

## 7. PART II – MINISTRY OF FISHERIES INITIAL POSITION PAPER (IPP)

Background information relating to the general biology of Hector's dolphins and the threats facing them (including fishing) is provided in Part I of this consultation document. This MFish IPP should be read in conjunction with Part I.

Part II is structured as follows:

⇒Introduction:

- Implementation
- Fisheries Act 1996 (FA96) statutory considerations
- Background information on option development and analysis

⇒General species considerations

⇒The main body of the paper sets out, by population:

- Population characteristics
- Nature and extent of fishing threats
- Existing threat management
- Need and scope for additional threat management
- Proposed management options
- Analysis of options (costs and benefits)

⇒Regulatory Impact Statement (RIS)

### 7.1. Implementation

The Minister of Fisheries in consultation with the Minister of Conservation will determine whether it is necessary for additional measures to be implemented to avoid, remedy, or mitigate the effects of fishing related mortality on Maui's and Hector's dolphins. The Minister of Fisheries and Minister of Conservation have previously expressed a desire to see any additional measures in place before the end of the Calendar year. In order to achieve this timeframe new measures would first be implemented via Gazette Notice in late November or early December 2007 followed by regulations as soon as possible in 2008.

### 7.2. Introduction

#### 7.2.1. *Legislative obligations*

In considering the issues and options outlined in this IPP, the Minister of Fisheries must follow relevant statutory criteria:

### Sustainability measures – Part III

The draft TMP contains proposals to implement sustainability measures. ‘Sustainability measure’ is defined as any measure set or varied under Part III of the FA96 for the purpose of ensuring sustainability.<sup>24</sup> The proposed sustainability measures in the draft TMP would be set under sections 11(1) and 15(2) of the FA96, which are contained in Part III. Sustainability measures set under sections 15(2) and 11(1) can be introduced by way of regulation or Gazette notice (as outlined in more detail below).

Section 15 is linked to the Wildlife Act 1953 and the Marine Mammals Protection Act 1978 (MMPA), which provide for the establishment of population management plans (PMPs) for protected species. Hector’s Dolphins are a protected species for the purpose of the MMPA. Therefore, they are also ‘protected species’ under the definition in the FA96 and section 15<sup>25</sup>.

There is no PMP in place for Hector’s dolphins. In the absence of a PMP, s15(2) of the FA96 applies<sup>26</sup>.

Section 15(2) allows the Minister of Fisheries, in the absence of a PMP and after consultation with the Minister of Conservation, to take such measures that he or she considers are necessary to avoid, remedy, or mitigate the effect of fishing-related mortality on any protected species. Such measures may include, but are not limited to, setting a limit on fishing-related mortality (FRML).

Section 15(3) provides that the Minister may require, or authorise the chief executive to require any person or class or persons (listed in section 189) to give the Minister or the chief executive such information relating to fishing-related mortality as the Minister or chief executive, as the case may be, considers necessary. That information may be required in the approved manner and form.

Section 15(4) allows the Minister to recommend the making of such regulations under s 298 of the FA96 as are considered necessary or expedient for the purpose of implementing any measures referred to in s 15(2)<sup>27</sup>.

Section 11(1) allows the Minister to set or vary sustainability measures for stocks or areas. Sustainability measures may relate to the fishing methods by which any fish, aquatic life, or seaweed of any stock may be taken or that may used in any area.<sup>28</sup>

Section 11 provides for the Minister to implement sustainability measures set under section 11(1), by notice in the Gazette or by recommending the making of regulations under s 298 of the FA96 (s 11(4)). Section 11 sustainability measures may only be imposed after having taken into account the various statutory considerations set out in s 11. These considerations are set out and discussed in Appendix 1 of the draft TMP.

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<sup>24</sup> Fisheries Act 1996, s2.

<sup>25</sup> Section 2 of the Fisheries Act 1996 states:

Protected species means—

(a) Any marine wildlife as defined in section 2 of the Wildlife Act 1953 that is absolutely protected under section 3 of that Act;

(b) Any marine mammal as defined in section 2(1) of the Marine Mammals Protection Act 1978:

<sup>26</sup> Section 15(2) of the Act states that “In the absence of a population management plan, the Minister [of Fisheries] 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, and such measures may include setting a limit on fishing-related mortality.”

<sup>27</sup> Where a limit on fishing-related mortality has been set, the Minister is also able to prohibit all or any fishing or fishing methods in an area by Gazette notice under s 15(5)(b) to ensure this limit is not exceeded. MFish is not proposing to introduce any new fishing relating mortality limits for Hector’s dolphins.

<sup>28</sup> Fisheries Act 1996, s11(3)(d). Section 11(3) provides a non-exhaustive list of what sustainability measures may relate to.

## Purpose of the Fisheries Act 1996

The purpose (section 8) of the FA96 is to provide for the utilisation of fisheries resources while ensuring sustainability.

‘Ensuring sustainability’ is defined as “maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations” and “avoiding, remedying or mitigating any adverse effect of fishing on the aquatic environment”.<sup>29</sup>

‘Fisheries resources’ is defined as any one or more stock or species of fish, aquatic life, or seaweed<sup>30</sup>.

‘Effect’ means the direct or indirect effect of fishing.<sup>31</sup> It includes: Any positive or adverse effect; and any temporary or permanent effect; and any past, present, or future effect; and any cumulative effect which arises over time or in combination with other effects regardless of the scale, intensity, duration, or frequency of the effect. It also includes: any potential effect of high probability; and any potential effect of low probability which has a high potential impact<sup>32</sup>.

‘Utilisation’ means “conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural wellbeing”.<sup>33</sup>

The Courts have given further consideration to the purpose of the the FA96. In particular the courts have considered the relationship between utilisation and sustainability. In *Squid Fishery Management Co v Minister of Fisheries*,<sup>34</sup> the Court of Appeal noted that the Minister was required to balance utilisation objectives and conservation values. In ‘the Kahawai case’<sup>35</sup>, the High Court noted:

“...there is no hierarchy between the two objectives of providing for utilisation while ensuring sustainability and that utilisation should be allowed to the extent that it is sustainable. I agree, though, ... that on a plain reading of s 8 the bottom line is sustainability. That must be the Minister’s ultimate objective. Without it, there will eventually be no utilisation.”

MFish considers, that in providing for the utilisation of a fisheries resource enabling people to provide for their social, economic and cultural wellbeing is a relevant consideration when setting a sustainability measure. It is up to the Minister to determine how much weight to give to wellbeing in making his overall decision.

As more restrictive sustainability measures are likely to have a greater impact on utilisation, the selection of the most appropriate suite of measures requires the Minister to weight the benefits of more effective mitigation against the costs that are likely to be associated with those measures. To improve information on the sustainability benefits and utilisation costs of measures to manage the effects of fishing on Hector’s dolphins, and to better understand the qualitative interests in the options contained in this IPP, MFish has commissioned a socio-economic impact assessment and a research project to assess the relative effectiveness of different management strategies. Information will be available from these projects for incorporation into final advice on the TMP. Each regional section of this document contains an initial analysis of the costs and benefits of the management measures proposed.

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<sup>29</sup> Fisheries Act 1996, s2.

<sup>30</sup> Fisheries Act 1996, s2.

<sup>31</sup> Fisheries Act 1996, s2.

<sup>32</sup> Fisheries Act 1996, s2.

<sup>33</sup> Fisheries Act 1996, s2. ‘Conservation’ means the maintenance or restoration of fisheries resources for their future use; and ‘conserving’ has a corresponding meaning.”

<sup>34</sup> *Squid Fishery Management Co v Minister of Fisheries*, (13 July 2004, CA39/04).

<sup>35</sup> *NZRFC & Ors v Minister of Fisheries & Ors*, High Court Auckland, 21 March 2007.

## Environmental principles

Section 9 of the FA96 contains environmental principles that the Minister must take into account when making a decision under the FA96, relating to the utilisation of fisheries resources or ensuring sustainability. These principles are:

- ⇒ Associated or dependent species should be maintained above a level that ensures their long-term viability;
- ⇒ Biological diversity of the aquatic environment should be maintained;
- ⇒ Habitat of particular significance for fisheries management should be protected.

Hector's dolphins are an associated or dependent species as defined in the FA96. 'Associated or dependent species' is defined as any non-harvested species taken or otherwise affected by the taking of any harvested species.<sup>36</sup> 'Harvested species' is defined as any fish aquatic life, or seaweed that may for the time being be taken with lawful authority.<sup>37</sup> MFish considers that Hector's dolphins are affected by the taking of harvested species.

'Biological diversity' is defined in the FA96 as meaning the variability among living organisms, including diversity within species, between species and of ecosystems.<sup>38</sup> In relation to any decision to avoid, remedy or mitigate the effects of fishing on Hector's dolphins, MFish considers the Minister should take account of maintaining:

- ⇒ The Hector's dolphin species above a level that ensures long-term viability; and
- ⇒ The genetic diversity within the species, including the viability of the four genetically distinct populations, in the aquatic environment.

## Information principles

Under s 10 of the FA96, decision makers are required to take into account four information principles. The Minister should take into account the best available information; consider any uncertainty in the information available; be cautious when information is uncertain, unreliable, or inadequate; and not use the absence of, or any uncertainty in, any information as a reason for postponing or failing to take any measure to achieve the purpose of the Act.<sup>39</sup>

'Best available information' is defined as "the best information that, in the particular circumstances, is available without unreasonable, cost, effort, or time."<sup>40</sup>

MFish notes the Fisheries Act 1996 Amendment Bill was introduced to Parliament on 22 February 2007. The Bill proposes to amend s10(c) and (d) of the Act to provide greater care in favour of sustainability where information is uncertain.

The Bill currently proposes to replace s 10(c) and (d) of the FA96 to read:

- “(c) if information is absent or is uncertain, unreliable, or inadequate, decision makers—  
should be cautious; and

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<sup>36</sup> Fisheries Act 1996, s2.

<sup>37</sup> Fisheries Act 1996, s2.

<sup>38</sup> Fisheries Act 1996, s2.

<sup>39</sup> Fisheries Act 1996, ss10(a),(b),(c),(d).

<sup>40</sup> Fisheries Act 1996, s2.

- (ii) should not use any of those factors as a reason for postponing or failing to take measures to ensure sustainability.’’

The intention of the Bill is to provide clearer direction in section 10(c) and (d) to persons making fisheries management decisions where there are gaps or flaws in the available information. It seeks to clarify where the balance lies in deciding between the utilisation or the sustainability of fisheries resources where a decision has to be made in those cases. The proposed amendment will retain the existing direction in section 10 for decisions makers to use best available information, to consider uncertainty and to exercise care when information is uncertain, unreliable or inadequate. The Bill is presently being considered by the Primary Production Select Committee, who have received and heard submissions on the Bill. The intention is that the Bill can be passed into law and in effect before October 2007 – however, that timetable is tight and is dependent on parliamentary process. As such, it is possible that when the Minister is considering his decisions, in relation to the proposals set out in the initial position papers, the new amendments to section 10 will need to be applied (where relevant).

Until such time that the Fisheries Act 1996 Amendment Bill is approved by Parliament and passed into law, MFish and the Minister will apply section 10(c) and (d) as it is currently set out in the FA96.

#### Case law on s15(2)

The Court of Appeal has commented that in considering whether to take any measure under s15(2), the Minister is required to form a view as to the extent which (or perhaps the point at which) utilisation of the fish resource threatens the sustainability of the protected species.<sup>41</sup>

The Court of Appeal also commented on the difference between the Minister’s obligations in relation to harvestable species and protected species. The Court commented that in the context of a harvestable species, balancing utilization objectives and conservation values requires utilization to the extent it is possible.<sup>42</sup> However, the Court noted that setting an FRML for protected species under s15(2) requires a different type of exercise.<sup>43</sup>

The Court considered that the point of setting a FRML for sealions under s15(2) is not to arrive at a number of sea lions which can be harvested sustainably, and that thinking associated with sustainability of a harvestable species is not appropriate.<sup>44</sup> Although the options contained in this IPP do not include introducing an FRML, the Court’s comments have relevance to other s15(2) measures the Minister may consider necessary.

The Court indicated that s15(2) involved balancing risk on the one hand against utilisation advantages on the other.<sup>45</sup> The Minister was required to address the extent to which utilisation of fisheries resources conflicted with conservation of the protected species.

The Court also commented that “fishing related mortality” refers only to the death of the protected species in the course of fishing activity. Further, relevant to s15(2) is the impact of fishing on the population of the protected species as a whole, the section does not provide for measures aimed at simply

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<sup>41</sup> *Squid Fishery Management Company v Minister of Fisheries* (Unreported, Court of Appeal, 13 July 2004) Hammond, William Young, O’Regan JJ) para 79.

<sup>42</sup> *Squid Fishery Management Company v Minister of Fisheries* (Unreported, Court of Appeal, 13 July 2004) Hammond, William Young, O’Regan JJ) para 75.

<sup>43</sup> *Squid Fishery Management Company v Minister of Fisheries* (Unreported, Court of Appeal, 13 July 2004) Hammond, William Young, O’Regan JJ) para 77.

<sup>44</sup> *Squid Fishery Management Company v Minister of Fisheries* (Unreported, Court of Appeal, 13 July 2004) Hammond, William Young, O’Regan JJ) para 77.

<sup>45</sup> *Squid Fishery Management Company v Minister of Fisheries* (Unreported, Court of Appeal, 13 July 2004) Hammond, William Young, O’Regan JJ) para 77.

eliminating or reducing individual deaths.<sup>46</sup>

### International obligations and the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992

New Zealand is party to a number of international conventions. These conventions generally require measures to be taken to protect and conserve and mitigate fishing related mortalities endangered species. These proposals are consistent with these obligations.

The proposals in the draft TMP are not inconsistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. The measures proposed are sustainability measures under the Fisheries Act. Application of sustainability measures applies generically to all commercial fishers.

The exercise of customary fishing is provided for by specific regulations.

### ***7.2.2. Consultation***

Section 12 of the FA96 requires the Minister to before doing anything under relevant sections, to consult with such persons or organizations as the Minister considers are representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Maori, environmental, commercial and recreational interests. It also requires the Minister to provide for the input and participation of tangata whenua having a non-commercial interest in the stock concerned, or an interest in the effects of fishing on the aquatic environment in the area concerned and have particular regard to kaitiakitanga. This IPP forms part of that consultation process.

### ***7.2.3. Achieving the goals of the draft TMP***

The Goals of the draft TMP are:

- ⇒ To ensure that the long-term viability of Hector's dolphins is not threatened by human activities; and
- ⇒ To further reduce impacts of human activities as far as possible, taking into account advances in technology and knowledge, and financial, social and cultural implications.
- ⇒ MFish considers the goals of the draft TMP are consistent with the FA96. Goal 1 is consistent with the Section 9(a) of the FA96 (associated and dependent species should be maintained above a level that ensures their long-term viability), and Goal 2 is consistent with the balance between sustainability and utilisation (including providing for social, economic and cultural wellbeing) consistent with the purpose of the FA96.
- ⇒ As such, MFish considers that by meeting his statutory obligations under the FA96, the Minister of Fisheries will also meet the goals of the draft TMP with respect to human activities that are within his mandate to manage (i.e. fishing).

### ***7.2.4. Discussion of generic factors relating to Hector's dolphins***

MFish considers the environmental principles contained in s9 of the FA96 to be particularly relevant when considering whether measures are necessary to avoid, remedy or mitigate the effects of fishing-related mortality on Hector's dolphins. In particular, the principles that associated or dependent species

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<sup>46</sup> *Squid Fishery Management Company v Minister of Fisheries* (Unreported, Court of Appeal, 13 July 2004) Hammond, William Young, O'Regan JJ), para 7.

should be maintained above a level that ensures their long term viability (MFish considers Hector's dolphins to be an associated or dependent species) and that biological diversity of the aquatic environment should be maintained, provide useful guidance to the decision-maker.

Measures that are more likely to reduce the effects of fishing-related mortality are also likely to have a greater impact on utilisation. The nature and extent of additional management necessary to avoid, remedy, or mitigate the effects of fishing on Hector's dolphins, if any, will depend on the balance between sustainability and utilisation the Minister considers appropriate. MFish invites submitters to provide further information on the impacts of the proposed options on fishing and the ability of people to provide for their social, economic and cultural wellbeing.

MFish considers that some of the factors relevant to the Minister's decisions are:

- ⇒Population biology (for example, genetic diversity, size and productivity)
- ⇒Relationship of the species to long term-viability
- ⇒Nature and extent of the effects of fishing-related mortality on Hector's dolphins
- ⇒Effectiveness of current management measures
- ⇒The likely effectiveness of measures proposed to manage the effects of fishing
- ⇒Costs and impacts on fishers of measures proposed to manage the effects of fishing
- ⇒Uncertainty in the information available on the above factors.

The degree of uncertainty and the adequacy of the available information are matters for the Minister to assess and weigh in making decisions on any measures he considers necessary to avoid, remedy or mitigate the effects of fishing-related mortality on Hector's dolphins after taking into account the information principles in s10. In relation to the various factors identified above, MFish invites submitters to provide further information on these points.

#### *7.2.4.1. Uncertainty in information relevant to the Minister of Fisheries' decision-making*

As noted above, the degree of uncertainty and the adequacy of the available information are relevant considerations for the Minister when making decisions on whether any additional measures are necessary to avoid, remedy or mitigate the effects of fishing-related mortality on Hector's dolphins. MFish notes that the uncertainty in information relating to the following areas is particularly relevant to the Minister's deliberations:

##### **Long-term viability**

Biological<sup>47</sup> and stochastic<sup>48</sup> factors mean that there is a great deal of uncertainty around the minimum abundance that will ensure the long-term viability of Hector's dolphins, and consequently there is no definitive guidance for the Minister on the level above which the species should be maintained.

##### **Abundance of Hector's dolphins**

There is uncertainty around the current population estimates for Hector's dolphins. The most recent surveys to estimate abundance of South Island Hector's dolphins were undertaken 6-7 years ago. As such,

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<sup>47</sup> For example, Allee effect and depensation

<sup>48</sup> For example, environmental and demographic stochasticity

the current abundance of South Island Hector's dolphins is unknown.

The most recent published population estimate for Te Waewae Bay (south coast of the South Island) is from a study conducted in 1998-99, which entailed a single boat-based line transect survey of the area. A more recent intensive study of Hector's dolphins that use Te Waewae Bay suggests that the number of dolphins that use the bay might be considerably more than the abundance estimate from the 1998-99 study. While the results from the more recent study are yet to be finalised, this highlights uncertainty around the abundance of Hector's dolphins that use Te Waewae Bay.

The abundance of Maui's dolphins has been more recently estimated (from a study undertaken in January 2004).

### Nature and extent of fishing threats

As mentioned in the previous section, information on the extent of fishing impacts on Hector's dolphins is inadequate and uncertain. This is primarily due to limited information on the level of fishing-dolphin interactions and trends in species abundance; both of which make it difficult for MFish to determine the extent to which fishing has had, is having, or will have, an adverse effect.

### Effectiveness of management measures (current and proposed)

Low levels of bycatch monitoring means that the level of interaction under *status quo* management cannot be ascertained with certainty. Limited monitoring results in uncertainty around catch rates of Hector's dolphins in fishing gear (including any geographical and seasonal variations in catch rates) and consequently the effectiveness of proposed area and seasonal restrictions also cannot be determined with certainty.

### Costs and impacts on fishers of measures proposed

There is also uncertainty around the impacts that the proposed measures will have on people's social, cultural and economic wellbeing. This is primarily because there is limited specific information about the fishing activities (for example, effort and target species) that are affected by the proposals<sup>49</sup>. To reduce this uncertainty, MFish has contracted an independent research provider to investigate the potential impacts of the proposed measures on fishers. Further detail about this research is provided below.

#### 7.2.4.2. *New research*

### Socio-economic impact

Each regional section of this document contains an initial analysis of the costs and benefits of the management measures proposed. To improve information available to guide the Minister's decision making, an independent research company, Aranovus Research, has been commissioned by MFish to undertake an independent survey of recreational, customary and commercial set net and trawl fishers to assess the impacts of the range of proposed mitigation measures outlined in this document.

The purpose of the independent survey being undertaken by Aranovus Research is to understand what the potential impacts of the range of proposed mitigation measures are likely to be on the economic, social and cultural well being of recreational, customary and commercial set net and trawl fishers.

The survey focuses on the four distinct Hector's and Maui's dolphin areas:

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<sup>49</sup> Due to the nature of the reporting framework for commercial fishers and no formal reporting of amateur fishing effort

- ⇒ West Coast of the North Island;
- ⇒ West Coast of the South Island;
- ⇒ East Coast of the South Island; and the
- ⇒ South Coast of the South Island.

To find out more about this survey or participate in it, visit [www.nzfishersurvey.com](http://www.nzfishersurvey.com)

The survey by Aranovus Research does not replace feedback in the public consultation process and stakeholders may contribute to both processes if they choose to. However, the survey and the consultation process are independent of each other.

### Effectiveness of measures

In addition to the socio-economic impact analysis, modelling work is being undertaken by the National Institute of Water and Atmospheric Research (NIWA) to assess the relative performance of the proposed options for commercial set netting. For each population, projections will be made into the future to assess how the populations perform under the different management options. Results from this work will be available in time to be incorporated into final advice to the Minister. The absence of rigorous data (effort and dolphin catchability) associated with other threats, such as amateur set netting and trawling, precludes assessment of management options for these methods in the modelling.

#### *7.2.4.3. Effects of fishing on the species and populations*

Hector's dolphins are present in four main regions around New Zealand's coastline – the west coast of the North Island where the Maui's dolphin subspecies resides, and the east, south and west coasts of the South Island where the Hector's dolphin subspecies resides. Genetic analysis has identified that these four regional populations are genetically distinct and are separated by little or no gene flow.

The Minister's legislative obligations require him to consider steps necessary at a species level (s.15 and s.9). However, it is reasonable in considering the necessity to implement measures to have regard to each of the distinct populations for the following reasons:

- ⇒ Section 9 obliges the Minister to maintain biodiversity which includes between and within species genetic diversity. Impacts on genetically distinct populations are therefore relevant to this environmental principle.
- ⇒ Each population contributes to status (numbers) of the species as a whole
- ⇒ The nature of extent of fishing related threats varies between populations
- ⇒ Impacts on utilisation of measures proposed to manage at a species or population level will vary between populations because the nature of fisheries that impact on the species differ by region

Some Hector's dolphin populations may currently be well above a viable level (for example, there are 5400 Hector's dolphins in the population on the west coast of the South Island). If this is the case, those populations may be able to sustain a continued decline from current numbers due to fishing-related mortalities, while still maintaining their viability.

However, declines in population abundance can lead to loss of genetic diversity within a population (and accordingly within the species).

## Species management issues

Biological information on Hector's dolphins at a species level is outlined earlier in this document. In relation to overall abundance, Hector's dolphin is considered to be one of the world's rarest dolphin species. In light of evidence of population decline, the Minister of Conservation declared Hector's dolphins as a "threatened species" in 1999 and further classified the species as "nationally endangered" in 2003. The South Island Hector's dolphin is ranked as nationally endangered by DOC and endangered by the World Conservation Union (IUCN), and is estimated to number around 7270 individuals. The North Island Maui's dolphin, with an estimated population size of about 111 individuals, is ranked as nationally critical by DOC and critically endangered by the IUCN.

There is uncertainty over trends in population size for some populations. There is genetic evidence of abundance decline at both a population and local group level. South Island and west coast North Island populations indicate local group differences or loss of genetic diversity due to local group decline.

MFish notes that in the absence of a PMP, there is no legislative directive in the FA96 or elsewhere which outlines a target level of abundance for Hector's dolphins, other than "above a level that ensures their long-term viability". However, there are other statutes and conservation policy statements that reflect Government's overall desired outcome for threatened species (this desired outcome moreover involves achieving recovery to non-threatened status). For example, the MMPA allows the Minister of Conservation, under a PMP, to determine a level of fishing-related mortality which should allow threatened species to achieve non-threatened status as soon as reasonably practicable, and in any event within a period not exceeding 20 years. The vision statement for the management of Hector's dolphins ("Hector's dolphins should be managed for their long-term viability and recovery throughout their natural range") is derived from DOC's Conservation Services General Policy and also reflects the desired recovery component associated with managing threatened species.

MFish considers that Government's management objectives for threatened species expressed through other statutes and policy can provide relevant context to the Minister of Fisheries' decisions on whether measures are necessary to manage the effects of fishing-related mortality on Hector's dolphins.

In determining whether it is necessary to take measures to reduce fishing related mortality of Hector's dolphins at a species level it is important to understand the extent to which fishing is impacting on the status of the Hector's dolphin species. There is uncertainty on the extent of fisheries interactions due to lack of independent monitoring of interactions and few incentives to voluntarily report mortalities due to possible Government intervention.

In light of limited data, scientists have used population modelling and extrapolation techniques to estimate trends in Hector's dolphin populations through time. These studies have primarily focused on the past, present and future impacts of commercial set netting on Hector's dolphin populations. The absence of scientifically rigorous data on the nature and extent of other threats precludes their use in the modelling. Difficulties with estimating past entanglement rates and uncertainty in abundance estimates means there is a lot of uncertainty associated with the results of this modelling work. In general, findings have suggested that the abundance of Hector's dolphins has declined due to fishing activity and is likely to continue to decline under current management regimes.<sup>50</sup> However, there is a lack of comparative abundance estimates through time and consequently MFish cannot determine with certainty whether species abundance has changed significantly.

Nevertheless, fishing (particularly set netting) is considered to be the greatest known threat to Hector's

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<sup>50</sup> For example, Slooten, E. (2007). Conservation management in the face of uncertainty: Effectiveness of four options for managing Hector's dolphin bycatch. *Endangered Species Research*: 3, pp 169-179.

dolphins.<sup>51</sup>

In summary MFish consider amongst other things the following points useful in considering whether status quo management is appropriate or whether the Minister considers it necessary to take further steps to avoid remedy or mitigate the effects of fishing related mortality on Hector's dolphins:

- ⇒The biological characteristics, population status and trends of Maui's and Hector's dolphin;
- ⇒Increased public awareness and general societal trends toward being more risk averse in relation to human impacts on vulnerable species;
- ⇒Government concern over the status and trends in Hector's and Maui's dolphins including an overall desire based on expressed policy outcomes to rebuild threatened species; and,
- ⇒Information (scientific and anecdotal) indicating that fishing is the biggest known cause of human induced mortality of Hector's and Maui's dolphins.

### *7.2.5. Management proposals*

As part of development of management proposals, officials held discussions with different stakeholder groups to seek input on ways to mitigate threats to Hector's dolphins. Outcomes of the regional process have assisted the development of the threat management options contained in this document, as well as analysis of the costs and benefits of those options. A summary of the outcomes of the regional discussions is provided in Appendix 2.

The nature and extent of fishing related threats varies between each of the four populations, as do the impacts on users from measures proposed. MFish has developed specific analysis at a population level around the nature and extent of fishing related impacts, and options for managing those impacts. Treatment of fishing threats to each of the four populations should be broadly consistent with any overall strategy for the species – in particular to ensure biological diversity is maintained, but also because each of the populations can contribute to any overarching approach for the Hector's dolphin species.

As such, while options have been developed for each of the four populations, the Minister will also be making a decision at a species level in considering impacts of measures across populations.

Options have been developed to address each threat (fishing method) that has been identified as creating a risk of fishing related mortality. There are three broad mitigation options for each threat. Only two options are provided for drift netting given the specific nature of problem (very localised use). The options are categorised by their ability to reduce risk of fishing related mortality caused by each threat and cost to fishers (as illustrated below). The nature and extent of each threat varies between method and between populations. The range of options forms a matrix.

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<sup>51</sup> Based on reported mortalities with a confirmed cause.

Status quo	Option 1	Option 2	Option 3
<p>Level of risk mitigation</p> <p>LOWER → HIGHER</p> <p>Impact on current use</p>			

The Minister is free to choose a mix of options within populations and across the species as a whole but should, given the uncertainty in information on biological risk, carefully consider the impact on use when determining the appropriate options. MFish notes that depending on the nature and extent of the threat from different fishing methods to a given population, the Minister could choose a higher level of risk mitigation (e.g. Options 2 or 3) for methods that pose the highest threat, but choose a lower level of risk mitigation for methods that pose a lesser threat to the population. That is, the level of mitigation that the Minister considers necessary may vary between populations and fishing threats, depending on the particular circumstances of the region, the balance struck between utilisation and sustainability, and the need to ensure viability (including biological diversity) of the species as a whole.

MFish has a general preference that measures should be applied consistently throughout the range of each dolphin population to ensure the measures are most effective but also aid in compliance both in terms of enforcement and cost.

#### 7.2.5.1. *Set net definition*

The legal definition of set netting is very broad and encompasses most fishing methods and gear that enmesh fish. MFish has identified set netting (see Part I explanation of this method) as a risk to Hector's dolphins. MFish notes that in referring to set nets, the focus has been on methods that may cause entanglement and death of Hector's dolphins. MFish recognises that there may be some methods, such as ring shooting, that is included in the legal definition of set netting that may not need to be prohibited to avoid, remedy, or mitigate the effects fishing on Hector's dolphins because of the way the gear is deployed. MFish invites stakeholder comments on methods that may be encompassed in the legal definition of set netting, but may not be a threat to Hector's dolphin. MFish will provide advice to the Minister, incorporating information from stakeholders on possible non-harmful methods, which may be excluded from regulations on set net restrictions.

#### 7.2.5.2. *Transition timeframe for implementation of measures*

Also relevant to the Minister's decisions is the speed with which measures are introduced. The Minister could choose an option and introduce the measures over a time period to allow for adjustment by users – particularly if measures implemented are onerous in terms of cost. In considering an appropriate transition time period the Minister would need to consider:

- ⇒ The urgency of the problem, including the effects of fishing-related mortality on Hector's dolphins.
- ⇒ The effectiveness of current measures (risk to dolphins during the period while measures were introduced)
- ⇒ The effects on fisheries resource users through mitigated impacts on use

The Minister could also choose to phase in measures by implementing a less onerous option for a certain time period and replacing that with a higher level of mitigation at a later specified date.

### *7.2.5.3. Monitoring*

Given uncertainty in information about the status of the population and the effects of fishing, threat mitigation should be accompanied by better estimation of fishing related impacts. MFish considers that the Minister should determine whether additional monitoring may be necessary, if he chooses an option that allows for use of fishing methods known to pose a threat to Hector's dolphins.

Detail around a proposed monitoring programme is outlined in Part III.

### *7.2.5.4. Impacts on fishers*

In the analysis of options provided in the regional sections, MFish discusses the potential effect of each option on fishers. In providing submissions, stakeholders should provide information on any utilisation, economic, social, and cultural factors that may be relevant to the proposed options. In particular, fishers should provide information on how these proposals may have an impact on their fishing activities.

The nature of the information that will be used to analyse impacts on utilisation associated with the proposed measures is outlined below.

#### **Commercial fishers**

MFish has characterized the main set net and trawl fisheries in each region and analysed selected commercial set net and trawl fisheries in some regions. This analysis has been used to identify the number of fishers that will possibly be affected by the proposed options and the nature of effects on catch and value.

As mentioned above, MFish has contracted an independent assessment of the likely cost of the proposed options. That contract will build on the analysis of MFish data. That research will also collect the qualitative information to assess the socio-economic impact of the proposed options. In addition, MFish welcomes commercial fishers' comments on the impacts of the proposed options on their fishing operations.

#### **Recreational fishers**

MFish has little information on the number of recreational set net events around New Zealand's coastline, and welcomes stakeholder information on this. Due to inherent data limitations, any quantitative estimates of the level of recreational activity with set nets will be very inexact. MFish expects that the research project will provide some qualitative understanding of the significance of amateur set netting. MFish expects the research to provide some, although perhaps not definitive, indication of how differences among the proposed options will affect recreational set netting and the socio-economic impact of the proposed options. For example, MFish expects the contract to generate qualitative data about the seasonal and spatial distribution of recreational set net activity and the alternative recreational fishing options available.

MFish recognises that set netting is a popular recreational activity. Removing the opportunity to set net would eliminate the opportunity that exists at present and would detract from a popular activity. MFish welcomes stakeholders' specific comments on the nature and extent of how the proposals might have an impact on their individual circumstances.

## Customary fishers

The DOC incident database lists no Hector's dolphin mortalities attributable to customary set net fishing. MFish understands the use of set nets for customary fishing is low and, accordingly, believes the associated risk to Hector's dolphins is low.

The measures proposed in this document apply to amateur and commercial fishers. However, MFish notes that customary fishing regulations enable Tangata Tiaki, or a tangata whenua representative appointed for the area, to issue authorisations in contradiction to any amateur set net area closures. It is possible that the proposed prohibitions on amateur set netting might lead to an increase in authorisation applications for customary set netting. The aforementioned research programme is intended to provide some information on current customary fishing practice. Due to inherent data limitations, any quantitative estimates of the level of customary activity with set nets will be very inexact. MFish does expect that the research will provide some qualitative understanding of the significance of customary set netting. MFish expects the research to provide some, although perhaps not definitive, indication of how differences among the proposed options will affect customary set netting.

MFish welcomes iwi specific comments on the nature and extent of how the proposals might have a social, cultural, or economic impact on their individual circumstances.