10. MONITORING THE EFFECTS OF FISHING ON HECTOR'S AND MAUI'S DOLPHINS

10.1. Introduction

Information on the nature and extent of interactions between fisheries and dolphins is necessary for the Minister of Fisheries and the Minister of Conservation to make informed decisions on measures to avoid, remedy, or mitigate the adverse effects of fishing on dolphins. The Marine Mammals Protection Act 1978 and the Wildlife Act 1953 require fishers to report protected species interactions, including dolphin entanglements. This reporting helps MFish and DOC, and the Ministers determine the nature and extent of interactions. The extent to which fishers currently report entanglements is unknown, and there is evidence that suggests some fishers do not – people have found dead dolphins hidden near beaches presumably in an attempt to hide evidence of entanglement. Dolphins also occasionally wash ashore mutilated and with net marks and there is necropsy evidence to show that beach cast animals have sometimes died as a result of drowning. In addition, incentives to report entanglements are lacking and fishers fear they may be subject to onerous mitigation measures if reported mortalities are too high.

Lack of certainty over the extent and accuracy of reports means MFish and DOC cannot determine the extent of dolphin mortalities caused by fishing, or the relative contributions of commercial versus recreational fishing to dolphin captures. The Ministers are forced to make threat management decisions with considerable uncertainty.

Independent fisheries monitoring provides an opportunity to gather information on the nature and extent of interactions between fisheries and dolphins. Monitoring also enables MFish and DOC to examine compliance with rules developed to avoid, remedy, and mitigate the adverse effects of fishing.

10.2. Monitoring framework

This Draft TMP proposes a range of options to avoid, remedy, and mitigate the adverse effects of fishing on Hector's and Maui's dolphins. Some options are less onerous to fishers while others impose strict controls on fishing activity. The Minister of Fisheries in consultation with the Minister of Conservation will determine whether additional controls on fishing activity are necessary to reduce the effect of fishing related mortality. However, the Minister is not required to eliminate all risk to dolphins from fishing but must also consider the effect that options have on people's ability to use fisheries resources.

Where residual risk remains – stemming from uncertainty in information about the status of dolphin populations and the effects of fishing on the populations – the Minister should consider additional monitoring to verify the effectiveness of, and monitor compliance with, threat management[164].

The level of monitoring required to ensure adequate monitoring of fishing related mortality is uncertain and dependent on the set of measures agreed by Ministers to mitigate the effects of fishing.

In general terms, MFish and DOC consider the higher the degree of residual risk of fishing related mortality, the higher the level of monitoring required to determine the nature and extent of fishing related impacts. Dolphin mortalities are generally an event of low probability which means that monitoring levels across a fleet would need to be high in order to be able to achieve robust monitoring.

However the level of monitoring will also be influenced by the effects that fishing related mortality has

[164] Independent fisheries monitoring is not a threat management option in itself but is necessary to collect information on the nature and extent of interactions between fisheries and dolphins for decision making purposes.

on the population and species. Severity of impact of mortality on the population as a whole varies with size of the population and where the mortality occurs within the populations range (ie. risk of fragmentation).

In some cases a lower level of coverage may be acceptable to get a general indication of fishing trends and dolphin mortality. This would only be appropriate where the risk and the consequence of a fishing related mortality is relatively low. However, it would be unreliable to extrapolate fishing related mortalities recorded from a lightly monitored fleet across an entire fleet or dolphin population.

MFish considers there are two monitoring options the Minister should consider as part of the draft TMP:

⇒Observers on fishing vessels – already used to monitor Hector's dolphin interactions with fishing gear

⇒Electronic monitoring (video cameras) on fishing vessels – not currently used to monitor Hector's dolphin interactions with fishing gear.

Potential benefits and costs associated with each option are discussed below.

10.2.1. Observers on fishing vessels

MFish and DOC use Fisheries Observers (observers) to monitor interactions between fishing vessels and protected species including Hector's and Maui's dolphins[165]. Observers provide information on the types of interactions that occur and facilitate the return of carcasses of certain protected species for necropsy. In some instances observers collect biological samples for analysis (eg, genetic studies). Observers may also report on, or recommend, ways to avoid or mitigate the effects of taking protected species.

Benefits of observers include:

⇒Independent monitoring of marine mammal and seabird interactions with fishing vessels

⇒Can collect multiple pieces of information on the nature of interactions with dolphins

⇒Can communicate the legal requirements to report dolphin captures to fishers and the importance of reporting such captures

⇒Ensure that dead dolphins are retained for necropsy.

Costs include:

⇒Difficulty placing observers on boats (although this issue has been reduced in recent years):

- Some fishing vessels are too small to be able to take an observer and crew
- Some fishers do not wish to engage with the observer programme despite it being a legal requirement to take an observer if requested to do so.

⇒Inshore fishing is dependent on weather and other factors and changes to trips at short notice can be

[165] Observer coverage to monitor the incidental bycatch of Hector's and Maui's dolphins is managed through the Conservation Services Programme (CSP). CSP provides the majority of observer coverage to monitor the impacts of fishing on protected species and poor information fisheries.

difficult and costly to coordinate with the observer programme (although CSP regularly places observers at local ports for several months which enables them to leave at short notice)

⇒Inshore observer coverage is expensive (approximately $800-$1000 per day) and coverage, as a proportion of total fishing activity, is low (for example, in the 2007-08 fishing year there are 258 inshore trawl coverage days and 233 set net coverage days available). However, CSP maximises coverage in specific areas on a rotational basis meaning that costs to fishers are intermittent and spread around the country, and that at any one time, the level of observer coverage in certain areas can be very high. Expansion of the programme across a greater proportion of the inshore fleet would remove a large part of the profit margin from New Zealand's inshore fishery and could affect the viability of some individual fishing operations if not managed well.

⇒Expansion of the observer programme as a component of the TMP may probably require re-prioritisation of the allocation of observers to current projects.

⇒MFish doubts New Zealand has the immediate capacity to meet high observer demand.

10.2.2. Electronic Monitoring

Electronic monitoring (video cameras) is a form of monitoring used in many fisheries around the world. Units typically consist of a hard drive that records information from a video camera fixed above the vessel deck. There are two main ways that the camera is activated. The first (and method that involves the most amount of camera footage) is when the camera is turned on at the beginning of a fishing event. The second method is when the camera activates when the trawl winch starts. This records a much shorter period of time and does reduce the amount of video footage that needs to be reviewed. As fish are landed on the deck of the boat the camera records images in the field of view. The video footage is independently reviewed on shore and species identified.

Video technology has been trialed successfully in New Zealand aboard set net and trawl boats in Canterbury in 2003-04[166]. Trials showed that captured Hector's dolphins were identifiable using this technology when dolphins are caught[167].

The Minister can, under s 298 (b) and (d) to require fishers to have video monitoring on board vessels to avoid, remedy or mitigate the effect of fishing on Maui's and Hector's dolphins (as per s 15 of the Act).

Potential benefits of video monitoring include:

⇒Video monitoring can provide certainty about interactions with Hector's or Maui's dolphins

⇒Smaller boats currently unable to take observers are likely to be able to use video monitoring (currently AC or DC power is all that is needed to power the devices)

⇒Hard drives can store up to 30 days video footage

⇒The technology has been developed to the point where video footage does not have to be watched in "real time" to detect Hector's dolphins which cuts down on the number of hours required to observe fishing activity (compared to observers who are on board vessels in "real time")

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[166] McElderry et al 2007. DOC publication series

[167] During the course of the video monitoring there were 2 dolphins caught in set net gear and x dolphins caught in set nets. Positive identification that the mammals were Hector's'' dolphins in all cases was possible.

Costs include:

⇒Only interactions resulting in the dolphin being landed on the boat are recorded

⇒Initial purchase costs are expensive (see below) and there are ongoing monitoring costs

⇒Fishers would need to obtain a permit under the Wildlife Act to retain and return a dead dolphin for necropsy.

Because this method has not been widely used in New Zealand, MFish does anticipate some resistance to the concept of video monitoring from commercial fishers. However, MFish notes that if the Minister determines that monitoring is necessary in areas where dolphins are present in order for fishing to continue, electronic monitoring is in the long term likely to be more affordable to fishers than observers.

Video monitoring is widely used overseas in British Columbia in longline and crab fishers. MFish has been able to obtain information on possible costs associated of the hardware (cameras and hard drives) required to run video monitoring. An initial estimate is that the cost is $10,000 per boat to purchase and install the equipment (there will also be ongoing operating costs).

MFish and DOC acknowledge the one-off cost of the video camera units could be quite substantial for some fishers. If video monitoring was to be progressed MFish may look at adopting models of implementation similar to that used overseas (where smaller operators, or people who do not have a high number of fishing days can lease the equipment). In addition, MFish will investigate potential to rationalise costs through bulk purchase.

At this time, MFish does not have exact figures on the ongoing costs of video monitoring, but as mentioned above, based on overseas models, the cost of video monitoring should be significantly less than the cost of observers. MFish proposes to prepare a separate advice paper on the feasibility of electronic monitoring (ongoing logistical costs) to the Minister.

10.3. Monitoring Amateur Fishing

MFish and DOC consider it would be useful to gather more information from the amateur sector on rates of incidental bycatch. Currently MFish and DOC have no tools to do this. One option to further increase data on incidental bycatch of hector's dolphins is to have targeted questions in boat ramp surveys. MFish and DOC welcome comments from stakeholders on ways to effectively monitor protected species interactions and amateur fishing.

10.4. Conclusion

The Minister will need to consider what level of monitoring is appropriate for dolphins after implementing measures to minimize risk. In general, MFish considers that where there is a higher level of risk, there should be a greater emphasis placed on gathering more information to support ongoing management.

This may mean a trade-off for fishers of paying additional observer costs, to be able to have access to some areas for fishing. MFish and DOC accept that for some fishers it may become uneconomic to pay for the monitoring that is required, and this may in turn reduce peoples access to areas, and indirectly, the level of fishing activity and catch overlapping with Hector's and Maui's dolphins. In considering different ways to get better information on the nature and extent of fishing related mortalities, MFish has tried to canvass options that will still enable utilisation by fishers (ie, the cheaper option of electronic monitoring).

MFish and DOC note that better information on the nature and extent of fishing related mortalities will enable the Ministers to assess the success of TMP measures and review management decisions if necessary. MFish and DOC plan to provide a more detailed paper to the Ministers on ongoing monitoring once a decision has been made on management frameworks for each population as a whole.