suitability for any purpose. DOC will not accept liability for any direct, indirect, special or consequential damages, losses or expenses howsoever arising and relating to use, or lack of use, of the data or information supplied. Cadastral and Topographic information derived from Land Information New Zealand. Crown Copyright Reserved.

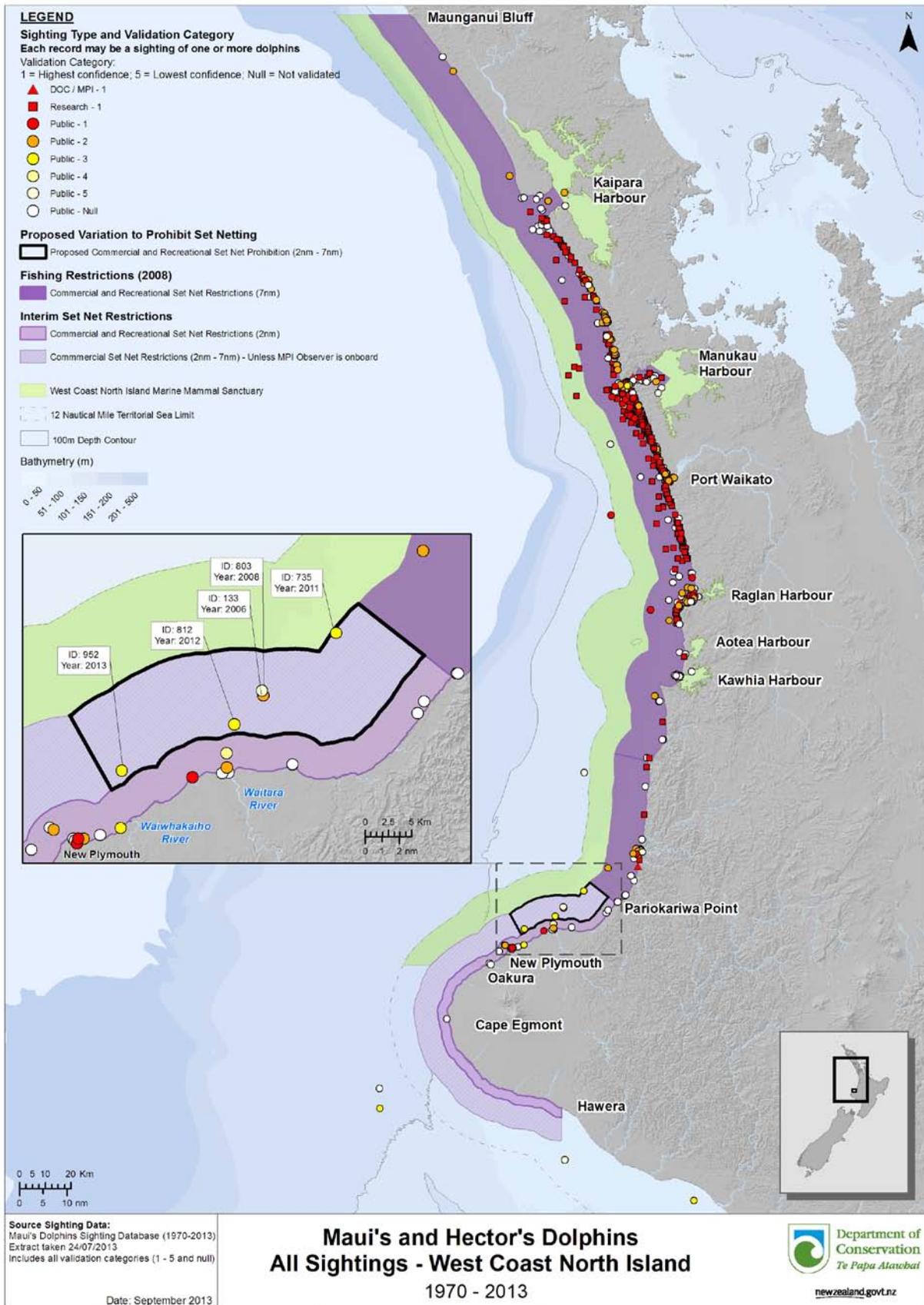


newzealand.govt.nz



APPENDIX 6

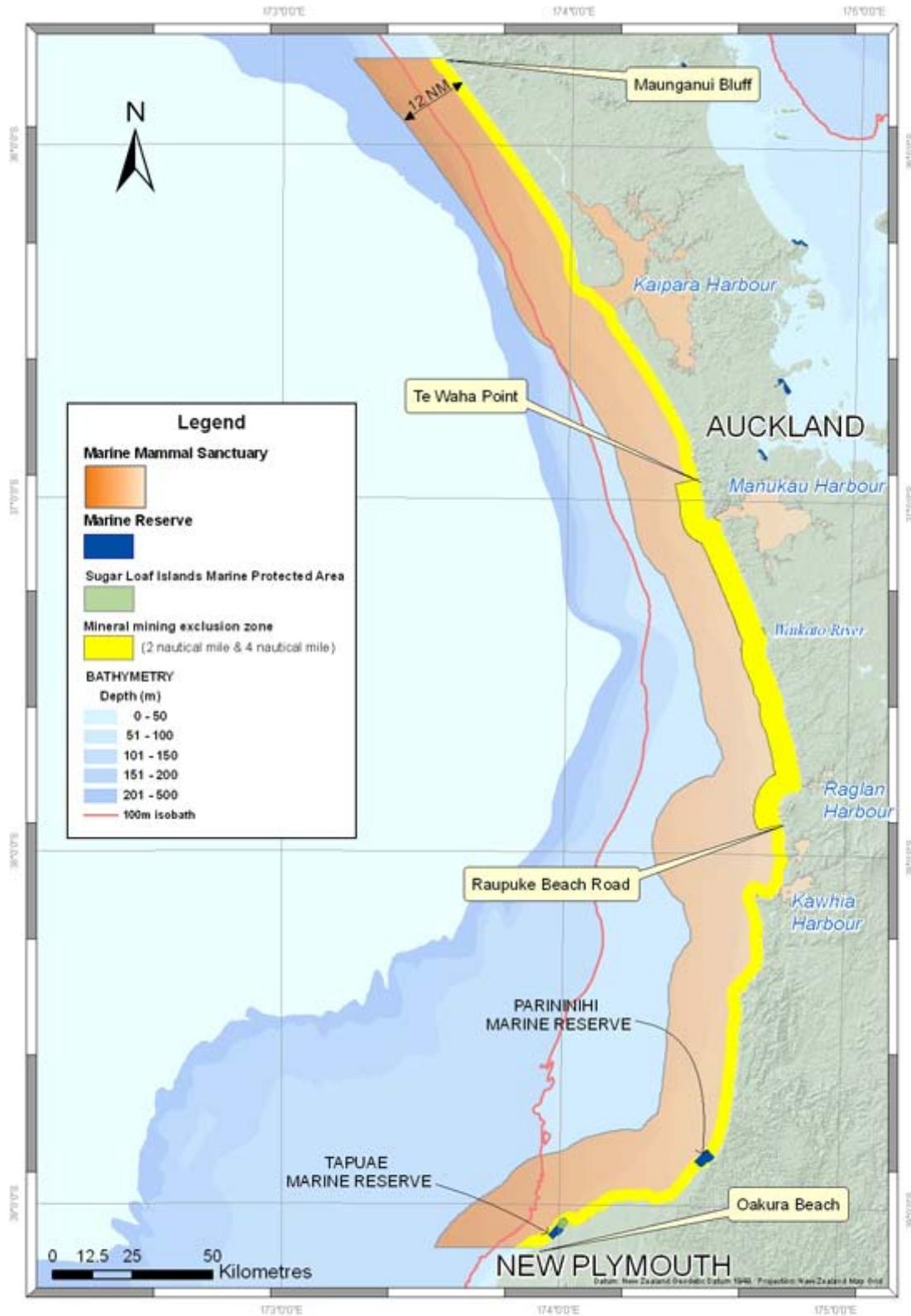
Maui's and Hector's dolphin sightings, west coast North Island, 1970-2013



APPENDIX 7

Map showing the West Coast North Island Marine Mammal Sanctuary

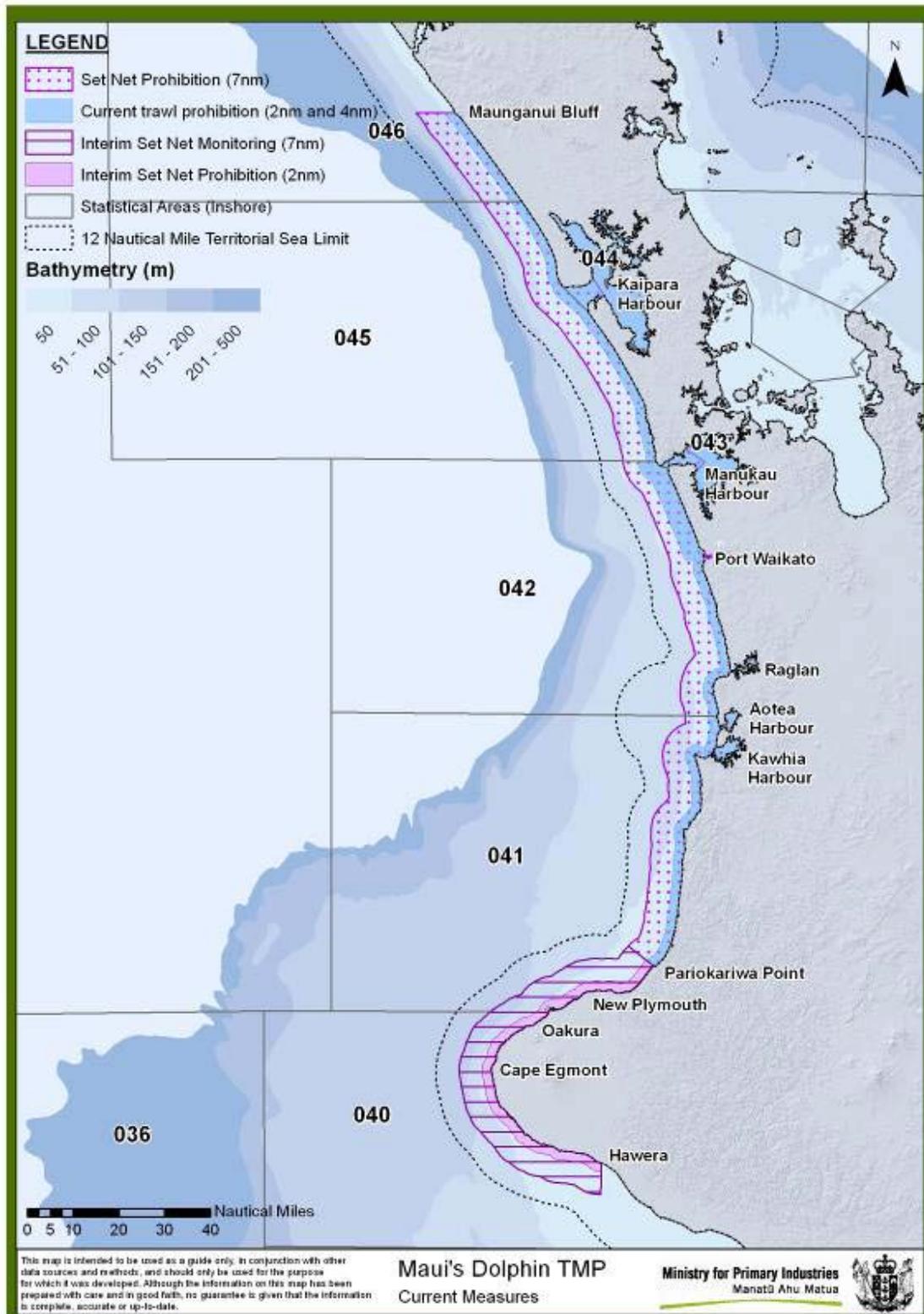
Source: DOC website



APPENDIX 8

Map showing the current set net and trawl restrictions and prohibitions off the west coast of the North Island

Source: MPI



APPENDIX 9

Summary of new information since August 2012

New public sightings information

1. DOC administers a sightings database for Maui's dolphins, which contains data predominantly from 1970 to the present. It is a 'living' database and is updated as sightings are received and as sightings undergo a validation process (refer Appendix 9).
2. In June 2012, to improve the accessibility of sightings data through an overall national database, WWF and DOC initiated a process to merge databases and validation processes. The current validation system is a 5 point scale, with 1-3 considered reliable sightings, and 4 and 5 not reliable.
3. Since consultation on the Threat Management Plan in late 2012, there has been a summer season of sightings data, and work on merging the databases has taken place. This led to the following changes occurring in the database:
 - (a) Sightings from the old WWF validation system have been converted to the current system, so some sightings between 2007 and 2012 which previously had no validation in the database, now have a validation score;
 - (b) Recent sightings that had not been validated by August 2012 have since been validated and have been updated accordingly;
 - (c) New sightings received since August 2012 have been added to the database, along with validation scores where validation has been assigned.
4. There are five sightings between Pariokariwa Point and Hawera that are further than 2 nautical miles offshore (**Appendix 10**). Two of these sightings are unchanged since consultation, two have had a validation score assigned after consultation, and one is a new sighting since August 2012:
 - (a) A sighting made by an ex-DOC staff member in 2006, when working on the Pohokura oil rig. The sighting was approximately 4.4 nautical miles offshore. A validation interview was conducted and was scored a 2. Note: this sighting was available on the DOC website during consultation but had not been assigned a validation at that stage;
 - (b) A sighting made in 2008 that came in from the WWF database, was also from the Pohokura oil rig, estimating the dolphins to be approximately 4.7 nautical miles offshore. In the process of merging the databases, interview notes were requested for this sighting. While a validation interview was carried out, it was with the supervisor of the person who sighted the dolphin, who was unable to provide enough information to adequately validate the sighting. It was scored a 5. Note: this sighting was available on the DOC website during consultation but had not been assigned a validation at that stage.
 - (c) A sighting approximately 6.9 nautical miles off Mimi Urenui Bay in 2011. This sighting was scored a 3 and was available at the time of consultation.
 - (d) A sighting approximately 2.5 nautical miles off the Waitara River from April 2012. This sighting was scored a 3 and was available at the time of consultation.
 - (e) A sighting approximately 2.6 nautical miles off Bell Block, just north of New Plymouth in January 2013. This sighting was scored a 3. Note: this sighting was received in the summer season following the consultation process.
5. While one of the sightings is of low reliability, this is because it was second hand so did not have enough information to be verified. It was from the same location as another sighting with a high reliability so it is reasonable to believe that dolphins have been sighted in this area.

DOC surveys

6. Over the summer of 2012/13, DOC staff conducted boat surveys looking for Maui's (and Hector's) dolphins in both Auckland and Taranaki regions. Aerial surveys also took place in Taranaki.
7. In the Auckland region, one boat survey was conducted from Manukau to Raglan and back. Nine groups of Maui's/Hector's dolphins were observed, totalling 30 adults and two calves. There is likely to be double counting as some animals would have been re-sighted on the return leg.
8. In Taranaki, five fixed-wing searches from New Plymouth to Awakino to Hawera and return were conducted and six boat surveys covering New Plymouth to Awakino, Opunake and Hawera. No Maui's/Hector's dolphins were sighted on these surveys.

Fisheries observer effort

9. In July 2012, the then Minister for Primary Industries implemented interim fishing restrictions in the Taranaki region. This included mandatory observer coverage for any set net fishing between Pariokariwa Point and Hawera and between 2 and 7 nautical miles offshore.
10. Between July 2012 and May 2013 a total of 419 observer sea days were conducted across 5 fishing vessels in this area. The 5 fishing vessels utilised a range of harvesting methods. One vessel was solely a crayfish boat. Another vessel did one or two trips set netting and then spent the remainder of the time bottom long lining.
11. Over 10,800 km of distance was covered and 325 fishing events (totalling 255,700 m of net) were observed within 7 nautical miles from shore.
12. No dolphins were sighted during these observer sea days.
13. While this data is indicative of recent fishing behaviour is important to note that the data from the fisheries observers is not indicative of fishing behaviour prior to the interim measures coming into effect in July 2012. The spatial shift as a result of the interim measures is likely to result in a reduction in effort and change in fisher behaviour.
14. There is also an observer effect that cannot be quantified as fishing behaviour can change in the presence of observers. For example, some fishers chose to modify the routes taken by their vessels as they transit to and from their fishing grounds to ensure that the observer effort was comprehensive and covered a wide area.

APPENDIX 10

Maui's (and Hector's) dolphin "live sightings" database

Maui's dolphin sighting database

1. The Department of Conservation (DOC) administers a database for sightings of Maui's dolphins. It contains data predominantly from 1970 to the present, but also includes one sighting from 1922. Strandings data are recorded separately.
2. This database is updated as and when sightings are received and as sightings undergo a parallel validation process.
3. It is not possible to distinguish between a Maui's dolphin and a Hector's dolphin at sea unless a genetic biopsy sample is also taken. The sightings database therefore includes an unknown mix of Maui's and Hector's dolphins (apart from those that were also biopsied). Nevertheless, as around 95% of tissue samples taken from live or beach-cast dolphins north of Hawera have been Maui's dolphins, it is reasonable to assume that the majority of sightings will also be Maui's dolphins.

WWF Maui's dolphin sighting database

4. As a result of Maui's dolphins being recognised as a subspecies in 2002, the World Wide Fund for Nature (WWF) initiated a separate database which contains data from 2003 to the present. In 2007, WWF contracted an external party to undertake validation interviews on Maui's dolphin sightings received through its hotline. They were scored on a 7 point scale, 1 being most reliable and 7 being the least reliable.
5. WWF contributes its data to DOC to ensure the national database is as comprehensive as possible.

New standardised validation system

6. In 2009, DOC contracted work to consolidate Maui's dolphin sightings, including development of a validation system and interview process. The DOC validation system uses a 5 point scale that consolidates categories from the 7 point WWF scale, making WWF-scaled validations directly transferrable to the DOC scale. Validation categories 1-3 are the most reliable and categories 4 and 5 are the least reliable. These are outlined below. To assist with the independent verification of Maui's dolphin sighting reports, a standardised interview process has also been developed.
7. **Category 1** replaces the previously used categories 1 & 2 as the most reliable of sightings, and must satisfy at least one of the following criteria:
 - i. The sighting is from a person or source of known reliability. This might include university researchers or certain DOC field staff. A phone interview is recommended (but not required) for these reports, though it does not necessarily have to follow the standardised interview. For example, in the case that the report(s) is(are) from a systematic sighting survey, it would be beneficial to contact the survey leader or project manager and discuss the reliability of the survey team and whether any there was any doubt about any of the reported sightings.
 - ii. The sighting is accompanied by a photograph which includes a known landmark consistent with the report; and which clearly identifies the species as a Maui's dolphin. Standardised interview required.

- iii. The report is accompanied by an identifying photo that has no landmarks but is provided with additional details such as a detailed location description or GPS position. In this case it is crucial that a standardised interview be conducted as soon as possible to confirm the sighting.
 - iv. The report has been provided by someone familiar with Maui's dolphins. This might include people who have previously reported sightings that were classed as categories 1, 2 or 3 using the previous scoring system. A standardised interview is still required.
8. **Category 2** replaces category 3 sightings from the previous system. These reports are not accompanied by a photo (or the photo is poor quality and it is not clear what the species is). Upon completion of the standardised interview, the description of the dolphin is consistent with Maui's dolphins and the location is within the known current range of Maui's dolphin. For these reports it is very important to carry out the interview as specified, and as soon as possible. The interviewee must identify the primary diagnostic features of Maui's dolphin such as size, dorsal fin shape and body colour patterns, without prompting from the interviewer:
9. **Category 3** replaces category 4 from the previous system. These reports are not accompanied by a photo (or the photo is poor quality and it is not clear what the species is). Upon completion of the standardised interview, the description of the dolphin is consistent with Maui's dolphins but the location is not within the known current range of Maui's dolphin, or the location is too vague to be certain. It is important to note that sightings placed in this category may become a 1 or 2 if additional independent reports become available:
10. **Category 4** replaces category 5 from the previous system. The description of the animal(s) provided during the standardised interview is not consistent with a Maui's dolphin:
11. **Category 5** replaces categories 6 and 7 from the previous system. Reports fall into this category when they fit one of the following criteria:
- i. The description provided of the animal(s) during the standardised interview is consistent with Maui's dolphin, but the location description (or GPS location) is from the South Island (i.e. the animals were Hector's dolphin).
 - ii. The report is incomplete and does not allow a full assessment. Upon completion of a standardised interview it is not possible to score the sighting in any of the other four categories.
 - iii. The sighting may fall into one of the other categories, but a standardised interview is not able to be conducted and the report cannot be independently verified.
 - iv. The report is probably of another dolphin species.

Table 1: Categories for sightings

Category	Description
1	<ul style="list-style-type: none"> i. Report from a source of known reliability; or ii. High quality photo with landmark; or iii. High quality photo with no landmark but detailed description of location; or iv. Report from someone who has previously provided category 1, 2 or 3 reports (under the old system).

2	Description provided that is consistent with Maui's dolphin, detailed location description and/or GPS position.
3	Description provided that is consistent with Maui's dolphin, but the location is outside the known current range of the species.
4	Description is inconsistent with Maui's dolphin.
5	<ul style="list-style-type: none"> i. The report is for a South Island location (Hector's dolphin); or ii. The report is incomplete. The interview does not enable the report to be scored in any of the previous categories; or iii. The interview was not able to be conducted; or iv. The report is another dolphin species.

DOC validation process and combination of the two databases

12. From 2009 to June 2012, validation interviews were carried out by DOC staff.
13. In June 2012, to improve the accessibility of data through an overall national database, WWF agreed to use the 5 point validation system. To ensure a more robust process for validating sightings DOC and WWF contracted an external scientist, independent to both agencies to undertake all validation interviews in a consistent manner.
14. Given the sighting and validation process are 'live' and ongoing, data availability will constantly change.
15. For example a sighting can potentially change validation category. There may be an instance where the external validator might initially score a sighting a 2, pending receipt of photo or video evidence, which would then later amend the score to a 1. Updates are made to the database as they become available.
16. DOC is working on ways in which to improve the timelines of the sighting reporting process. Officials are working towards a standardised reporting process whereby the sightings would be made available to the public on the DOC website on a quarterly basis, mirroring the current process for reporting on Hector's and Maui's dolphin incidents.

Mapping process for the Threat Management Plan

17. In addition to sightings with a category 1-5, there are sightings with "null validations" where no score is assigned. Rather than representing sightings of an unreliable nature, they represent either historical sightings or sightings where the validation process is pending. For example:
 - a. They may be reliable sightings but occurred prior to a validation process
 - b. They may be sightings from the WWF database when the validation had not yet been converted from the 7 point scale to the 5 point scale, or
 - c. The person who reported the sighting may not have been reached yet for an interview.
18. Due to the complex nature of the sightings database and the concurrent validation process during the drafting of the Maui's dolphin Threat Management Plan consultation document, it

was agreed to only map public sightings with the validation categories of 1, 2, and 3. These sightings are considered the most reliable sightings, although it was recognised they did not represent the full picture because they exclude “null validations”.

19. Parallel to this, to ensure that the best available information was made available during the consultation, DOC published on its website a sightings map that was current as at: 28 August 2012. It included sightings with validation categories 1 – 3, and null validations for sightings reported prior to the implementation of the independent validation system (June 2012), therefore representing both DOC and WWF sightings and historic sightings.
20. New sighting-related data has become available since the production of the maps for public consultation in August 2012. This includes DOC-led Maui’s dolphin surveys, fisheries observer effort, and a summer season of public sightings that have been reported. As a part of DOC’s ongoing process, any new sightings or validations received since August 2012 will have been added to the database. For public sightings, the external validation process has been run concurrently, and these scores were added to the database as they were available. Therefore, any maps produced since August 2012 vary from the maps in the consultation document due to the following:
 - a. Sightings from the old WWF 7 point validation system have now been converted into the 5 point system so some sightings between 2007 and 2012 previously a null validation, now have a validation score.
 - b. Sightings between June 2012 and August 2012 that had not been validated in August have been updated with a validation score where possible and appear as new sightings on the map, and
 - c. New sightings received since August 2012 have been entered in the database, and where possible their validation score has been added. These appear as new sightings.
21. The most recent batch of validated sightings, including all of the WWF summer sightings, was received on 3 July 2013.

Specific information on the five sightings between Pariokariwa Point and Waitara outside 2 nautical miles (refer also Appendix 10)

22. Sighting #133 (2006, 31 August)
 - a. **The validation category for this sighting changed from a “Null” to a “2” on 15 July 2013. It was not on Map 5 in the TMP, but was available on the DOC website.**
 - b. The sighting was made by an ex-DOC staff member who was working on the Pohokura drilling rig. The report was not previously validated as it was prior to a validation process being implemented. However, on looking at all the available information on this sighting, in July 2013 DOC requested an external validation interview to be undertaken.
 - c. External validation was completed on 15 July 2013. The reporter was the radio operator on the rig and was acting as an unofficial marine mammal observer. Staff on the deck called him about some dolphins. He went to see the dolphins and recognised them as looking like Hector’s dolphins, much smaller than bottlenose dolphins and with a round black fin.
 - d. The reporter also lived in Canterbury previously and was very familiar with Hector’s dolphins.
 - e. The external validator concluded that as the description and size of dorsal fin is consistent with Maui’s dolphins and because of the person’s previous experience

with DOC and with Hector's dolphins in Canterbury that the sighting could confidently be assigned a category 2.

- f. This validation category has since been updated from a null to a 2.
- g. In the interview the reporter also stated that oil-rig staff claimed to have seen similar looking dolphins at this location before.

23. Sighting #735 (2011, 14 March)

- a. **This sighting was validated as a 3. It was in Map 5 in the TMP document. No change has occurred.**
- b. The reporter sighted a single dolphin from a boat off of Mimi Urenui Bay, approximately 5 km northeast of Urenui Bay.
- c. The sighting was validated by external interview on 11 June 2012.
- d. The description accurately fitted the description of a Maui's or Hector's dolphin, and was given a category 3 validation score: Description of colour and dorsal fin is consistent with Maui's dolphin but the location is considered to be at the edge of current range.

24. Sighting #803 (2008, 28 April)

- a. **This sighting changed from a "null" to a "5" on 18 July 2013. Was not in Map 5 in the TMP consultation document but was on the DOC website as a null. It has since been downgraded to a 5.**
- b. This sighting was reported through the WWF sightings database. DOC received the extract in June 2012 and all sightings were entered into the DOC database.
- c. Sightings since 2007, including this one, had a validation under the 7 point validation system. They were initially entered as a "null" until they could be converted across to the 5 point system.
- d. This sighting was recorded as a "null" at the time of the consultation document being drafted. It was included in the map produced on the DOC website.
- e. As the database has been updated one of the process steps was converting the WWF validations. This sighting was originally recorded as a WWF 4 which would convert to a 3 on the DOC system.
- f. Further information was requested from WWF on this sighting, including any interviewer comments if available:

"There was one sighting of seven dolphins at Platform Bravo off New Plymouth in April 2008. The online report indicated that the dolphins may have been Maui's. Unfortunately, due to an apparent conflict of interest, the observer did not wish to be contacted for verification. I was able to speak to his supervisor who described the encounter but could not confirm the shape of the dorsal fin nor the colour patterns on the animals. As a result, this sighting was considered a Category 4 sighting."

- g. Based on the second-hand nature of this sighting and the lack of information DOC consider this fulfils one of the criteria for a validation category of 5:

"The report is incomplete and does not allow a full assessment. Upon completion of a standardised interview it is not possible to score the sighting in any of the other four categories."

- h. While this sighting is not complete enough to confirm, it is noteworthy as it occurred at a location where another sighting was reported (133 above).

- i. At least two reported sightings, and anecdotal sightings, in the Waitara area were off the Pohokura drilling rig, an offshore structure. It is important to recognise that having a fixed structure at sea will influence the location of sightings by providing a platform whereby people are more likely to see the dolphins. This is an example of bias due to increased effort in an area.

25. Sighting #812 (2012, 1 April)

- a. **This sighting was validated as a 3. It was in Map 5 in the TMP document. No change has occurred.**
- b. The reporter sighted a group of 8-10 dolphins 20 metres from the boat approximately 4 km off of Waitara.
- c. The sighting was validated by external interview on 7 June 2012.
- d. The description given by the reporter in the interview accurately fitted the description of a Maui's or Hector's dolphin. It was given a category 3 validation score: Description of colour and dorsal fin is consistent with Maui's dolphins but the location is considered to be at the edge of current range.

26. Sighting #952 (2013, 17 January)

- a. **This sighting was reported post consultation. It was not in previous maps as the validation was pending. It has now been validated as a 3.**
- b. The reporter sighted a group of 4-5 dolphins alongside the boat briefly in 30 m of water off Bell Block, just north of New Plymouth.
- c. The sighting was validated by external interview on 6 June 2013.
- d. The description given by the reporter in the interview accurately fitted the description of a Maui's or Hector's dolphin, though the validator commented that the group size may have been overestimated. It was given a category 3 validation score: Description of colour and dorsal fin is consistent with Maui's dolphins but the location is considered to be at the edge of current range.

Specific information on the genetic analysis of Maui's and Hector's dolphins on the west coast of the North Island

27. A map showing the location and results of biopsy samples collected from live or dead Maui's or Hector's dolphins is provided in **Appendix 3**.
28. There is a single point for each sample collected from a mortality. These are represented by crosses and each is a unique individual. Thirteen Maui's dolphins were sampled dead between 2001 and 2011, 10 were sampled dead prior to 2001. Two Hector's dolphins were sampled dead in 2011-2012, one in Manukau Harbour and one in Taranaki.
29. Because biopsy sampling of live dolphins involves encountering a group and potentially sampling multiple dolphins in a group, these are displayed differently.
 - a. Each point represents a group encounter where at least one sample was collected
 - b. Red circles = 1 Maui's dolphin was sampled
 - c. Red circles with labels = more than 1 Maui's dolphin was sampled, and the number is shown in the label (e.g. 2M = 2 Maui's dolphins sampled)
 - d. Red triangles = at least one Maui's dolphin was sampled but the exact number of samples collected is not available
 - e. Yellow circles = 1 Hector's dolphin was sampled

- f. Red circles with yellow outline = a group with multiple samples collected, some Maui's dolphin and some Hector's dolphins, the number of each is shown in the label (e.g. 1M, 1H = 1 Maui's dolphin, 1 Hector's dolphin)
30. Some dolphins have been sampled more than once so these points represent where a sample was collected and whether it was Maui's or Hector's. They do not represent known individuals.
31. The map shows 94 samples from live Maui's dolphins, and 5 samples from live Hector's dolphins. Removing animals that have been sampled multiple times, 74 Maui's dolphins have been sampled between 2001 and 2011, and 2 Hector's dolphins were sampled in 2010-2011. One of the Hector's dolphins was sampled multiple times and in both years.

APPENDIX 11

Intersection of Maui's dolphin distribution with all set net effort between 2008 and 2011.

Source: [Currey, R.J.C.; Boren, L.J.; Sharp, B.R.; Peterson, D. 2012: A risk assessment of threats to Maui's dolphins. Ministry for Primary Industries and Department of Conservation, Wellington. 51 p.](#) Please refer to the risk assessment report for full explanation. Note: this map does not include information on set net effort in the 2011/12 and 2012/13 fishing years, and does not account for any shift in effort since the interim fisheries measures were put in place.



Figure 7. Intersection of Maui's dolphin distribution (Fig. 1) with all setnet effort between 2008 and 2011. The intersection is calculated by multiplying the fishing effort with the dolphin distribution value in each cell (as shown in blue). The values have been scaled to indicate relative intensity, with the maximum intersection having a value of 1. The existing and proposed areas closed to setnet fishing are indicated in shades of reds. The marine mammal sanctuary is outlined in grey, including the proposed extension to the sanctuary in southern Taranaki (see Appendix 2 for further details).

⁸Not all fisheries closures displayed in this map were in effect throughout the 2008–2011 period. The palest red region around Taranaki was the area proposed for closure under interim measures at the time of the workshop.

APPENDIX 12
Estimated economic impact to the fishing industry
Ministry for Primary Industries
27 August 2013

Proposal: Extension of the set net ban from Pariokariwa Point to the Waiwhakaiho River between 2 and 7 nm offshore

Estimated economic impact to fishing industry from MPI

1. The economic impact analysis presented here is based on the displacement or loss of catch from set net activity in the Taranaki region between 2 and 7 nautical miles offshore from Pariokariwa Point to the Waiwhakaiho River.
2. MPI estimates approximately five fishers operating six to eight commercial vessels have previously operated in this area over the last four years and may be directly affected by the proposed set net restrictions. In the last year, since the interim measures were put in place, four vessels have operated in the proposed area.
3. The ability for commercial set net fishers to adjust their fishing behaviour by moving further offshore beyond seven nautical miles, or alongshore south of Waiwhakaiho River, may be constrained. The species mix caught outside of this area may not align with their annual catch entitlement (ACE) packages, which enable them to target and land certain species without financial penalties.
4. The potential shift in harvested species composition versus their ACE packages may disproportionately affect their operations and make their businesses unviable.
5. Catch effort and landings data have been used to estimate the value of set net landings coming from the area and the potential volume of landings that would be lost or displaced. MPI uses the latitude and longitude positions fishers are required to complete on their statutory reporting forms. MPI notes there are limitations to the position data reported in that:
 - a. Latitude and longitude reporting is only required to be accurate to plus or minus one nautical mile.
 - b. The latitude and longitude coordinates indicate the start position of the net. This may not, given the length of nets used, accurately reflect the spatial area the nets are set in.
6. Direct revenue losses are calculated using estimates of landed prices and estimates of the reduction in landings that would be caused by putting in place the additional set net ban.
7. MPI has developed estimates of lost income using value added estimates from an input-output model of the economy. Value added is the different between the value of output and cost of goods and services purchased from other sectors. Note that value added includes income earned by labour and by capital. While value added in an input-output model varies slightly from other definitions of income, it is an adequate estimate of income for present purposes.
8. *Income loss (Annual Value Add)*: MPI estimates lost value added into four categories:
 - a. Value added lost in the harvesting sectors (direct harvesting income)

- b. Value added lost in the processing sector (direct processing income)
- c. Value added lost in sectors that supply harvesting and processing (indirect income); and
- d. Value added lost in the broader economy as the three types of income above are spent and generate income for suppliers of a wide array of goods (induced income)

9. The method described above estimates the first-year impact. The first-year impact presents an incomplete estimate of losses, because some of those losses will recur.

10. *Capitalised Future Value*: For approximating the present value of economic losses, MPI examined each category of loss and used its best judgement on how best to approximate the relation of the of the first-year loss to the present value of all future losses. These impacts are estimated to be:

- a. Direct income in harvesting: A loss of 5 times the initial displaced annual income is used in calculations.
- b. Direct income in processing: A loss of 2.5 times the initial annual displace income is used in calculations.
- c. Indirect income in supply sectors: A loss of 1.5 times the initial displaced income in supply industries is used in calculations.
- d. Induced income in broader economy: A loss of one year of induced income is an appropriate estimate of total losses.

11. *Total Cost*: is the sum of the Income loss and capitalised future value.

12. This analysis uses the average percentage of each species caught from Pariokariwa Point to the Waiwhakaiho River (between two and seven nautical mile offshore) over a four year period (2008/09 and 2011/12) to estimate the potential revenue loss and associated economic impacts (annual value and capitalised future value losses).

Estimated impact (loss)	
Annual revenue	\$81 024
Annual value add	\$136 121
Capitalised future value	\$431 024
Total Cost	\$567 144

13. These estimates should be treated as indicative only because they:

- a. do not account for any shift in effort beyond 2 nautical miles that has occurred in the last fishing year (2012/13) since the interim measures came into effect,
- b. do not account for any change in harvest (volume or species composition) in the proposed area that has occurred since the interim measures came into effect, and
- c. do not fully account for the ability of fishers to shift their effort outside of the proposed closed area, noting that the remaining set net closures off the west coast of the North Island has already resulted in a large area loss.