

Review of Regulatory Measures for October 2007
Initial Position Paper
26 February 2007

CONTENTS

Introduction.....	3
Foveaux Strait Dredge Oyster Fisheries Plan: Limiting Dredge size in Non-Commercial Area	5
New Inshore Trawl Catch Effort Return.....	9
New Inshore Lining Catch Effort Return.....	21
New Danish Seine Catch Effort Return.....	30
Prawn Killer (PRK).....	38
A Vessel Monitoring System for the Southern Bluefin Tuna Fleet.....	62

INTRODUCTION

- 1 This Initial Position Paper (IPP) provides you with the Ministry of Fisheries' (MFish) initial position on those regulatory and other management controls that MFish has confirmed for review for the 1 October 2007 regulatory round.
- 2 The IPP has been developed for the purpose of consultation as required under the Fisheries Act 1996 (the Act). MFish emphasises the views and recommendations outlined in each paper are preliminary and provided as a basis for consultation with stakeholders.
- 3 Each paper has regard to the legal obligations required under the Act. A standard section outlining MFish's statutory obligations and policy guidelines for a proposal contained within any IPP is available from MFish should you wish to refer to these matters.
- 4 MFish does not intend to use the IPP, and the consideration of proposals contained within it, to debate its generic statutory interpretations.
- 5 The individual papers within the IPP present and analyse information with the aim of focusing each paper on fisheries management outcomes. In particular, the body of the advice places an emphasis on analysis and application of the facts to the issues that need to be addressed. Most technical information, including information from stock assessments, has been attached as Appendices.
- 6 The proposals in the IPP include:
 - New Inshore Trawl Catch Effort Return;
 - New Inshore Lining Catch Effort Return;
 - New Danish Seine Catch effort Return;
 - A Vessel Monitoring System for the Southern bluefin tuna Fleet;
 - Foveaux Strait Fisheries Plan: limiting dredge size in non-commercial area;
 - Introduction of Prawn Killer to the Quota Management System.
- 7 In May 2007, MFish will compile the Final Advice Paper. This document summarises MFish and stakeholder views on those issues being reviewed, and provides final advice and recommendations for each issue. Copies of the Final Advice Paper, and subsequently the Minister's letter setting out his final decisions, will be sent to all nationally represented stakeholder groups, and all other stakeholders who expressed an interest in being consulted on particular proposals, as soon as it becomes available.

Deadline for submissions

- 8 All written submissions on this consultation document are to be received by MFish by **Friday 13 April 2007**.
- 9 Written submissions should be sent directly to:

Tracey Steel,
Ministry of Fisheries,
PO Box 1020,
Wellington;

or emailed to tracey.steel@fish.govt.nz
- 10 Please note that all submissions are subject to the Official Information Act 1982 (OIA) and can be released, if requested, under the OIA. If you have specific reasons for wanting to have your submission withheld, please set out your reasons in the submission. MFish will consider those reasons when making an assessment for the release of submissions if requested under the OIA.

FOVEAUX STRAIT DREDGE OYSTER FISHERIES PLAN: LIMITING DREDGE SIZE IN NON-COMMERCIAL AREA

Executive Summary

- 1 Under the draft fisheries plan for the Foveaux Strait Dredge Oyster Fishery, a limit on the dredge size for oystering in the non-commercial areas of the fishery (refer Figure 1) is proposed.
- 2 The non-commercial areas are the only parts of the fishery where small-boat dredging, or diving, can safely be used to harvest dredge oysters. There is currently no limit on the size of recreational oyster dredges, and the use of commercial-scale oyster dredges in this area adversely affects the ability of recreational fishers to capture full value from this fishery.
- 3 The Ministry of Fisheries (MFish) consulted on this proposal during development of the draft fisheries plan. This consultation suggested a bit bar length of 1m would be an appropriate limit. MFish's initial position is to support this proposed measure.

Summary of Options

- 4 Three options were considered under the plan for the Foveaux Strait Dredge Oyster Fishery:
 - (i) *Status quo* – no limit on the size of oyster dredges in the non-commercial areas.
 - (ii) *Non-regulatory options* – charter boat/voluntary agreements limiting oyster dredge size in the non-commercial areas.
 - (iii) *Regulated limit on dredge size* – implement a maximum bit bar length of 1 m for oyster dredges in the areas by regulation.

Rationale for Management Options

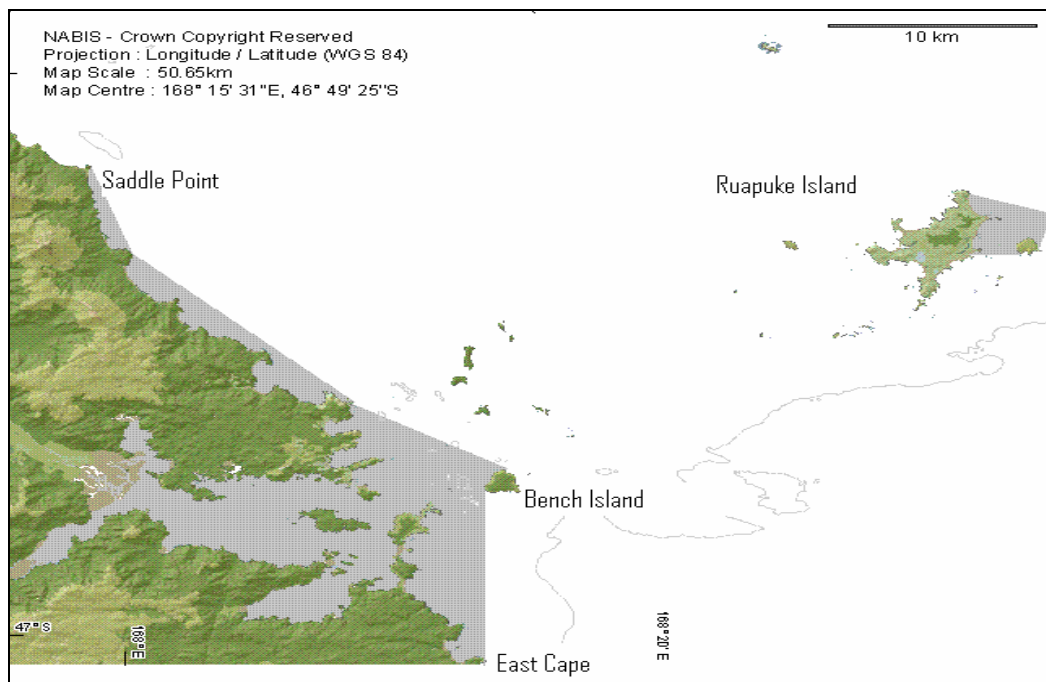
- 5 A draft fisheries plan for the Foveaux Strait Dredge Oyster Fishery has been developed collaboratively with stakeholders¹. The plan is not scheduled to be formally approved until a full assessment against MFish standards is completed later this year². In the interim, consultation has shown there is consensus around some of the more urgent elements of the plan, and initial steps can be taken to implement these.
- 6 Most of the proposed measures under the plan are non-regulatory. One regulatory element, scheduled for advancement in 2007, is a proposed sustainability measure to

¹ The plan can be viewed on MFish website (www.fish.govt.nz).

² Fisheries standards (scheduled to be completed end of 2007) will allow fisheries plans to be formally assessed against minimum levels of performance. Refer www.fish.govt.nz. Consultation Paper on Draft Fisheries Standards. 8 November 2006.

limit the size of oyster dredges in the non-commercial areas of the fishery (refer Figure 1). These relatively sheltered areas are the only parts of the fishery where small-boat dredging, or diving, can be safely used to take oysters. As there is currently no limit on the size of recreational dredges for oystering, commercial-scale oyster dredges employed elsewhere in the fishery (typically 2.5m bit bar length) can be used in these areas. These dredges are designed for the open waters of Foveaux Strait and their use in the recreational-only areas can cause localised depletion and benthic impacts, and prevent recreational fishers from capturing full value from this fishery.

Figure 1: Map showing non-commercial areas (shaded) within the Foveaux Strait Dredge Oyster Fishery.



Assessment of Management Options

Option 1 - Status quo

- 7 Under the *status quo* option, there will be no limit on the size of recreational dredges for oystering. Non-commercial areas will remain at risk of depletion and recreational fishers will be unable to capture full value from this fishery.

Option 2 - Non-regulatory options

- 8 Non-regulatory options, such as charter boat/voluntary agreements limiting dredge size, were considered in the plan. Development of the agreements would be led by the recreational sector (fishing clubs etc). While they were assessed as being lower cost than regulatory options, they were deemed to be potentially ineffective given the large number of recreational vessels operating in the areas.

Option 3 - Regulated limit on dredge size

- 9 The plan proposes a regulated oyster dredge size be implemented. This was considered to be the most effective management option to limit dredge size in the non-commercial areas. An advertised public meeting was held in November 2006 to discuss this and other measures proposed in the plan. The proposal was also set out in a follow-up article in the Southland Times (newspaper). Feedback to recreational representatives on the planning group has been positive, and the consensus from the 20 or so people attending the public meeting was that a maximum bit bar length of 1 m would be appropriate. This equates to the maximum oyster dredge size currently carried by smaller vessels in the recreational fishery.

Statutory Considerations

- 10 **Section 8:** The non-commercial areas are the only parts of the fishery where small-boat dredging, or diving, can safely be used for dredge oysters. This proposal allows recreational fishers to capture more value from this fishery by ensuring oyster dredges are on a scale appropriate for the area.
- 11 **Section 10:** The proposal was developed using the information contained in the Foveaux Strait Dredge Oyster Fishery Plan. The plan was developed in collaboration with all stakeholder sectors, scientists and MFish representatives, and is considered by MFish to contain the best available information on the fishery.
- 12 **Section 11(1)(a):** Because smaller dredges are lighter and may impact less heavily on the seabed, the limit on oyster dredge size should mitigate the benthic effects of dredging in the recreational-only fishing areas.
- 13 **Section 11(2A)(b):** The draft fisheries plan for the Foveaux Strait Dredge Oyster Fishery is not scheduled to be formally approved until a full assessment against MFish standards is completed later this year. In the interim, consultation has shown there is consensus around some of the more urgent elements of the plan, such as this proposal, and initial steps can be taken to implement these.
- 14 Generic statutory considerations can be found at the beginning of this document.
- 15 Other statutory considerations are set out in Appendix 1.

Initial Position

- 16 MFish's initial position is to support the limit on oyster dredge size in the non-commercial areas of the fishery proposed in the Foveaux Strait Dredge Oyster Fisheries Plan. A regulated maximum bit bar length of 1 m is proposed.

Appendix 1

Additional Statutory Considerations

- 17 In formulating the management options, the following additional statutory considerations have been taken into account:
- 18 **Section 5 (a) and (b):** There is a wide range of international obligations relating to fishing (including sustainability and utilisation of fish stocks and maintaining biodiversity). MFish considers issues arising under international obligations and the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 are adequately addressed in the management options.
- 19 **Section 9(a), (b) and (c) and section 11(1)(a):** Large commercial-scale dredges are designed for the open waters of Foveaux Strait. Because smaller dredges are lighter and may impact less heavily on the seabed, the proposal should mitigate the benthic effects of dredging in the recreational-only fishing areas and may help to maintain associated or dependent species and biological diversity.
- 20 **Section 11(1)(b):** Relevant existing controls under the Act are a daily limit of 50 oysters per person per day, a prescribed recreational oyster season of 1 March to 31 August, and a minimum oyster size limit of 58 mm. These will not be affected by the proposed limit on dredge size, which is an additional measure relating to the gear that may be used by recreational fishers.
- 21 **Section 11(1)(c):** The natural variability of dredge oysters is usually low, except when mass mortality of oysters occurs during an outbreak of the oyster disease *Bonamia*. This proposal is unlikely to have any influence on the prevalence of *Bonamia*.
- 22 **Section 11(2A) (a and c):** MFish is not aware of any provisions applicable to the coastal marine area that exist in any policy statement or plan under the Resource Management Act 1991, or any management strategy or plan under the Conservation Act 1987, which are relevant to this proposal.

NEW INSHORE TRAWL CATCH EFFORT RETURN

Executive Summary

- 1 Unless otherwise advised by the Chief Executive, the Fisheries (Reporting) Regulations 2001 currently require vessels 28 metres and under in overall length to record fishing by trawling on Catch Effort and Landing Returns (CELRs).
- 2 The CELR is a multi-purpose form that is used to capture information from most kinds of commercial fishing. The CELR provides users of this information with an overview of fishing activity (e.g. total number of shots/tows completed in a day) rather than a detailed account of each fishing event.
- 3 Important information such as high resolution catch and effort data is not collected on the CELR and the position of vessels (latitude, longitude) is often not available. It is important that this information is collected to ensure accurate stock assessments and sustainable management of inshore fisheries.
- 4 The Ministry of Fisheries (MFish) recommends that the Fisheries (Reporting) Regulations 2001 be amended to allow the introduction of a new inshore trawl catch effort return for vessels between 6 and 28 metres in overall length.
- 5 A new purpose designed reporting form will collect high resolution catch and effort data which will benefit fisheries managers, fishers, compliance officers, and scientists. Some of these benefits include:
 - Ø scientists will have an improved ability to examine the factors affecting fish distributions and stock abundance
 - Ø fishers will have the ability to demonstrate fishing history for the purpose of establishing spatial property rights
 - Ø fisheries managers will have an improved understanding of the fishery at a finer scale
 - Ø compliance will have an improved ability to enforce spatial regulations.

Preliminary Consultation

- 6 In early 2006, the Fisheries Data Working Group (consisting of MFish Research Data Management (RDM), fishing industry representatives, and scientists) identified the need to address information issues relating to the inshore trawl fleet.
- 7 A form design project team was set up in June 2006 to discuss the information needs for a new inshore trawl form. This project team included representatives from MFish Science, Fisheries Operations, Compliance and RDM; representatives from the fishing industry; and researchers from the New Zealand Seafood Industry Council (SeaFIC) and the National Institute for Water and Atmospheric Research (NIWA).
- 8 The form design project team met in September 2006 to discuss the information requirements for a new inshore trawl form. Each of the possible information fields were given a rating: essential, highly desirable, desirable, and not required. The project team discussed each of the proposed information fields and agreed to a set of

fields that were essential for the new form. These fields included: start date, start time, start latitude and start longitude for each shot/tow.

Summary of reporting options

9 MFish and the form design project team have identified four options for the collection of catch and effort data from vessels between 6 and 28 metres that report methods of trawling. It is proposed that vessels under six metres in overall length will continue to record methods of trawl on the CELR as it would be unduly onerous for fishers to record coordinates and a detailed account of each shot.

10 Each reporting option (except for option one – the status quo) will have a requirement to complete a Catch Landing Return (CLR) at the end of each fishing trip. For options two, three, and four – a fishing event is defined as a single shot and fishers will be required to record coordinates and catch and effort data on a shot by shot basis.

Option one – status quo (no action)

11 Vessels 28 metres and under continue to report methods of trawling on a CELR; and permit holders (e.g. those operating in the SNA 1 and SNA8 fisheries) who have been advised by the Chief Executive to use a Trawl Catch Effort Processing Return (TCEPR) will continue to report methods of trawling on this form.

12 The TCEPR is also voluntarily completed by some vessels 28 metres and under in overall length (e.g. tarakihi, gurnard and barracouta target fisheries). However, the TCEPR is mainly used for offshore trawling by vessels over 28 metres who target species like hoki, orange roughy and squid.

Option two – new trip reporting form

13 Option two involves the introduction of a new catch and effort return to report fishing by the methods of trawling for each fishing trip. This option requires an amendment to the Fisheries (Reporting) Regulations 2001.

14 A form prototype has been designed (see appendix I). This form is based on the set of information fields that were agreed to at the form design project meeting in September 2006.

15 In summary, the draft trip reporting form includes the ability to report:

- § five shots per form
- § the date of a shot
- § start coordinates (latitude, longitude) for each shot
- § start and end times of a shot
- § non-fish / protected species declaration per shot
- § the estimated greenweights of up to eight species per shot.

Option three – new daily reporting form

- 16 Option three involves the introduction of a new catch and effort return to report fishing by the methods of trawling for each day, or part day of a fishing trip. This option requires an amendment to the Fisheries (Reporting) Regulations 2001.
- 17 This form prototype is similar to the form designed for option two – a trip-based reporting form. However, instead of having a date information field included per shot, this form option differs as the date information field will be included in the form header (see appendix I).

Option four – requirement to complete a TCEPR

- 18 Option four involves an amendment to the Fisheries (Reporting) Regulations 2001. Vessels between 6 and 28 metres will be required to report methods of trawling on a TCEPR.
- 19 The set of information fields that the form design project team propose for the new inshore trawl catch effort form are similar to the information fields that are currently collected on the TCEPR form.

Rationale for a new catch and effort return

- 20 The Fisheries (Reporting) Regulations 2001 currently require vessels 28 metres and under in overall length to record fishing by trawling (bottom trawl - single, bottom trawl - pair, midwater trawl - single and midwater trawl - pair) on CELRs.
- 21 The CELR is a multi purpose form that is used to capture information from most methods of commercial fishing and has been used in the same format since it was introduced in 1989. The CELR is designed to be used with specific cardboard templates that are overlaid on to the form for different types of fishing. The cardboard templates that fishers use to fill out the CELR are often lost and this can make it difficult and confusing for fishers to complete their form. Also, the cardboard template may be incorrectly placed on the CELR or it can move while in use, which results in information being incorrectly entered. It is proposed that the form prototypes designed for options two and three will be completed without the use of cardboard templates.
- 22 Inshore fisheries and fisheries management practices have evolved since the CELR was first introduced in 1989. The CELR provides users of this information with an overview of fishing activity (e.g. total number of shots/tows completed in a day) rather than a detailed account of each fishing event and the positions of vessels (latitude, longitude). It is important that high resolution catch and effort data and vessel positions are collected to ensure accurate stock assessments and sustainable management of inshore fisheries.
- 23 Fishers can provide start positions of fishing as a general statistical area or as latitudes and longitudes (in degrees minutes) on the current CELR. The vast majority of fishers provide statistical areas which are often very large in comparison to the localised spatial management requirements of these fisheries. It is proposed that a

new reporting form will require fishers to provide start and end positions (latitude and longitude in degrees minutes) for each shot.

- 24 In the 2005/06 fishing year, approximately 200 vessels reported methods of trawling on the CELR. These vessels had an overall length of between 8 and 28 metres. During this time, approximately 88% of trawl fishing trips were between one and five days and approximately 97% of the reported fishing events involved between one and five shots per day.
- 25 There were approximately 30 vessels, 28 metres and under in overall length that reported on a TCEPR in the 2005/06 fishing year. Of the 30 vessels, approximately 20 vessels are required to complete a TCEPR form as they operate in SNA 1 and SNA 8 fisheries. These vessels already provide high resolution catch and effort data and positions to MFish.

Advantages and disadvantages of each reporting option

Option one – status quo (no action)

- 26 Advantages
- § Fishers are familiar with the reporting methods of the CELR. This may reduce the risk of data inaccuracy and the likelihood of confusion among fishers who operate in multiple fisheries
 - § Fishers do not require accurate navigation aids (e.g. Global Positioning System (GPS)) to record positions by statistical area
 - § The CELR is a simple form that involves the transcription of fewer digits than options two, three or four. Therefore, the CELR may have fewer transcription and data entry errors than the other form options
 - § Data processing costs (e.g. data entry time and validation) of the CELR are low. The number of keystrokes required to enter a CELR fishing event are low in comparison to the number of keystrokes required to enter a fishing event that is defined as a single shot.
- 27 Disadvantages
- § The CELR provides users of this information with an overview of fishing activity (e.g. total number of shot/tows completed in a day) rather than a detailed account of each fishing event and the positions of vessels (latitude, longitude)
 - § The level of spatial resolution on the CELR is low; few inshore trawlers record positions as latitude and longitude. This lack of spatial resolution restricts the usefulness of the data
 - § Only the estimated greenweights of up to five species can be captured on the CELR per fishing event.

Option two – new trip reporting form

- 28 A trip reporting form may benefit permit holders whose fishing trip length is one to three days and perform few tows per day. For example, if a permit holder has a fishing trip length of two days and performs two tows per day. Under this reporting option, one catch and effort return and one CLR would be completed for the trip.
- 29 Advantages
- § Section 10 of the Fisheries Act 1996 requires that decisions should be based on the best available information. A new form would reduce the uncertainty and inadequacy of the information that is currently provided by the CELR form
 - § Users of inshore trawl information will be provided with a detailed account of each fishing event and the positions of vessels (latitude, longitude) instead of an overview of fishing activity
 - § Increased spatial resolution of catch and effort data will benefit fisheries managers, fishers, compliance officers, and scientists. Some of these benefits include:
 - Ø scientists will have an improved ability to examine the factors affecting fish distributions and stock abundance
 - Ø fishers will have the ability to demonstrate fishing history for the purpose of establishing spatial property rights
 - Ø fisheries managers will have an improved understanding of the fishery at a finer scale
 - Ø compliance will have an improved ability to enforce spatial regulations.
 - § The estimated greenweights of up to eight species will be captured per shot.
- 30 Disadvantages
- § Time taken for fishers to report catch and effort data will be increased. A fishing event is defined as a single shot and this equates to an estimated 80% increase in the time/effort that permit holders would need to put into providing this data
 - § Fishers would require accurate navigation aids (e.g. GPS) to record positions
 - § Data processing costs (e.g. data entry time and validation) of the new form will be increased
 - § This form option will require the transcription of a greater number of digits. This may increase transcription and data entry errors
 - § The reporting methods of a new form may increase the risk of data inaccuracy and the likelihood of confusion among fishers who operate in multiple fisheries. However, it is proposed that this disadvantage is offset by designing a form that is intuitive for fishers to complete.

Option three – new daily reporting form

- 31 A daily reporting form may benefit permit holders whose trip length is less than one day and perform five or less shots per day.
- 32 The advantages and disadvantages discussed for option two apply to this option.

Option four – requirement to complete a TCEPR

33 Advantages

- § Users of inshore trawl information will be provided with a detailed account of each fishing event and the positions of vessels (latitude, longitude) instead of an overview of fishing activity
- § The collection of detailed fishing event information and vessel positions from trawlers between 6 and 28 metres would reduce the uncertainty and inadequacy of the information that is currently provided for inshore trawl fisheries
- § The level of spatial resolution on the TCEPR is high; inshore trawlers will be required to record latitude and longitude to the nearest minute
- § Increased spatial resolution of catch and effort data will benefit fisheries managers, fishers, compliance officers and scientists
- § The reporting methods of the TCEPR are familiar for some trawl vessels that are 28 metres and under (e.g. those operating in the SNA 1 and SNA 8 fisheries). This familiarity may reduce the risk of data inaccuracy and the likelihood of confusion among fishers who operate in multiple fisheries.

34 Disadvantages

- § Time taken for fishers to report catch and effort data will be increased. A fishing event is defined as a single shot and this equates to an estimated 80% increase in the time/effort that permit holders would need to put into providing this data
- § Fishers require accurate navigation aids (e.g. GPS) to record positions
- § Data processing costs (e.g. data entry time and validation) of the new form will be increased
- § This form option will require the transcription of a greater number of digits. This may increase the transcription and data entry errors
- § Only the estimated greenweights of up to five species can be captured on the TCEPR per shot
- § The processed catch section of the TCEPR is of little relevance to inshore trawling operations.

Administrative costs

- 35 Catch effort services (e.g. the collection and maintenance of catch effort data) are provided to MFish under contract by Commercial Fisheries Services Ltd (FishServe). The costs of these services are recovered from the fishing industry.

- 36 Approximately 28% of the total volume of catch effort data arriving at FishServe is from trawlers 28 metres and under. It is estimated that the current provision of catch effort services for trawlers 28 metres and under costs approximately \$570K per annum.
- 37 The proposed reporting options (e.g. options two, three and four) will increase the information requirements for trawlers 28 metres and under by approximately 34–39% (Table 1). This may cause an increase to FishServe’s total catch effort form processing workload by approximately 6—11%.
- 38 It is estimated that an increase in the information requirements will increase the cost of catch effort services by approximately \$195 – 220K per annum. The reporting option that will cost the least per annum is option two (a new trip reporting form). Option four (a requirement to complete a TCEPR) will cost the most per annum (Table 1). However, option four will require the least amount of work for MFish to implement as the form is already in use for trawlers over 28 metres and some trawlers 28 metres and under.
- 39 Existing resources from MFish Information Technology (ITT), Research Data Management (RDM), Regulatory Services and Legal groups will absorb the costs associated with reprogramming the catch effort system and developing and regulating catch effort forms.
- 40 It is assumed that approximately 620 hours of work will be required from ITT, RDM, Regulatory Services and Legal groups to implement options two or three. These options have a combined estimated cost of \$40K. Option four will require 130 hours of work from these MFish groups with an estimated cost of \$8K (Table 1). These internal costs are small in comparison to the ongoing costs of catch effort related services.

Table 1: Summary of the increase in volume of data and cost of Catch Effort services for each reporting option

Reporting options	Per annum costs (ongoing)		One off costs
	Increase in volume of data arriving from trawlers 28 metres and under	Predicted increase in the cost of catch effort services	Estimated cost of reprogramming catch effort system; and developing and regulating forms
<i>Option one</i> — status quo	0 %	\$0K	\$0K
<i>Option two</i> — new trip reporting form	34 %	\$195K	\$40K
<i>Option three</i> — new daily reporting form	36 %	\$205K	\$40K
<i>Option four</i> — requirement to complete a TCEPR	39%	\$220K	\$8K

- 41 The costs discussed in this section are based on MFish's preliminary evaluations and may be subject to change.
- 42 There may also be some resource implications associated with raising fisher awareness of the new reporting requirements. For example, fisher training material and examples of completed forms could be sent out with new logbooks. Also, there may be some level of enforcement required to implement a new reporting form.

Preliminary recommendation

- 43 MFish recommends that the Minister of Fisheries:
- Agree to amend the Fisheries (Reporting) Regulations 2001 to allow the introduction of a new catch and effort return. The new form will collect data from vessels between 6 and 28 metres in overall length who use the methods of trawling.

APPENDIX I: FORM PROTOTYPES

- § Option two – new trip reporting form
- § Option three – new daily reporting form

Draft trip Trawl Catch, Effort Return

ITC 1234567

1. Write the design headline height . m and design wingspread . m of the trawl net (or multiple nets) used.
2. Catch and effort information - Complete a separate return for each fishing trip and a separate column for each shot.

Number of nets and Method code	and <input type="text"/>	and <input type="text"/>	and <input type="text"/>	and <input type="text"/>	and <input type="text"/>
Date: start of shot (dd/mm/yy)	<input type="text"/> / <input type="text"/> / <input type="text"/>	<input type="text"/> / <input type="text"/> / <input type="text"/>	<input type="text"/> / <input type="text"/> / <input type="text"/>	<input type="text"/> / <input type="text"/> / <input type="text"/>	<input type="text"/> / <input type="text"/> / <input type="text"/>
Time: start of shot (24-hr clock)	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Latitude: start of shot (degrees minutes)	<input type="text"/> ° <input type="text"/> ' S	<input type="text"/> ° <input type="text"/> ' S	<input type="text"/> ° <input type="text"/> ' S	<input type="text"/> ° <input type="text"/> ' S	<input type="text"/> ° <input type="text"/> ' S
Longitude: start of shot (degrees minutes E/W)	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West
Groundrope depth: start of shot	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m
Bottom depth: start of shot	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m
Target species and Trawling speed	<input type="text"/> and <input type="text"/> knots	<input type="text"/> and <input type="text"/> knots	<input type="text"/> and <input type="text"/> knots	<input type="text"/> and <input type="text"/> knots	<input type="text"/> and <input type="text"/> knots
Time: end of shot (24-hr clock)	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Non-fish / Protected species catch?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Write the species code and estimated greenweight of each quota and non-quota species caught during each shot. <i>For example, if you catch 1100kg of snapper, write:</i> <input type="text"/> S <input type="text"/> N <input type="text"/> A <input type="text"/> 1 <input type="text"/> 1 <input type="text"/> 0 <input type="text"/> 0 .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
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	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
Caught more than eight species? List the eight species that you caught most of (by greenweight).	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
Weight of all other species caught	All other species <input type="text"/> .0kg	All other species <input type="text"/> .0kg	All other species <input type="text"/> .0kg	All other species <input type="text"/> .0kg	All other species <input type="text"/> .0kg

3. Permit holder and vessel details

Name of permit holder

Name of vessel

Name of master

Client number of permit holder

Registration number of vessel

This return is page no. for this trip. Is this the last page? Yes No

I declare that the information I have given on this return is correct and complete, and that I have read and understood the explanatory notes supplied with this return.

Signature of permit holder or authorised person

Date signed / / 20

Send completed returns to PO Box 297, Wellington (NZ).

Draft daily Trawl Catch, Effort Return

TCR 1234567

1. Catch and effort information - Complete separate returns for each day you start trawling and a separate column for each shot.

2. Write the date these shots started / / the design headline height . m and the design wingspread . m of the trawl net used.

Number of nets and Method code	and <input type="text"/>	and <input type="text"/>	and <input type="text"/>	and <input type="text"/>	and <input type="text"/>
Time: start of shot (24-hr clock)	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Latitude: start of shot (degrees minutes)	<input type="text"/> ° <input type="text"/> ' S	<input type="text"/> ° <input type="text"/> ' S	<input type="text"/> ° <input type="text"/> ' S	<input type="text"/> ° <input type="text"/> ' S	<input type="text"/> ° <input type="text"/> ' S
Longitude: start of shot (degrees minutes E/W)	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West	<input type="text"/> ° <input type="text"/> ' <input type="radio"/> East <input type="radio"/> West
Groundrope depth: start of shot	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m
Bottom depth: start of shot	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m	<input type="text"/> m
Target species and Trawling speed	<input type="text"/> and <input type="text"/> . knots	<input type="text"/> and <input type="text"/> . knots	<input type="text"/> and <input type="text"/> . knots	<input type="text"/> and <input type="text"/> . knots	<input type="text"/> and <input type="text"/> . knots
Time: end of shot (24-hr clock)	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Non-fish / Protected species catch?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Write the species code and estimated greenweight of each quota and non-quota species caught during each shot. <i>For example, if you catch 1100kg of snapper, write:</i> <input type="text"/> S N A <input type="text"/> 1 <input type="text"/> 1 <input type="text"/> 0 <input type="text"/> 0 .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
Caught more than eight species? List the eight species that you caught most of (by greenweight).	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg	<input type="text"/> .0kg
Weight of all other species caught (kg)	All other species <input type="text"/> .0kg	All other species <input type="text"/> .0kg	All other species <input type="text"/> .0kg	All other species <input type="text"/> .0kg	All other species <input type="text"/> .0kg

3. Permit holder and vessel details

Name of permit holder

Name of vessel

Name of master

Client number of permit holder

Registration number of vessel

This return is page no. for this day. Is this the last page? Yes No

I declare that the information I have given on this return is correct and complete, and that I have read and understood the explanatory notes supplied with this return.

Signature of permit holder or authorised person

Date signed / / 20

Send completed returns to PO Box 297, Wellington (NZ).

APPENDIX II: STATUTORY CONSIDERATIONS

- 44 In considering the issues and options outlined in this paper, the following statutory considerations have been taken into account:
- 45 **Section 9:** This section requires all persons exercising or performing functions, duties, or powers under the FA96, in relation to the utilisation or fisheries resources or ensuring sustainability, to take into account the following environmental principles:
- (a) Associated or dependent species should be maintained above a level that ensures their long-term viability:
 - (b) Biological diversity of the aquatic environment should be maintained:
 - (c) Habitat of particular significance for fisheries management should be protected.
- 46 MFish doesn't consider that these principles have a bearing on the proposed action in this case.
- 47 **Section 10:** This section requires all persons exercising or performing functions, duties, or powers under the FA96, in relation to the utilisation of fisheries resources or ensuring sustainability, to take into account the following information principles:
- (a) Decisions should be based on the best available information:
 - (b) Decision makers should consider any uncertainty in the information available in any case:
 - (c) Decision makers should be cautious when information is uncertain, unreliable or inadequate:
 - (d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act.
- A new reporting form would reduce the uncertainty and inadequacy of the information that is currently provided by the CELR form. Users (e.g. fisheries managers, compliance officers and scientists) of inshore trawl information will be provided with a detailed account of each fishing event and the positions of vessels (latitude, longitude) instead of an overview of fishing activity (e.g. vessel positions at the statistical area level and total number of shots/tows completed in a day).
- 48 **Section 189:** This section provides for the keeping of accounts and records by certain parties including holders of fishing permits, special permits, licences or other authorities or approvals issued or granted under the FA96 entitling the holder to take fish, aquatic life, or seaweed; and owners, operators, notified users, and masters of vessels registered under the FA96. It also requires those parties to provide such returns and information, as may be required by regulations made under the FA96.
- 49 **Section 297(h):** This section allows the making of regulations relating to the accounts, records, returns and information required to be kept and provided under section 189.
- 50 **The Fisheries (Reporting) Regulations 2001** sets out the requirements for the reporting of catch and provides for matters associated with it.

NEW INSHORE LINING CATCH EFFORT RETURN

Executive Summary

- 1 Unless otherwise advised by the Chief Executive, the Fisheries (Reporting) Regulations 2001 currently require vessels 28 metres and under in overall length to record fishing by bottom longlining, surface longlining (targeting species other than tuna or swordfish), and trot lining on Catch Effort and Landing Returns (CELRs).
- 2 The CELR is a multi purpose form that is used to capture information from most kinds of commercial fishing. The CELR provides users of this information with an overview of fishing activity (eg total number of sets hauled in a day) rather than a detailed account of each fishing event.
- 3 Important information such as high resolution catch and effort data is not collected on the CELR and the positions of vessels (latitude, longitude) is often not available. It is important that this information is collected to ensure accurate stock assessments and sustainable management of inshore fisheries.
- 4 The Ministry of Fisheries (MFish) recommends that the Fisheries (Reporting) Regulations 2001 be amended to allow the introduction of a new inshore lining catch effort return for vessels between 6 and 28 metres in overall length.
- 5 A new purpose designed reporting form will collect high resolution catch and effort data which will benefit fisheries managers, fishers, compliance officers, and scientists. Some of these benefits are:
 - Ø scientists will have an improved ability to examine the factors affecting fish distributions and stock abundance
 - Ø fishers will have the ability to demonstrate fishing history for the purpose of establishing spatial property rights
 - Ø fisheries managers will have an improved understanding of the fishery at a finer scale
 - Ø compliance will have an improved ability to enforce spatial regulations.

Preliminary Consultation

- 6 In 2005, MFish and researchers from the New Zealand Seafood Industry Council (SeaFIC) and the National Institute for Water and Atmospheric Research (NIWA) identified the need to address information issues relating to the inshore snapper bottom longlining fishery.
- 7 A tagging survey is planned for the SNA 1 fishery management area in 2008. Accurate high resolution catch and effort data and the positions of vessels (latitude, longitude) are required to address two potential sources of bias in the survey: spatial heterogeneity in tagged fish distribution and between-stratum movement.
- 8 The information issues identified for the snapper lining fishery also apply to other inshore lining fisheries (e.g. ling, bluenose and hāpuka/bass)

Summary of reporting options

- 9 MFish has identified two options for the collection of catch and effort data from vessels between 6 and 28 metres that report methods of lining: bottom longlining, surface longlining (targeting species other than tuna or swordfish), and trot lining. It is proposed that vessels under six metres in overall length will continue to record these methods of lining on the CELR as it would be unduly onerous for fishers to record coordinates and a detailed account of each set
- 10 Each reporting option (except for option one the status quo) will have a requirement to complete a Catch Landing Return (CLR) at the end of each fishing trip. For option two, a fishing event is defined as a single set and fishers will be required to record coordinates and catch and effort data on a set by set basis.

Option one – status quo (no action)

- 11 Vessels 28 metres and under continue to report methods of lining on a CELR.

Option two – new trip reporting form

- 12 Option two involves the introduction of a new catch and effort return to report fishing by the methods of lining for each fishing trip. This option requires an amendment to the Fisheries (Reporting) Regulations 2001.
- 13 A form prototype has been designed (see appendix I). This form is based on the set of information fields that are included on the current Lining Catch, Effort Return (LCER). Vessels over 28 metres in overall length are required to record fishing by bottom longlining, surface longlining (targeting species other than tuna or swordfish), and trot lining on the LCER.
- 14 In summary, the draft trip reporting form includes the ability to report:
- § five sets per form
 - § the start date and start time of a set
 - § start coordinates (latitude, longitude) for each set
 - § the start date and start time of the haul
 - § non-fish / protected species declaration per set
 - § the estimated greenweights of up to eight species per set.

Rationale for a new catch and effort return

- 15 The Fisheries (Reporting) Regulations 2001 currently require vessels 28 metres and under in overall length to record fishing by bottom longlining, surface longlining (targeting species other than tuna or swordfish), and trot lining on CELRs.
- 16 The CELR is a multi purpose form that is used to capture information from most methods of commercial fishing and it has been used in the same format since it was introduced in 1989. The CELR is designed to be used with specific cardboard templates that are overlaid on to the form for different types of fishing. The cardboard templates that fishers use to fill out the CELR are often lost and this can make it difficult and confusing for fishers to complete their form. Also, the cardboard

template may be incorrectly placed on the CELR or it can move while in use, which results in information being incorrectly entered. It is proposed that the form prototypes designed for option two will be completed without the use of cardboard templates.

- 17 Inshore fisheries and fisheries management practices have evolved since the CELR was first introduced in 1989. The CELR provides users of this information with an overview of fishing activity (e.g. total number of sets hauled in a day) rather than a detailed account of each fishing event and the positions of vessels (latitude, longitude). It is important that high resolution catch and effort data and vessel positions are collected to ensure accurate stock assessments and sustainable management of inshore fisheries.
- 18 Fishers can provide start positions of fishing as a general statistical area or as latitudes and longitudes (in degrees minutes) on the current CELR. The vast majority of fishers provide statistical areas which are often very large in comparison to the localised spatial management requirements of these fisheries. It is proposed that a new reporting form will require fishers to provide start and end positions (latitude and longitude in degrees minutes) for each set.
- 19 In the 2005/06 fishing year, approximately 150 vessels reported methods of lining on the CELR. These vessels had an overall length of between 5 and 26 metres. During this time, approximately 90% of lining fishing trips were between one and six days and approximately 99% of the reported fishing events involved between one and five sets per day.

Advantages and disadvantages of each reporting option

Option one – status quo (no action)

20 Advantages

- § Fishers are familiar with the reporting methods of the CELR. This may reduce the risk of data inaccuracy and the likelihood of confusion among fishers who operate in multiple fisheries
- § Fishers do not require accurate navigation aids (e.g. Global Positioning System (GPS)) to record positions by statistical area
- § The CELR is a simple form that involves the transcription of fewer digits than option two. Therefore, the CELR may have fewer transcription and data entry errors than the other form option
- § Data processing costs (e.g. data entry time and validation) of the CELR are low. The number of keystrokes required to enter a CELR fishing event are low in comparison to the number of keystrokes required to enter a fishing event that is defined as a single set.

21 Disadvantages

- § The CELR provides users of this information with an overview of fishing activity (e.g. total number of sets hauled in a day) rather than a detailed account of each fishing event and the positions of vessels (latitude, longitude)

- § The level of spatial resolution on the CELR is low; few inshore liners record positions as latitude and longitude. This lack of spatial resolution restricts the usefulness of the data
- § Only the estimated greenweights of up to five species can be captured on the CELR per fishing event.

Option two – new trip reporting form

22 Advantages

- § Section 10 of the Fisheries Act 1996 requires that decisions should be based on the best available information. A new form would reduce the uncertainty and inadequacy of the information that is currently provided by the CELR form
- § Users of inshore lining information will be provided with a detailed account of each fishing event and the positions of vessels (latitude, longitude) instead of an overview of fishing activity
- § Increased spatial resolution of catch and effort data will benefit fisheries managers, fishers, compliance officers, and scientists. Some of these benefits include:
 - Ø scientists will have an improved ability to examine the factors affecting fish distributions and stock abundance
 - Ø fishers will have the ability to demonstrate fishing history for the purpose of establishing spatial property rights
 - Ø fisheries managers will have an improved understanding of the fishery at a finer scale
 - Ø compliance will have an improved ability to enforce spatial regulations.
- § The estimated greenweights of up to eight species will be captured per set.

23 Disadvantages

- § Time taken for fishers to report catch and effort data will be increased. A fishing event is defined as a single set and this equates to an estimated 80% increase in the time/effort that permit holders would need to put into providing this data
- § Fishers would require accurate navigation aids (e.g. GPS) to record positions
- § Data processing costs (e.g. data entry time and validation) of the new form will be increased
- § This form option will require the transcription of a greater number of digits. This may increase transcription and data entry errors
- § The reporting methods of a new form may increase the risk of data inaccuracy and the likelihood of confusion among fishers who operate in multiple fisheries. However, it is proposed that this disadvantage is offset by designing a form that is intuitive for fishers to complete.

Administrative costs

- 24 Catch effort services (e.g. the collection and maintenance of catch effort data) are provided to MFish under contract by Commercial Fisheries Services Ltd (FishServe). The costs of these services are recovered from the fishing industry.
- 25 Approximately 8% of the total volume of catch effort data arriving at FishServe is from liners 28 metres and under (excludes surface longlining where the target species is tuna or swordfish). It is estimated that the current provision of catch effort services for liners 28 metres and under costs approximately \$170K per annum.
- 26 Reporting option two will increase the information requirements for liners 28 metres and under by approximately 35%. It is estimated that an increase in the information requirements will increase the cost of catch effort services by approximately \$60K per annum.
- 27 Existing resources from MFish Information Technology (ITT), Research Data Management (RDM), Regulatory Services and Legal groups will absorb the costs associated with reprogramming the catch effort system and developing and regulating catch effort forms.
- 28 It is assumed that approximately 430 hours of work will be required from ITT, RDM, Regulatory Services and Legal groups to implement option two with an estimated cost of approximately \$28K. These internal costs are small in comparison to the ongoing costs of catch effort related services.
- 29 The costs discussed in this section are based on MFish's preliminary evaluations and may be subject to change.
- 30 There may also be some resource implications associated with raising fisher awareness of the new reporting requirements. For example, fisher training material and examples of completed forms could be sent out with new logbooks. Also, there may be some level of enforcement required to implement a new reporting form

Preliminary recommendation

- 31 MFish recommends that the Minister of Fisheries:
 - a) Agree to amend the Fisheries (Reporting) Regulations 2001 to allow the introduction of a new catch and effort return. The new form will collect data from vessels between 6 and 28 metres in overall length who use the methods of bottom longlining, surface longlining (targeting species other than tuna or swordfish), and trot lining.

APPENDIX I: FORM PROTOTYPE

§ Option two – new trip reporting form

Draft Inshore Lining Catch, Effort Return

ILC 1234567

1. Catch and effort information - Complete separate returns for each fishing trip and a separate column for each line set.

	and	and	and	and	and			
Fishing method and Target species								
Date: start of set (dd/mm/yy)	/ /	/ /	/ /	/ /	/ /			
Time: start of set (24-hr clock)	:	:	:	:	:			
Latitude: start of set (degrees minutes)	' S	' S	' S	' S	' S			
Longitude: start of set (degrees minutes E/W)	' <input type="radio"/> East <input type="radio"/> West	' <input type="radio"/> East <input type="radio"/> West	' <input type="radio"/> East <input type="radio"/> West	' <input type="radio"/> East <input type="radio"/> West	' <input type="radio"/> East <input type="radio"/> West			
Bottom depth: start of set	m	m	m	m	m			
Hook spacing and Number of hooks set	. m	. m	. m	. m	. m			
Date: start of haul (dd/mm)	/	/	/	/	/			
Time: start of haul (24-hr clock)	:	:	:	:	:			
Non-fish / Protected species catch?	Yes No	Yes No	Yes No	Yes No	Yes No			
Write the species code and estimated greenweight of each quota and non quota species caught during each set. <i>For example, if you catch 500kg of snapper, write:</i> <table border="1" style="font-size: small; margin: 5px 0;"><tr><td>S N A</td><td>5 0 0</td><td>.0kg</td></tr></table> More than 8 species? List the 8 species that you caught most of (by greenweight).	S N A	5 0 0	.0kg	.0kg	.0kg	.0kg	.0kg	.0kg
	S N A	5 0 0	.0kg					
	.0kg	.0kg	.0kg	.0kg	.0kg			
	.0kg	.0kg	.0kg	.0kg	.0kg			
	.0kg	.0kg	.0kg	.0kg	.0kg			
	.0kg	.0kg	.0kg	.0kg	.0kg			
	.0kg	.0kg	.0kg	.0kg	.0kg			
	.0kg	.0kg	.0kg	.0kg	.0kg			
	.0kg	.0kg	.0kg	.0kg	.0kg			
	.0kg	.0kg	.0kg	.0kg	.0kg			
.0kg	.0kg	.0kg	.0kg	.0kg				
Weight of all other species caught this set	All other species .0kg	All other species .0kg	All other species .0kg	All other species .0kg	All other species .0kg			

2. Permit holder and vessel details

Name of permit holder

Name of vessel

Name of fisher

Client number of permit holder

Registration number of vessel

This return is page no. for this trip. Is this the last page? Yes No

I declare that the information I have given on this return is correct and complete, and that I have read and understood the explanatory notes supplied with this return.

Signature of permit holder or authorised person

Date signed / / 20

Send completed returns to PO Box 297, Wellington (NZ).

APPENDIX II: STATUTORY CONSIDERATIONS

- 32 In considering the issues and options outlined in this paper, the following statutory considerations have been taken into account:
- 33 **Section 9:** This section requires all persons exercising or performing functions, duties, or powers under the FA96, in relation to the utilisation or fisheries resources or ensuring sustainability, to take into account the following environmental principles:
- 34 (a) Associated or dependent species should be maintained above a level that ensures their long-term viability:
- (b) Biological diversity of the aquatic environment should be maintained:
- (c) Habitat of particular significance for fisheries management should be protected.
- 35 MFish doesn't consider that these principles have a bearing on the proposed action in this case.
- 36 **Section 10:** This section requires all persons exercising or performing functions, duties, or powers under the FA96, in relation to the utilisation of fisheries resources or ensuring sustainability, to take into account the following information principles:
- (a) Decisions should be based on the best available information:
- (b) Decision makers should consider any uncertainty in the information available in any case:
- (c) Decision makers should be cautious when information is uncertain, unreliable or inadequate:
- (d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act.
- 37 A new reporting form would reduce the uncertainty and inadequacy of the information that is currently provided by the CELR form. Users (e.g. fisheries managers, compliance officers and scientists) of inshore lining information will be provided with a detailed account of each fishing event and the positions of vessels (latitude, longitude) instead of an overview of fishing activity (e.g. vessel positions at the statistical area level and total number of sets hauled in a day).
- 38 **Section 189:** This section provides for the keeping of accounts and records by certain parties including holders of fishing permits, special permits, licences or other authorities or approvals issued or granted under the FA96 entitling the holder to take fish, aquatic life, or seaweed; and owners, operators, notified users, and masters of vessels registered under the FA96. It also requires those parties to provide such returns and information, as may be required by regulations made under the FA96.
- 39 **Section 297(h):** This section allows the making of regulations relating to the accounts, records, returns and information required to be kept and provided under section 189.

40 **The Fisheries (Reporting) Regulations 2001** sets out the requirements for the reporting of catch and provides for matters associated with it.

NEW DANISH SEINE CATCH EFFORT RETURN

Executive Summary

- 1 Unless otherwise advised by the Chief Executive, the Fisheries (Reporting) Regulations 2001 currently require Danish seine vessels to record fishing activities on Catch Effort and Landing Returns (CELRs).
- 2 The CELR is a multi purpose form that is used to capture information from most kinds of commercial fishing. The CELR provides users of this information with an overview of fishing activity (e.g. total number of shots completed in a day) rather than a detailed account of each fishing event.
- 3 Important information such as high resolution catch and effort data is not collected on the CELR and the positions of vessels (latitude, longitude) is often not available. It is important that this information is collected to ensure accurate stock assessments and sustainable management of inshore fisheries.
- 4 The Ministry of Fisheries (MFish) recommends that the Fisheries (Reporting) Regulations 2001 be amended to allow the introduction of a new Danish seine catch effort return for vessels 6 metres or more in overall length.
- 5 A new purpose designed reporting form will collect high resolution catch and effort data which will benefit fisheries managers, fishers, compliance officers, and scientists. Some of these benefits include:
 - Ø scientists will have an improved ability to examine the factors affecting fish distributions and stock abundance
 - Ø fishers will have the ability to demonstrate fishing history for the purpose of establishing spatial property rights
 - Ø fisheries managers will have an improved understanding of the fishery at a finer scale
 - Ø compliance will have an improved ability to enforce spatial regulations.

Preliminary Consultation

- 6 In June 2006, a form design project team was set up to discuss the information needs for a new inshore trawl form. This project team included representatives from MFish Science, Fisheries Operations, Compliance and Research Data Management (RDM); representatives from the fishing industry; and researchers from the New Zealand Seafood Industry Council (SeaFIC) and the National Institute for Water and Atmospheric Research (NIWA).
- 7 The trawl form design project team discussed whether or not it was viable to report methods of trawling and seining (specifically Danish seining) on the same catch effort return. Form prototypes were designed, but it soon became apparent that it would be difficult to accommodate essential trawl and Danish seine information fields on the same A4 return. It was decided that a separate Danish seine catch and effort return would be designed.

Summary of reporting options

- 8 MFish has identified two options for the collection of catch and effort data from vessels 6 metres or more in overall length that report Danish seining. It is proposed that vessels under six metres in overall length will continue to record Danish seining on the CELR as it would be unduly onerous for fishers to record coordinates and a detailed account of each shot.
- 9 Each reporting option (except for option one – the status quo) will have a requirement to complete a Catch Landing Return (CLR) at the end of each fishing trip. For option two, a fishing event is defined as a single shot and fishers will be required to record coordinates and catch and effort data on a shot by shot basis.

Option one – status quo (no action)

- 10 Vessels continue to report Danish seining on a CELR.

Option two – new trip reporting form

- 11 Option two involves the introduction of a new catch and effort return to report Danish seining for each fishing trip. This option requires an amendment to the Fisheries (Reporting) Regulations 2001.
- 12 A form prototype has been designed (see appendix I). In summary, the draft trip reporting form includes the ability to report:
- § five shots per form
 - § the start date and start time of a shot
 - § start coordinates (latitude, longitude) for each shot
 - § non-fish / protected species declaration per shot
 - § the estimated greenweights of up to eight species per shot.

Rationale for a new catch and effort return

- 13 The Fisheries (Reporting) Regulations 2001 currently require Danish seine vessels to record fishing activities on CELRs.
- 14 The CELR is a multi purpose form that is used to capture information from most methods of commercial fishing and has been used in the same format since it was introduced in 1989. The CELR is designed to be used with specific cardboard templates that are overlaid on to the form for different types of fishing. The cardboard templates that fishers use to fill out the CELR are often lost and this can make it difficult and confusing for fishers to complete their form. Also, the cardboard template may be incorrectly placed on the CELR or it can move while in use, which results in information being incorrectly entered. It is proposed that the form prototype designed for option two will be completed without the use of cardboard templates.
- 15 Inshore fisheries and fisheries management practices have evolved since the CELR was first introduced in 1989. The CELR provides users of this information with an overview of fishing activity (e.g. total number of shots completed in a day) rather than a detailed account of each fishing event and the positions of vessels (latitude,

longitude). It is important that high resolution catch and effort data and vessel positions are collected to ensure accurate stock assessments and sustainable management of inshore fisheries.

- 16 Fishers can provide start positions of fishing as a general statistical area or as latitudes and longitudes (in degrees and minutes) on the current CELR. The vast majority of fishers provide statistical areas which are often very large in comparison to the localised spatial management requirements of these fisheries. It is proposed that a new reporting form will require fishers to provide start and end positions (latitude and longitude in degrees minutes) for each shot.
- 17 In the 2005/06 fishing year, approximately 18 vessels reported Danish seining on the CELR. These vessels had an overall length of between 10 and 18 metres. During this time, approximately 92% of Danish seine fishing trips were between one and three days and approximately 99% of the reported fishing events involved between one and five shots per day.

Advantages and disadvantages of each reporting option

Option one – status quo (no action)

- 18 Advantages
 - § Fishers are familiar with the reporting methods of the CELR. This may reduce the risk of data inaccuracy and the likelihood of confusion among fishers who operate in multiple fisheries
 - § Fishers do not require accurate navigation aids (e.g. Global Positioning System (GPS)) to record positions by statistical area
 - § The CELR is a simple form that involves the transcription of fewer digits than option two. Therefore, the CELR may have fewer transcription and data entry errors than the other form option
 - § Data processing costs (e.g. data entry time and validation) of the CELR are low. The number of keystrokes required to enter a CELR fishing event are low in comparison to the number of keystrokes required to enter a fishing event that is defined as a single shot.
- 19 Disadvantages
 - § The CELR provides users of this information with an overview of fishing activity (eg total number of shots completed in a day) rather than a detailed account of each fishing event and the positions of vessels (latitude, longitude)
 - § The level of spatial resolution on the CELR is low; few Danish seiners record positions as latitude and longitude. This lack of spatial resolution restricts the usefulness of the data
 - § Only the estimated greenweights of up to five species can be captured on the CELR per fishing event.

Option two – new trip reporting form

20 Advantages

- § Users of Danish seining information will be provided with a detailed account of each fishing event and the positions of vessels (latitude, longitude) instead of an overview of fishing activity
- § Increased spatial resolution of catch and effort data will benefit fisheries managers, fishers, compliance officers, and scientists. Some of these benefits include:
 - Ø scientists will have an improved ability to examine the factors affecting fish distributions and stock abundance
 - Ø fishers will have the ability to demonstrate fishing history for the purpose of establishing spatial property rights
 - Ø fisheries managers will have an improved understanding of the fishery at a finer scale
 - Ø compliance will have an improved ability to enforce spatial regulations.
- § The estimated greenweights of up to eight species will be captured per shot.

21 Disadvantages

- § Time taken for fishers to report catch and effort data will be increased. A fishing event is defined as a single shot and this equates to an estimated 80% increase in the time/effort that permit holders would need to put into providing this data
- § Fishers would require accurate navigation aids (e.g. GPS) to record positions
- § Data processing costs (e.g. data entry time and validation) of the new form will be increased
- § This form option will require the transcription of a greater number of digits. This may increase transcription and data entry errors
- § The reporting methods of a new form may increase the risk of data inaccuracy and the likelihood of confusion among fishers who operate in multiple fisheries. However, it is proposed that this disadvantage is offset by designing a form that is intuitive for fishers to complete.

Administrative costs

- 22 Catch effort services (e.g. the collection and maintenance of catch effort data) are provided to MFish under contract by Commercial Fisheries Services Ltd (FishServe). The costs of these services are recovered from the fishing industry.
- 23 Approximately 1-2% of the total volume of catch effort data arriving at FishServe is from Danish seine vessels. It is estimated that the current provision of catch effort services for Danish seines costs approximately \$36K per annum.
- 24 Reporting option two will increase the information requirements for Danish seines by approximately 80%. It is estimated that an increase in the information requirements will increase the cost of catch effort services by approximately \$25K per annum.

- 25 Existing resources from MFish Information Technology (ITT), Research Data Management (RDM), Regulatory Services and Legal groups will absorb the costs associated with reprogramming the catch effort system and developing and regulating catch effort forms.
- 26 It is assumed that approximately 430 hours of work will be required from ITT, RDM, Regulatory Services and Legal groups to implement option two with an estimated cost of approximately \$28K. These internal costs are small in comparison to the ongoing costs of catch effort related services.
- 27 The costs discussed in this section are based on MFish's preliminary evaluations and may be subject to change.
- 28 There may also be some resource implications associated with raising fisher awareness of the new reporting requirements. For example, fisher training material and examples of completed forms could be sent out with new logbooks. Also, there may be some level of enforcement required to implement a new reporting form

Preliminary recommendation

- 29 MFish recommends that the Minister of Fisheries:
- a) Agree to amend the Fisheries (Reporting) Regulations 2001 to allow the introduction of a new catch and effort return. The new form will collect data from vessels 6 metres or more in overall length that use the method of Danish seine.

APPENDIX I: FORM PROTOTYPE

§ Option two – new trip reporting form

Draft Danish Seine Catch, Effort Return

DSC 1234567

1. Catch and effort information - Complete separate returns for each fishing trip and a separate column for each shot.

Target species																	
Date: start of shot (dd/mm/yy)	/	/	/	/	/	/	/	/	/	/							
Time: start of shot (24-hr clock)	:		:		:		:		:								
Latitude: start of shot (degrees minutes)	°	'	°	'	°	'	°	'	°	'							
		S		S		S		S		S							
Longitude: start of shot (degrees minutes E/W)	°	'	°	'	°	'	°	'	°	'							
		<input type="radio"/> East <input type="radio"/> West		<input type="radio"/> East <input type="radio"/> West		<input type="radio"/> East <input type="radio"/> West		<input type="radio"/> East <input type="radio"/> West		<input type="radio"/> East <input type="radio"/> West							
Bottom depth: start of shot	m		m		m		m		m								
Groundrope length	m		m		m		m		m								
Time: end of shot (24-hr clock)	:		:		:		:		:								
Non-fish / Protected species catch?	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No							
Write the species code and estimated greenweight of each quota and non quota species caught during each shot. <i>For example, if you catch 500kg of snapper, write:</i> <table border="1" style="font-size: small; width: 100px; margin: 5px 0;"><tr><td>S</td><td>N</td><td>A</td><td>5</td><td>0</td><td>0</td><td>.0kg</td></tr></table> More than 8 species? List the 8 species that you caught most of (by greenweight).	S	N	A	5	0	0	.0kg										
	S	N	A	5	0	0	.0kg										
Weight of all other species caught this shot	All other species		.0kg	All other species		.0kg	All other species		.0kg	All other species		.0kg					

2. Permit holder and vessel details

Name of permit holder	<input style="width: 90%;" type="text"/>	Client number of permit holder	<input style="width: 90%;" type="text"/>
Name of vessel	<input style="width: 90%;" type="text"/>	Registration number of vessel	<input style="width: 90%;" type="text"/>

This return is page no. for this trip. Is this return the last page for this trip? Yes No

I declare that the information I have given on this return is correct and complete, and that I have read and understood the explanatory notes supplied with this return.

Signature of permit holder or authorised person

Date signed / / 20

Send completed returns to PO Box 297, Wellington (NZ).

APPENDIX II: STATUTORY CONSIDERATIONS

- 31 In considering the issues and options outlined in this paper, the following statutory considerations have been taken into account:
- 32 **Section 9:** This section requires all persons exercising or performing functions, duties, or powers under the FA96, in relation to the utilisation or fisheries resources or ensuring sustainability, to take into account the following environmental principles:
- (a) Associated or dependent species should be maintained above a level that ensures their long-term viability:
 - (b) Biological diversity of the aquatic environment should be maintained:
 - (c) Habitat of particular significance for fisheries management should be protected.
- 33 A new reporting form will include a declaration as to whether or not a fisher caught non-fish or protected fish species.
- 34 **Section 10:** This section requires all persons exercising or performing functions, duties, or powers under the FA96, in relation to the utilisation of fisheries resources or ensuring sustainability, to take into account the following information principles:
- (a) Decisions should be based on the best available information:
 - (b) Decision makers should consider any uncertainty in the information available in any case:
 - (c) Decision makers should be cautious when information is uncertain, unreliable or inadequate:
 - (d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act.
- 35 A new reporting form would reduce the uncertainty and inadequacy of the information that is currently provided by the CELR form. Users (e.g. fisheries managers, compliance officers and scientists) of inshore lining information will be provided with a detailed account of each fishing event and the positions of vessels (latitude, longitude) instead of an overview of fishing activity (e.g. vessel positions at the statistical area level and total number of sets hauled in a day).
- 36 **Section 189:** This section provides for the keeping of accounts and records by certain parties including holders of fishing permits, special permits, licences or other authorities or approvals issued or granted under the FA96 entitling the holder to take fish, aquatic life, or seaweed; and owners, operators, notified users, and masters of vessels registered under the FA96. It also requires those parties to provide such returns and information, as may be required by regulations made under the FA96.
- 37 **Section 297(h):** This section allows the making of regulations relating to the accounts, records, returns and information required to be kept and provided under section 189.
- 38 **The Fisheries (Reporting) Regulations 2001** sets out the requirements for the reporting of catch and provides for matters associated with it.

PRAWN KILLER (PRK)

Introduction into the Quota Management System (QMS)

- 1 Prawn killer (*Ibacus alticrenatus*) will be introduced into the Quota Management System (QMS) on 1 October 2007.
- 2 The future Quota Management Areas (QMAs) for prawn killer are shown in Figure 1.
- 3 The fishing year for prawn killer will be from 1 October to 30 September in the following year.
- 4 The unit of measurement for the Total Allowable Catch (TAC), Total Allowable Commercial Catch (TACC), and Annual Catch Entitlement (ACE) for prawn killer will be kilograms greenweight.

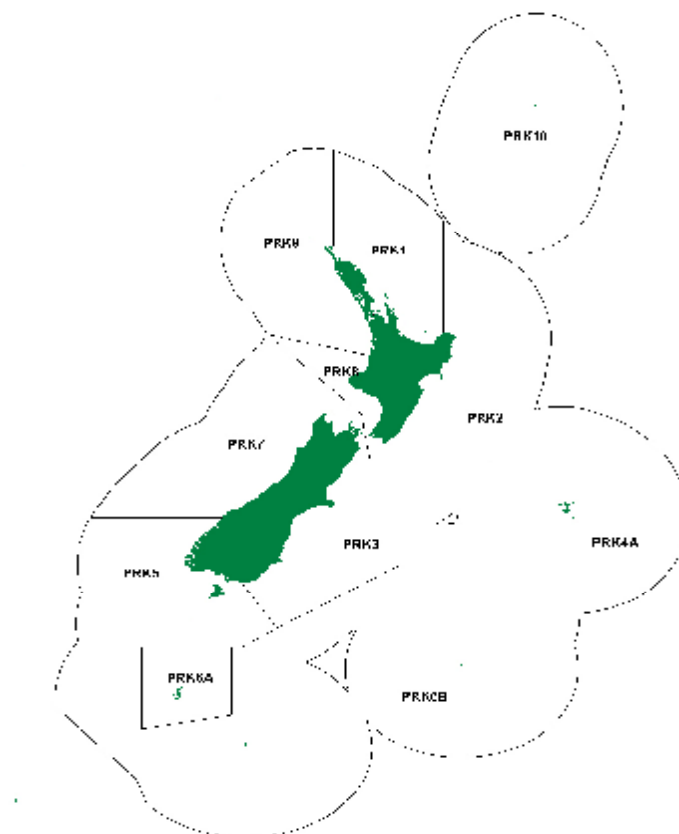


Figure 1. Map showing prawn killer (PRK) QMAs.

Key issues to be considered

- 5 The Ministry of Fisheries (MFish) considers that the key issues affecting the setting of sustainability measures and other management controls for prawn killer stocks are as follows:
- a) There are no estimates of current biomass, sustainable yield, or of stock status for any prawn killer stock. Stock status can either refer to the stock size in relation to the unfished biomass or to the biomass that can produce the maximum sustainable yield.
 - b) Some commercial fishers have previously expressed interest in developing a target fishery for prawn killer in New Zealand. A modest market exists for the same species and for a similar species in Australia. QMS introduction will provide scope for increased targeted effort. Setting appropriate sustainability measures will be necessary to ensure the sustainable utilisation of the fishery.
 - c) Catch reports suggest that past and recent catches of prawn killer were taken mostly as bycatch of targeted scampi trawling in PRK 1 and PRK 2. It is likely that bottom trawling will be the method of harvest should a fishery for prawn killer develop.
 - d) While past and recent levels of reported catch have not given rise to known sustainability concerns or to adverse environmental effects, there is a considerable degree of uncertainty and inadequacy in the best available information. Thus there is a need for a reasonable level of caution in setting the initial TACs for the prawn killer stocks.
 - e) Prawn killer are small in size (less than 100 mm maximum body length and less than 60 mm maximum body width). Current commercial regulations prescribe a minimum trawl mesh size of 100 mm. As for scampi, finer trawl net mesh sizes are required to efficiently target prawn killer.

Management options

Summary of MFish proposals

- 6 MFish proposes that the TAC for prawn killer stocks be set under s 13 of the Fisheries Act 1996 (the Act) as listed in Table 1.
- 7 MFish proposes that the TACC and allowances for recreational and customary fishers, and other sources of fishing-related mortality for prawn killer fishing stocks be set under s 21 of the Act as listed in Table 1.

Table 1. Proposed TACs (tonnes), TACCs (tonnes), and allowances (tonnes) for prawn killer stocks.

Stock	TAC	Customary allowance	Recreational allowance	Other sources of fishing-related mortality	TACC
PRK 1	23.6	0	0	1.1	22.5
PRK 2	3.7	0	0	0.2	3.5
PRK 3	1	0	0	0	1
PRK 4A	1	0	0	0	1
PRK 5	1	0	0	0	1
PRK 6A	1	0	0	0	1
PRK 6B	1	0	0	0	1
PRK 7	1	0	0	0	1
PRK 8	1	0	0	0	1
PRK 9	1	0	0	0	1
PRK 10	0	0	0	0	0

- 8 MFish proposes to amend the Fisheries (Reporting) Regulations 2001 to define prawn killer stock codes to be used by commercial fishers when completing their prawn killer statutory catch returns.
- 9 MFish proposes to authorise the use of mesh smaller than 100 mm when targeting prawn killer. Regulation 71 of the Fisheries (Commercial Fishing) Regulations 2001 prescribes a general minimum trawl net mesh of 100 mm. There is, however, an exception in place for the scampi fishery that allows a mesh of 80 mm in the body of the net and not less than 55 mm in the cod end. MFish intends to amend those regulations to allow the same trawl net mesh size to be used in the prawn killer target fishery.
- 10 MFish proposes to set an annual deemed value of \$0.20 per kilogram (excluding GST) and an interim deemed value of \$0.10 per kg (excluding GST) for the 2007-08 fishing year.

Proposed TACs

- 11 MFish proposes setting TACs for prawn killer stocks using the provisions of Section 13 of the Act. Section 13 requires the TAC to be set at a level that:
- maintains stock biomass at, or above, a level that can produce the maximum sustainable yield (B_{MSY}), having regard to the interdependence of stocks; or
 - moves stock biomass that is below B_{MSY} towards or above that level, having regard to the interdependence of stocks; and within a period appropriate to the stock, having regard to the biological characteristics of the stock and any environmental conditions affecting the stock; or
 - moves stock biomass that is above B_{MSY} towards or above that level, having regard to the interdependence of stocks; and within a period appropriate to the stock, having regard to the biological characteristics of the stock and any environmental conditions affecting the stock.

- 12 The current status of prawn killer stocks in relation to the B_{MSY} is unknown. However, given the absence of a target fishery for prawn killer and the relatively low reported historic catch, MFish considers that prawn killer stocks are likely to be at a level that is at, or above, B_{MSY} . MFish considers, therefore, that it is appropriate to set the TACs under s 13(2)(a) of the Act. Given the limited stock and catch information that is available, MFish considers that the proposed TACs reflect the appropriate level of catch in order to maintain prawn killer stocks to a level at, or above, that which can produce the MSY.
- 13 Alternative options for setting the TACs are available. The Act allows TACs to be set under s 14 if the quota management stock is listed in the Third Schedule. A stock can be added to the Third Schedule provided it satisfies one of four criteria specified in s 14(8). MFish considers none of the criteria specified are applicable to prawn killer. First, MFish considers that MSY could be estimated for prawn killer stocks. Second, a catch limit for prawn killer has not been determined as part of an international agreement. Third, there is currently insufficient rationale to support management on a rotational or enhanced basis. Fourth, prawn killer is not comprised of one or more highly migratory species.
- 14 Section 14B of the Act provides another management option for setting the TACs. This section enables the Minister to set a TAC that maintains a stock at a level below B_{MSY} , but above a level that ensures its long-term viability. The intention of s 14B is to ensure the harvest of a target stock is not constrained by the TAC of an associated bycatch species. MFish acknowledges that in the absence of a prawn killer target fishery, prawn killer has been historically taken as bycatch in the scampi fishery. Constraint on prawn killer catch could therefore have the potential to constrain scampi catch. MFish notes, however, that although the bottom depth distributions of scampi and prawn killer stocks overlap, the more productive scampi grounds are generally deeper than those of prawn killer. The depth disparity of major grounds for prawn killer versus scampi should enable industry to manage bycatch issues should they arise.

Rationale for proposed TACs

- 15 The TACs proposed for prawn killer stocks are set out in Table 1. The proposed TAC levels are intended to provide opportunities for the sustainable utilisation of prawn killer but reflect the absence of stock assessment information, the variable commercial historic catch data, potential uncertainty in the accuracy of the historic catch data, and the biological characteristics of prawn killer.
- 16 There are no stock assessments for any prawn killer stock. Consequently, there are no estimates of biomass, stock status, and sustainable yield for any prawn killer stock
- 17 The guidelines for determining TACs for new species introduced into the QMS provide that TACs may be set at levels based on consideration of known or estimated levels of catch (including catch by all sectors, and also other sources of fishing-related mortality). There is no known level of prawn killer catch for customary Maori purposes or by recreational fishers, and none would be expected given the depth distribution of the species and the fishing methods likely to be necessary to successfully take this species.

- 18 The reported PRK commercial landings for fishing years 1992-93 to 2005-06 is summarised in Table 2.

Table 2: Reported landings (greenweight kgs) of prawn killer from the Fisheries Information System (FIS).

Year	PRK 1	PRK 2	PRK 3	PRK 4	PRK 5	PRK 6	PRK 7	PRK 8	PRK 9
1990/91	11,589								
1991/92	3,344	482							
1992/93	42,237	6,863					16		
1993/94	10,946	30							
1994/95	518								
1995/96	1,782								
1996/97	23,125								
1997/98									
1998/99		192							
1999/00	80						4		
2000/01									2
2001/02	6,052	367							
2002/03	20,987	8,392				6			
2003/04	24,352	260	10	10					
2004/05	3,254	1,148							
2005/06	2,255	218					134		10

- 19 Catches are most abundant from stocks PRK 1 and PRK 2 but there are years for which no catch of PRK 1 or PRK 2 stocks has been reported. For those years in which catch is reported, catch levels vary markedly between single years or between 2-year intervals. The cause of the variability is not well understood, however, it is possible that the reported landings do not represent the full extent of catches.
- 20 Stocks PRK 3, PRK 4, PRK 6, PRK7, and PRK 9 have no catch reported for most years. For those years in which catch is reported, catch levels are insignificant.
- 21 Stocks PRK 5 and PRK 8 have no reported catch in any year.
- 22 Table 2 summarises the only available information regarding PRK catch levels. Reported catches are believed to vary more in response to changes in fishing practices than to changes in biomass. When considered in conjunction with the statutory obligations regarding sustainability versus utilisation matters, environmental issues, and the biological characteristics of prawn killer, the catch data provide general guidance in setting the introductory PRK stock TACs.
- 23 On the basis of the historic catch data, the primary stocks likely to be commercially utilised are PRK 1 and PRK 2.
- 24 Future commercial catch of stocks PRK 3, PRK 4, PRK5, PRK 6, PRK 7, PRK 8, and PRK9 is likely to be small to none.
- 25 Prawn killer have a relatively short-lived larval stage and do not travel far until settlement, so localised distribution is maintained. This characteristic renders the species susceptible to localised depletion, and is a factor in determining the introductory TACs.

- 26 The proposed TACs are intended to allow for utilisation and investigation to develop the fisheries in PRK 1 and PRK 2. The proposed initial TAC levels can be reviewed as new information becomes available, whether from the fishery or via directed research. Adjustment to the TACs would require supporting information on stock size and yield. Additional information on the environmental impacts of the harvesting method (discussed in more detail later in this document) might also be required.

PRK 1

- 27 MFish proposes that the initial TAC for PRK 1 be set at 23.6 tonnes.
- 28 As shown in Table 2, reported commercial landings of prawn killer in PRK 1 have varied considerably over the period 1990-91 to 2005-06. Landings were greatest in 1992-93, at some 42 tonnes. Landings in other years varied between 0 and 24 tonnes. The reasons for such variability are not well understood. Reported catches might not represent the full extent of catches or may reflect changes in fishing practices.
- 29 In the absence of other information, previous catch levels provide a guide to setting the TAC. The prawn killer catches in PRK 1 best fit the criteria for a 'stable' fishery, where catches have been reported for an extended period, although varying considerably between years. The proposed introductory TAC is guided by the average of the five highest yearly commercial landings during the period 1990-91 to 2005-06 which is 22.5 tonnes.
- 30 A further consideration is that some level of fishing-related mortality is likely, given that the species is taken by bottom trawling. Adverse effects on the animals, their habitat, and the mortality of discarded animals can be expected. While there is no quantitative information on the level of other sources of mortality, MFish proposes to include in the TAC an additional 1.1 tonnes (5% of the 22.5 tonnes cited above) to account for other sources of fishing-related mortality.
- 31 MFish considers that the proposed TAC level takes into account the best available information on past catches (including the relatively brief history of catches and little evidence of targeted fishing), provides for the utilisation of the PRK 1 stock, and should, on the balance of probabilities, ensure sustainability at least in the short term. Despite the limited available information, MFish considers that a TAC of 23.6 tonnes should enable PRK 1 stocks to be managed at, or above, a level that can produce the MSY.
- 32 The allocation of rights to harvest PRK 1 should provide a more secure basis for investment in the utilisation and development of the fishery, including directed research or monitoring aimed at improving knowledge of the nature and extent of the resource. Additional biological data and other information from the fishery, including directed efforts to inform stock assessment, would facilitate a future review of the TACC.

PRK 2

- 33 MFish proposes an initial TAC of 3.7 tonnes for PRK 2.
- 34 Reported commercial landings of prawn killer in PRK 2 have varied considerably over the period 1990-91 to 2005-06. Landings were greatest in 2002-03 at a little over 8 tonnes. Reported landings in other years varied between 0 and 6.863 tonnes. The reasons for such variability are not well understood. Reported catches might not represent the full extent of catches or may reflect changes in fishing practices. It is also possible that higher landings might be a result of changes in ease of catch or availability of the species in PRK 2 during periods of warmer ocean temperatures, given that PRK 2 is at the southern edge of the species' primary geographical range.
- 35 In the absence of other information, previous catches and other sources of fishing-related mortality provides a guide in setting the TAC. Despite relatively large reported landings in 1992-93, landings between 1990-91 and 2000-01 were low or zero. The prawn killer catches in PRK 2 best fit the criteria for a 'stable' fishery, where catches have been reported for an extended period, although varying considerably between years. The proposed introductory TAC level is the average of the five highest yearly commercial landings during the period 1990-91 to 2005-06, which is 3.5 tonnes.
- 36 A further consideration is that some level of fishing-related mortality is likely, given that the species is taken by bottom trawling. Adverse effects on the animals, their habitat, and the mortality of discarded animals can be expected. While there is no quantitative information on the level of other sources of mortality, MFish proposes to include in the TAC an additional 0.2 tonne (5% (rounded) of the 3.5 tonnes cited above) to account for other sources of fishing-related mortality.
- 37 MFish considers that the proposed TAC level takes into account the best available information, provides for the utilisation of the PRK 2 stock, and should, on the balance of probabilities, ensure sustainability at least in the short term. Despite the limited information available, MFish considers that a TAC of 3.7 tonnes will enable PRK 2 to be managed at, or above, a level that can produce the MSY.
- 38 The allocation of rights to harvest PRK 2 should provide a more secure basis for investment in the utilisation and development of the fishery, including directed research or monitoring aimed at improving knowledge of the nature and extent of the resource. Additional biological data and other information from the fishery, including directed efforts to inform stock assessment, would facilitate a future review of the TACC.

PRK 3, PRK 4A, PRK 5, PRK 6A, PRK6B, PRK 7, PRK 8, PRK 9

- 39 MFish proposes a TAC of 1 tonne for PRK 3, PRK 4A, PRK 5, PRK 6A, PRK 6B, PRK 7, PRK 8 and PRK 9.
- 40 Commercial landings of stocks PRK 3, PRK 4A, PRK 6A, PRK6B, PRK 7, and PRK 9 have been small and infrequent. Catches have been reported only in one to three years over the period 1990-91 to 2005-06 and total reported landings from each stock have not exceeded 134 kilograms.

- 41 Stocks PRK 5 and PRK 8 have no reported catch in any year.
- 42 Prawn killer is considered to be more abundant in northern waters, and substantial catch from southern stocks is unlikely. The potential for development of target fisheries for PRK in these areas is therefore low with the possible exception of PRK 9.
- 43 MFish considers that the proposed TAC of 1 tonne for these stocks will provide for utilisation insofar as facilitating the balancing of incidental catches by trawl fisheries targeting other species within the depth range of prawn killer. Incidental catches have been occurring for many years but are not considered to pose sustainability risks to prawn killer if maintained at prior levels.
- 44 Given that it is unlikely that targeted prawn killer fisheries will develop in these stocks, MFish proposes that no allowance be made at this time for other sources of fishing-related mortality.
- 45 While the proposed TACCs may not support viable economic fisheries in the short-term, the ability to balance the likely low level of incidental catches is provided for and the incentive to land and report catches is enhanced. Fishery participants will be able to investigate the fisheries, including the collection of appropriate stock assessment and biological information to facilitate future reviews of the TACCs.

PRK 10

- 46 MFish proposes a TAC of 0 tonnes for PRK 10.
- 47 Prawn killer is taken predominantly as a bycatch in the scampi target trawl fisheries, for which a TAC of zero tonnes was set in QMA 10 on the basis that no previous scampi catch had been noted in the area. The bottom range suitable for prawn killer habitat is also limited within QMA 10 as most of the area is deeper than 1 000 metres.
- 48 QMA 10 has also been identified as an area to be protected from bottom trawling under industry's Benthic Protected Area proposal. Should the proposal be implemented, bottom trawling for prawn killer should not occur in PRK 10.

Allocation of the TACs

- 49 When setting any TAC, that TAC must be apportioned between the relevant sectors and interests set out under the provisions of s 21 of the Act. Section 21 prescribes that the Minister shall make allowances for Maori customary non-commercial interests, recreational fishing interests, and for any other sources of fishing-related mortality, before setting the TACC.
- 50 The Act does not provide an explicit statutory mechanism to apportion available catch between sector groups either in terms of a quantitative measure or prioritisation of allocation. Accordingly, the Minister has the discretion to make allowances for various sectors based on the best available information.

Recreational allowances

- 51 MFish proposes no allowance be made for recreational fishing interests for any of the prawn killer stocks. MFish does not have information on the quantities (if any) of prawn killer that might be harvested by recreational fishers, but believes the current recreational catch to be zero. Prawn killer are not accessible to non-commercial fishers given the depths where the species is prevalent and the trawling method required to catch the species.

Customary Maori allowances

- 52 MFish proposes no allowance for customary fishing interests for any of the prawn killer stocks. MFish does not have information on the quantities (if any) of prawn killer that might be harvested by customary fishers, and is unaware of any information indicating the existence of a customary take of prawn killer. MFish believes the current customary catch to be zero, for the reasons noted above.

Allowances for other sources of fishing-related mortality

- 53 MFish proposes that an allowance for fishing-related mortality be made within the TAC in the PRK 1 and PRK 2 stocks, as discussed under the TAC section above.
- 54 Some level of fishing-related mortality is likely given the species is taken by trawling. Adverse effects on the animals, their habitat, and the mortality of discarded animals can be expected. While there is no quantitative information on the level of other sources of mortality, MFish proposes to set an allowance of approximately 5% of the average of the 5 highest yearly commercial landings in PRK 1 and PRK 2 to account for other sources of fishing-related mortality. The proposed allowances are 1.1 tonnes for PRK 1 and 0.2 tonnes for PRK 2. Allowances are not proposed at this time for the remaining PRK stocks.

TACC

PRK 1 (Auckland (East) Area)

- 55 MFish proposes a TACC of 22.5 tonnes for the PRK 1 stock. The proposed TACC is based upon the available commercial landing data for the period 1990-91 to 2005-06, with consideration of the general guideline criteria for 'stable' fisheries. The proposed TACC of 22.5 tonnes is derived from the average of the five highest yearly commercial landings shown in Table 2 and is at a level similar to that of the highest recent reported landings (2002-03 and 2003-04).
- 56 The proposed TACC is intended to provide for the sustainable utilisation of the fishery, at least in the short-term, without constraining the associated scampi fishery. The proposed TACC will enable participants to investigate the fishery via the collection of appropriate stock assessment and biological information to facilitate a review of the TACC, where appropriate.
- 57 The greater security of harvest rights under the QMS will provide incentives for commercial stakeholders to investigate the further potential of the fishery. This could include the collection of appropriate biological and other information from the fishery

and/or by directed research to inform stock assessment and facilitate a future review of the TACC.

PRK 2 (Central (East) Area)

- 58 MFish proposes a TACC of 3.5 tonnes for the PRK 1 stock. The proposed TACC is based upon the available commercial landing data for the period 1990-91 to 2005-06, with consideration of the general guideline criteria for 'stable' fisheries. The proposed TACC of 3.5 tonnes is derived from the average of the five highest yearly commercial landings shown in Table 2.
- 59 The proposed TACC is intended to provide for the sustainable utilisation of the fishery, at least in the short-term, without constraining the associated scampi fishery. The proposed TACC will enable participants to investigate the fishery via the collection of appropriate stock assessment and biological information to facilitate a review of the TACC, where appropriate.
- 60 The greater security of harvest rights under the QMS will provide incentives for commercial stakeholders to investigate the further potential of the fishery. This could include the collection of appropriate biological and other information from the fishery and/or by directed research to inform stock assessment and facilitate a future review of the TACC.

PRK 3, PRK 4A, PRK 5, PRK 6A, PRK 6B, PRK 7, PRK 8, PRK 9

- 61 MFish proposes setting a TACC of 1 tonne for each of the PRK 3, PRK 4A, PRK 5, PRK 6A, PRK 6B, PRK 7, PRK 8 and PRK 9 stocks. Commercial landings of these stocks have either never been reported or have been reported for three or fewer years over the period 1990-91 to 2004-05. Of those stocks for which there are reported landings, the landings are very low. The landing data suggest that catches in these QMAs are infrequent and of small quantity.
- 62 The proposed TACCs may not support viable economic fisheries in the short-term, however fishery participants will be able to investigate their respective fisheries, including the collection of appropriate stock assessment and biological information to facilitate a review of the TACC.

PRK 10

- 63 For the reasons discussed in paragraph 47, MFish proposes a TACC of 0 tonnes for PRK 10.
- 64 The area is generally too deep for prawn killer, and has been identified by industry as an area to be protected from the effects of trawling under the Benthic Protected Area initiative.

Other management measures

Environmental effects of harvesting methods for prawn killer

- 65 Prawn killer are reported to occur around the North Island and South Island at bottom depths of about 80 to 300 metres. The species occurs on soft sediment seafloor where it digs into the substrate and covers itself with sand and mud. The species' diet is reported to consist mainly of molluscs and polychaete worms. MFish is not aware of reports detailing interactions between PRK and other species.
- 66 In New Zealand, the landings of prawn killer are reported mostly as a bycatch in targeted scampi trawls in SCI 1 and SCI 2. Scampi trawls use relatively light gear with smaller trawl net mesh sizes than standard finfish trawl gear. Target fishing for scampi within the constraints of existing scampi TACCs is relatively localised within the respective QMA boundaries, which has been considered to provide mitigation of the adverse effects of fishing and to ensure the maintenance of biodiversity at the QMA scale. At this stage, there are no known habitats of particular significance for fisheries management that are likely to require protection from fishing for prawn killer.
- 67 However, MFish notes that prawn killer is likely to be a relatively important species within the soft sediment benthic fauna within its depth range. Cryer et al. (2002)¹ showed evidence that trawling might generally change the benthic community structure and reduce biodiversity over broad spatial scales. That study inferred a negative impact of trawling on prawn killer and several other species.
- 68 MFish notes that there are various approaches under development to ensure that any adverse effects of fishing generally are avoided, remedied, or mitigated. These include the development of the Marine Protected Area Strategy and the Benthic Impact Strategy. The future management of any directed fishery for prawn killer will be influenced by those strategies.

Finfish bycatch

- 69 Scampi trawling uses small mesh gear (approximately 60 mm cod-end mesh) and target trawling for prawn killer will likely require similar gear. Because their habitat overlaps, it is likely that a prawn killer fishery will take similar bycatch species to the scampi fishery. In general, however, prawn killer are taken from shallower depths than scampi.
- 70 Concerns were raised in the past by inshore trawl operators, specifically in FMA 2, that a target fishery for prawn killer would adversely affect finfish stocks by catching juveniles in the fine mesh trawl nets. There has been no detailed examination of existing data to address those concerns, although it has been shown that the size structure of QMS finfish bycatch in scampi trawls is not substantially different from that taken in trawls targeting other species in similar areas. That there may be an impact of prawn killer trawl fishing on juvenile finfish cannot be discounted at this time and should be evaluated as the fishery develops.

¹ Cryer, M.; Hartill, B.W.; O'Shea, S. (2002). Modification of marine benthos by trawling: toward a generalization for the deep ocean? *Ecological Applications* 12: 1824–1839.

- 71 Commercially important bycatch species taken in the scampi fishery are likely to also form part of the bycatch of targeted trawling for prawn killer. Those species (such as hoki, ling, sea perch, and tarakihi,) are managed within the QMS, which provides mechanisms for ensuring sustainability of such bycatch.
- 72 There is potential for a target prawn killer fishery to take a bycatch of small, immature scampi. MFish intends to monitor this issue.

Protected species bycatch

- 73 Scampi trawling is known to take some protected species such as sea lions, fur seals, and various seabird species, and it can be expected that trawling for prawn killer with similar gear could have similar effects. Controls on trawling are in place to mitigate the impact on marine mammals and seabirds, including prohibitions on net sonde cables and requiring the compulsory reporting of captures. MFish will continue to monitor these interactions and take appropriate action as required.
- 74 In addition, MFish and the Department of Conservation have developed a National Plan of Action (NPOA) for seabirds that includes measures that will apply to all New Zealand fishing vessels. In association with the NPOA, an active programme is underway to monitor and mitigate the capture of seabird species in commercial fisheries. Codes of practise to mitigate seabird captures and fishing-related mortality are being implemented on most vessels involved in the scampi fishery, and in trawl fisheries generally there is a mandatory requirement to use seabird mitigation devices.

General conclusions

- 75 MFish acknowledges that the introduction of prawn killer into the QMS might result in participants exploring new fishing grounds. The proposed TACs/TACCs are likely to represent a cautious approach, being based upon reported catches from a non-target fishery, and should act to limit the effects of fishing (trawling) on the environment. MFish will monitor the distribution of fishing grounds to assess the extent to which new grounds are affected. MFish would expect participants to consider the effects of fishing on the benthic environment as part of any proposal to review the TACs.
- 76 MFish does not consider that, on balance, there is an adverse impact from the existing levels of harvest of prawn killer, given that its capture is primarily incidental to the target fishing of scampi.

Amendments to regulations

- 77 The introduction of prawn killer into the QMS requires amending the Fisheries (Reporting) Regulations 2001 to prescribe reporting codes for prawn killer stocks when commercial fishers are completing their statutory catch returns (see Appendix 1).
- 78 As noted above, it is likely that target fishing for prawn killer will require the use of similar fine mesh nets as used for scampi. MFish proposes to amend the Fisheries (Commercial Fishing) Regulations 2001 to authorise the use of mesh smaller than 100 mm to take prawn killer (see Appendix 2).

Deemed values

- 79 There is limited information by which to set deemed value rates. There is no port price for prawn killer and an analysis of catch levels during the 2005-06 fishing season implied that the bulk of prawn killer catch was discarded on reporting. Such information suggests that a market for this species has yet to be developed. Market prices for similar species (Balmain Bug and Moreton Bay Bug) were sourced from Australia as part of this process, but given the apparent absence of a New Zealand-sourced market for prawn killer, it is considered inappropriate to set deemed values based on Australian market prices.
- 80 Deemed value rates have been evaluated using the new catch balancing guidelines recently developed by MFish. On this basis, MFish proposes to set the following deemed value rates (excluding GST) for prawn killer stocks from 1 October 2007: interim deemed value at \$0.10/kg; annual deemed value at \$0.20/kg; no differential deemed value (ramping).
- 81 MFish will monitor the effect that the proposed deemed value rates have on ensuring reported catch of prawn killer remain within the confines of the TACs and individual ACE holdings.
- 82 The new MFish catch balancing guidelines have set out criteria for review of deemed value rates. An annual review is appropriate when a stock has recently entered the QMS and information is limited. The proposed deemed value rates for prawn killer stocks will therefore be reviewed on an annual basis and adjusted accordingly.
- 83 MFish proposes to not apply differential deemed value rates at this time. As the fishery develops, and if required, the matter of differential deemed values can be re-assessed.

Preliminary recommendations

- 84 MFish proposes that the Minister of Fisheries:
- a) Agrees to set a TAC of 23.6 tonnes for PRK 1 and within that TAC setting:
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 1.1 tonnes; and
 - iv) a TACC of 22.5 tonnes.
 - b) Agrees to set a TAC of 3.7 tonnes for PRK 2 and within that TAC setting:
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 0.2 tonnes; and
 - iv) a TACC of 3.5 tonnes.

- c) **Agrees to set a TAC of 1 tonne for PRK 3 and within that TAC setting:**
 - i) A customary allowance of 0 tonnes;
 - ii) A recreational allowance of 0 tonnes;
 - iii) An allowance for other fishing-related mortality of 0 tonnes; and
 - iv) A TACC of 1 tonne.

- d) **Agrees to set a TAC of 1 tonne for PRK 4A and within that TAC setting:**
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 0 tonnes; and
 - iv) a TACC of 1 tonne.

- e) **Agrees to set a TAC of 1 tonne for PRK 5 and within that TAC setting:**
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 0 tonnes; and
 - iv) a TACC of 1 tonne.

- f) **Agrees to set a TAC of 1 tonne for PRK 6A and within that TAC setting:**
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 0 tonnes; and
 - iv) a TACC of 1 tonne.

- g) **Agrees to set a TAC of 1 tonne for PRK 6B and within that TAC setting:**
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 0 tonnes; and
 - iv) a TACC of 1 tonne.

- h) **Agrees to set a TAC of 1 tonne for PRK 7 and within that TAC setting:**
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 0 tonnes; and
 - iv) a TACC of 1 tonne.

- i) **Agrees to set a TAC of 1 tonne for PRK 8 and within that TAC setting:**
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 0 tonnes; and
 - iv) a TACC of 1 tonne.

- j) **Agrees to set a TAC of 1 tonne for PRK 9 and within that TAC setting:**
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 0 tonnes; and
 - iv) a TACC of 1 tonne.

- k) **Agrees to set a TAC of 0 tonnes for PRK 10 and within that TAC setting:**
 - i) a customary allowance of 0 tonnes;
 - ii) a recreational allowance of 0 tonnes;
 - iii) an allowance for other fishing-related mortality of 0 tonnes; and
 - iv) a TACC of 0 tonne.

AND

- l) **Agrees to amend the Fisheries (Reporting) Regulations 2001 to outline the codes to be used by commercial prawn killer fishers when completing their statutory catch returns.**
- m) **Agrees to amend the Fisheries (Commercial Fishing) Regulations 2001 to authorise the use of trawl net mesh sizes smaller than 100 mm for taking prawn killer.**
- n) **Agrees to set an annual deemed value at \$0.20/kg (excluding GST), an interim deemed value of \$0.10/kg (excluding GST), and no differential deemed value for the 2007-08 fishing year**

APPENDIX 1

Statutory Considerations

85 The following statutory considerations have been taken into account in evaluating the management options as proposed in this document.

- a) The purpose of the Act (s 8) is to provide for the utilisation of fisheries resources while ensuring sustainability. The management proposals seek to ensure sustainability of the stocks by setting for each a TAC and other appropriate measures. Utilisation is provided for by way of setting appropriate allowances for commercial, recreational and customary fishers. Section 8 requires that social and economic effects be considered. This document proposes setting TACs to provide for utilisation of the prawn killer resource, while taking a relatively cautious approach to reflect the absence of information on stock status and yield and the uncertainty in the available commercial catch data.
- b) Section 10 sets out information principles that are to be taken into account when setting a sustainability or utilisation measure, such as TACs and TACCs for prawn killer. Section 10 states that all persons exercising or performing duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following information principles:
 - i) Decisions should be based on the best available information;
 - ii) Decision makers should consider any uncertainty in the information available in any case;
 - iii) Decision makers should be cautious when information is uncertain, unreliable, or inadequate;
 - iv) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.

The information principles are particularly important in relation to prawn killer stocks considered in this document as the status of these stocks remains unknown. MFish has adopted the best available information and adhered to the principles of caution in the face of uncertain or inadequate data in considering the management options for these prawn killer stocks

- c) The Act prescribes three possible harvest strategies in setting a TAC. MFish considers it appropriate to manage prawn killer stocks under s 13(2)(a). This requires the TAC to be set at a level that maintains stock biomass, or moves it towards, a level that is at or above the level that can produce the maximum sustainable yield (MSY), having regard to the interdependence of stocks. There is currently no stock assessment information to indicate whether

or not prawn killer stocks are at, above, or below a level that can produce MSY. However, given the absence of a targeted fishery for prawn killer and the relatively low catches over each fishing year, MFish considers that the prawn killer stocks are likely to be at a level that is at or above the level that can produce the MSY. Given the limited information available, MFish considers that the proposed TACs reflect the appropriate level of catch to maintain prawn killer stocks at or above the B_{MSY} level.

- d) In regard to the interdependence of stocks (s 13(2)), prawn killer are no doubt associated with other species within the benthic ecosystem. However, MFish is not aware of any particular species inter-relationships that affect the setting of TACs at this time.
- e) Section 11(1)(c) requires that the natural variability of the stock concerned is taken into account when setting or varying a sustainability measure such as a TAC. MFish does not have information on the natural variability of prawn killer stocks. However, MFish has proposed an approach to setting TACs that is likely to be cautious, as described previously. This approach should ensure harvesting levels will not contribute to a sustainability risk if there is high natural variability of prawn killer stocks due to natural fluctuations and environmental conditions.
- f) Section 9 requires the Minister to take into account the following environmental principles:
 - i) Associated or dependent species should be maintained above a level that ensure their long-term viability (s 9(a));
 - ii) Biological diversity in the aquatic environment should be maintained (s 9(b));
 - iii) Habitat of particular significance for fisheries management should be protected.

The available information does not suggest that past fishing or future fishing at the proposed TAC levels is likely to pose risks to the viability of any associated or dependent species, or to the maintenance of biodiversity of the aquatic environment. Habitats of particular significance for fisheries management have not been identified within the areas and depths where fishing for prawn killer is considered likely.

- g) There is a wide range of international obligations relating to fishing (including sustainability and utilisation of fishstocks and maintaining biodiversity). MFish considers the s 5 considerations arising from New Zealand's international obligations and the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 are adequately addressed by the management proposals for prawn killer stocks, particularly with the introduction of TACs to ensure sustainable use of the resource. MFish is not aware of any issues concerning international obligations and the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 that will result from the proposed TACs and TACCs for prawn killer.
- h) Section 11(1)(b) requires that existing controls be taken into account when setting or varying a sustainability measure such as a TAC. There are no existing controls that are relevant to setting the TACs for prawn killer stocks

(no size limits, bag limits, catch limits, or other controls). MFish has taken account of controls on fishing methods that might affect the ability of fisheries to utilise prawn killer stocks, and addresses those matters in the attached regulatory proposals.

- i) Section 11(2) requires the consideration of various other matters relating mainly to planning documents. MFish is not aware of any considerations in any regional policy statement, regional plan or proposed regional plan under the Resource Management Act 1991 or any management strategy or management plan under the Conservation Act 1987 that are specifically relevant to setting TACs for prawn killer stocks. Similarly, in terms of section 11(2A), MFish is not aware of any fisheries or conservation services, relevant fisheries plans, or any decisions not to require conservation or fisheries services, that are relevant to setting TACs for prawn killer stocks.
- j) As required under s 11(2)(c), MFish considers that the proposals for prawn killer meet the requirements of ss 7 and 8 of the Hauraki Gulf Marine Park Act 2000. Implementation of catch limits and associated measures for prawn killer stocks on entry into the QMS will allow for the sustainable utilisation of the species.
- k) Sections 21(1)(a) & (b) and 21(4)(i) & (ii) and 21(5) require the Minister to allow for non-commercial fishing interests (recreational and customary), and other mortality to the stock caused by fishing. The proposed TACs reflect the likelihood that there is no customary and recreational fishing for prawn killer, and certainly no information to suggest otherwise.
- l) Section 21(4) requires that when considering the proposed allowances for customary non-commercial interests, the Minister must take into account any mātaimai reserve or s186A closure in the relevant QMA. The proposed zero allowances for customary non-commercial fishing reflect the absence of any knowledge of customary fishing for prawn killer. MFish does not consider the zero allowances proposed for customary harvest will detract from the intent of any mātaimai or s 186A closures presently in place.
- m) Section 21(5) requires that when considering the proposed allowances for recreational interests, the Minister must take into account any regulations that prohibit or restrict fishing under s 311 (area closures). Closures under s 311 have not been implemented to date.

APPENDIX 2

Amendments to regulations

Consequential amendments to the Fisheries (Commercial Fishing) Regulations 2001 - Regulating net mesh sizes for prawn killer

Background

- 86 It is proposed that the Fisheries (Commercial Fishing) Regulations 2001 be amended to allow the use of 80 mm net mesh in the body and 55 mm net mesh in the cod-end of trawl nets used when fishing for prawn killer.
- 87 It is likely that, as for the scampi trawl fishery, a trawl fishery for prawn killer would not be able to operate effectively without the ability to use smaller than the standard regulated minimum trawl net mesh size of 100 mm. Smaller mesh is required to adequately select for prawn killer, given that the animals are relatively smaller in size than those finfish species generally targeted by trawling. Smaller mesh sizes have been authorised for use in the scampi fishery since the early development of the fishery.

Problem definition

- 88 Unless the use of small mesh nets is authorised for prawn killer fishing, prospective fishers will be constrained by the normal net mesh restrictions. Larger mesh sizes are likely to be ineffective for catching prawn killer.
- 89 Regulation 71(5) of the Fisheries (Commercial Fishing) Regulations 2001 provides for a commercial fisher to use a trawl net with mesh sizes of not less than 80 mm in the body of the net and not less than 55 mm in the cod-end if the fisher is fishing for, or intends to fish for, scampi. The regulation also requires a fisher to notify the Chief Executive of the Ministry of intention to fish for scampi in that fishing year.
- 90 It is proposed that prawn killer be included in Regulation 71(5), which is associated with the offence provisions under Regulation 84(3).
- 91 Inappropriate use of small mesh trawl nets can have implications for the sustainability of stocks and adverse effects on the aquatic environment. MFish proposes that the existing category of offence for breaching trawl net requirements, with a maximum penalty of a fine up to \$100,000 continue to apply.

Preliminary consultation

- 92 Stakeholders have not been consulted on this proposal. The proposal seeks to facilitate fishing for prawn killer.

Options

Non-regulatory measures

- 93 Non-regulatory alternatives are not considered to be appropriate.

Regulatory Measures

- 94 Regulating the mesh size for prawn killer provides the required authorisation, in the appropriate format, to use fishing methods that are effective at taking prawn killer.

Costs and benefits of the proposal

- 95 Regulating the net mesh requirements for prawn killer trawling might alter current fishing practices, and increase enforcement requirements. Some associated costs can be expected in addition to those for the administrative functions of constructing the necessary regulatory amendment.
- 96 There is a risk that fishers not genuinely targeting prawn killer could use small mesh trawls when targeting other species, but claim to be fishing for prawn killer. MFish considers that the risk is low, both in terms of the likelihood of occurrence, and the severity of impact, at least in the short term.
- 97 The bycatch of unwanted species could increase generally and therefore increase the on-deck time required for catch sorting. MFish's assessment is that clear incentives for fishers generally to use small mesh sizes cannot be established at this time. However, should the risk assessment change in the future, MFish notes that it will act appropriately to mitigate any practice that might result in an increase in sustainability risks.

Administrative implications

- 98 There are no ongoing administrative implications associated with these proposed changes.

Conclusion

- 99 Regulating the authority to use specified mesh sizes in trawl nets used to take prawn killer will facilitate the sustainable utilisation of the resource and will have administrative efficiency benefits.

Recommendation

- 100 It is proposed to amend the Fisheries (Commercial Fishing) Regulations 2001 to include the authority to use specified mesh sizes in trawl nets used to take prawn killer and bycatch species taken as a consequence, and create an offence for inappropriately

using a prawn killer trawl net. Fishers wishing to trawl for PRK will be required to notify MFish of that intention prior to the start of each fishing year.

Consequential amendments to the Fisheries (Reporting) Regulations 2001

Background

101 It is proposed to make consequential amendments to the Fisheries (Reporting) Regulations 2001 by amending:

Table 1 of Part 1 of Schedule 3 of those regulations that specifies the codes to be used when completing returns which must be furnished to the Chief Executive. This amendment will incorporate codes which reflect the QMAs for prawn killer;

Part 1 of Schedule 3 of those regulations to insert a table specifying that the areas referred to by name in the table are the quota management areas for prawn killer.

102 The Fisheries (Reporting) Regulations 2001 provide the framework for the completion and provision of statutory returns by fishers to the Chief Executive. Information contained in these returns is used for research, stock assessment, enforcement and administrative reasons (including balancing catch against ACE). It will be appropriate to amend these regulations to ensure that they reflect the QMAs for prawn killer.

Problem definition

103 The obligations for fishers to report their catch and the codes used to complete these returns should reflect the Ministers decisions on QMAs for each species to be introduced into the QMS on 1 October 2007.

Preliminary consultation

104 No direct consultation on the need to amend these regulations has been undertaken because it is a consequential amendment flowing from the Minister's QMA decisions.

Options

105 As the reporting framework is contained in regulations, there is no other option than to amend these regulations.

Costs and benefits of the proposal

106 The proposed amendments clarify the obligations for fishers when completing their statutory returns. Regulatory clarification means fishers are aware of their reporting obligations and complete their returns in the simplest fashion possible.

Administrative implications

107 Minor amendments to forms and explanatory notes will be required consequential to this regulatory amendment.

APPENDIX 3

Species Information

Species Biology

- 108 The species ‘prawn killer’ or ‘shovel-nosed lobster’ (*Ibacus alticrenatus*) is a member of the family Scyllaridae or ‘slipper lobsters’.
- 109 ‘Prawn killers’ are reported to occur around the North and South Islands of New Zealand in relatively deep water from depths of about 80 to 300 metres. The species occurs on soft sediment seafloor where it digs into the substrate and covers itself with sand and mud (it is not reported whether or not it forms distinct burrows as do scampi). The species’ diet is reported to consist mainly of molluscs and polychaete worms. MFish is not aware of reports detailing interactions between PRK and other species.
- 110 Little information on the species’ biology is available from New Zealand reports, although larval development was documented by Atkinson & Boustead (1982)². Information about the same species in eastern Australian waters³ suggests that:
- 111 The prawn killer is a relatively small lobster (carapace lengths for egg-bearing females ranged from 38.2 to 52.0 mm);
- 112 Individuals of other *Ibacus* species reach maximum average length within 5 to 7 years;
- females of other *Ibacus* species reach maturity 1.7 to 2 years after settlement;
 - brood fecundity (egg numbers) was size dependent and the lowest (from 1 734 to 14 762) in *I. alticrenatus* compared with two other species;
 - the egg is relatively large and hatches at an advanced stage (egg size ranged from 0.94 to 1.29 mm);
 - the relatively short-lived larval stages do not travel far until settlement, so localised distribution is maintained;
 - information from other *Ibacus* species suggested that moulting occurs 3 to 4 times within the first year after recruitment.

² Atkinson, J.M. and Boustead, N.C., 1982, “The complete larval development of the scyllarid lobster *Ibacus alticrenatus* Bate, 1888 in New Zealand waters”. *Crustaceana* 42: 275-287.

³ Haddy, J.A., Courtney, A.J., & Roy, D.P., 2005, “Aspects of the reproductive biology and growth of Balmain bugs (*Ibacus* spp.) (Scyllaridae)” *Journal of Crustacean Biology*, 25(2): 263-273.

Fisheries Characteristics

Commercial Catch

- 113 In New Zealand, the landings of prawn killer are reported mostly as a bycatch in targeted scampi trawls in SCI 1 and SCI 2. While the prawn killer is thought to be the primary species in the catch taken in New Zealand waters, at least three other members of the family Scyllaridae might be involved, although thought to be uncommon in the New Zealand catch (*Ibacus brucei*, *Antipodarctus aoteanus*, *Antarctus mawsoni*).
- 114 Reported 'fishing-year' landings have been highly variable between years, and peaked at about 49 tonnes in 1992-93 (total FMA 1 and FMA 2). Landings reached a 'local maximum' of 29 tonnes in 2002-03 and 24 tonnes 2003-04 respectively.

Recreational and Customary Catch

- 115 There is no quantitative information on non-commercial harvest levels of prawn killer. No prawn killer catches were recorded in the three national telephone/diary surveys of recreational fishers during 1996, 2000 and 2001. Non-commercial catches of prawn killer are likely to be negligible, as the method of extraction is not used within the non-commercial fishery.

Regulatory framework

- 116 There are no existing regulations that specify catch limits or other sustainability measures for prawn killer. There is no minimum size limit for amateur or commercial fishers for this species. There is no species-specific bag limit restriction on prawn killer for amateur fishers.

Fishery Assessment

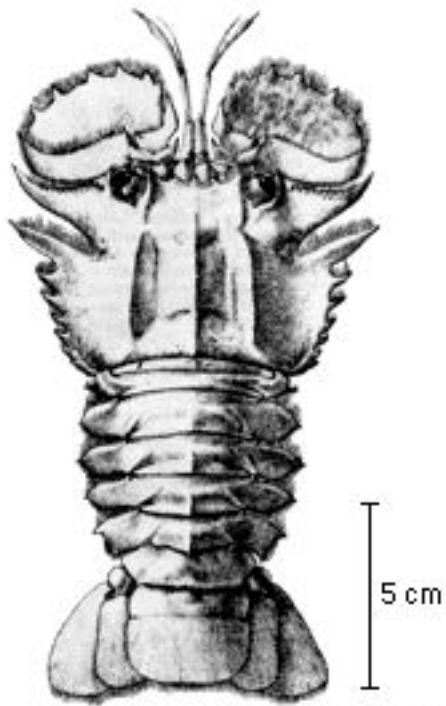
- 117 There are no stock assessments for prawn killer stocks. Consequently, there are no estimates of total biomass and sustainable yield for any prawn killer stock.

Current and potential research

- 118 There have been no fisheries assessment reports on prawn killer. MFish notes that the development of underwater photographic methods for surveying scampi abundance also hold promise for prawn killer. Appropriate modifications to survey design and implementation could deliver estimates of prawn killer abundance in association with scampi survey work at relatively low additional cost. Such estimates could provide potentially valuable new information on prawn killer stock size and yield.

Social cultural and economic factors

- 119 MFish is not aware of any information on particular social, economic, or cultural matters that could influence the setting of TACs and TACCs for prawn killer stocks beyond those considered in the relevant section earlier.



from Holthuis, 1985

A VESSEL MONITORING SYSTEM FOR THE SOUTHERN BLUEFIN TUNA FLEET

Executive Summary

- 1 The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) has resolved that vessels fishing for southern bluefin tuna (STN) should operate a Vessel Monitoring System (VMS). A VMS system uses electronic transmitters (Automatic Location Communicator or ALC) placed on fishing vessels to transmit information about the vessel's position to authorities via satellite. This information is useful in near real time for ascertaining the vessels' location and for inferring the type of fishing activity they are doing. This requirement is to be implemented by 1 January 2008 and is binding on New Zealand as a member of CCSBT⁴.
- 2 To meet these international obligations the Ministry of Fisheries (MFish) is reviewing VMS requirements for the STN fleet operating in New Zealand waters (New Zealand vessels fishing on the High Seas are already required to carry and operate an ALC). The CCSBT has yet to specify VMS standards for the STN fishery and New Zealand will contribute to this process. The potential review of options is therefore wide ranging. For example the resolution refers to members implementing a mandatory VMS for vessels above a specified vessel size, but does not specify what the vessel size, if any, should be.
- 3 New Zealand has the option of meeting or exceeding the requirements based on its own assessment of the most suitable monitoring regime to apply within the context of the New Zealand STN fishery.
- 4 NZ currently requires vessels exceeding 28 metres in overall length to carry and operate an ALC, unless the requirements of any class of vessels are specified by notice in the *Gazette*. Under the latter part of the provision the requirement to operate VMS has also been extended to include vessels operating in the orange roughy, scampi and deepwater clam fisheries.
- 5 Options evaluated in undertaking this review of VMS requirements for the STN fishery are:
 - i) Require vessels exceeding an overall length of 28 metres taking STN to operate ALCs (status quo);
 - ii) Require vessels exceeding a minimum overall length (eg exceeding 15 metres overall length) that are targeting and/or taking STN to operate ALCs; and
 - iii) Require all vessels regardless of size, targeting and/or taking STN to operate ALCs.

⁴ Draft Resolution on the development and implementation of a Vessel Monitoring System (adopted at the Thirteenth Annual Meeting – 10-13 October 2006 (see Appendix One).

- 6 Evaluation of options has been considered in terms of the likelihood that they will meet CCSBT requirements, and their benefits and their costs.
- 7 It is recognised that satellite-based monitoring systems in conjunction with other measures assist in combating illegal, unregulated and unreported (IUU) fishing. New Zealand has recognised the benefits of VMS since 1994 and is currently receiving information from about 200 mainly larger vessels. However only a few vessels currently fishing in the STN fishery are required to carry and operate an ALC.
- 8 The key issue in the STN fishery is ensuring compliance with commercial catch limits and generating information on vessel operations for broader management purposes. Regional catch limits for the fishery have recently been reduced to assist with rebuilding of the stock. Extending the coverage of VMS into the STN fishery will assist with detecting fishing activity in near real time where fishers may be catching, or discarding, but not declaring catch. A further option of extending the VMS coverage to all the surface longline fleet is considered viable in this regard because of the likelihood of taking STN bycatch across a range of surface longline target fisheries.
- 9 There are several issues related to the implementation of VMS, including the limited number of approved equipment types, vessels' ability to carry ALCs consistent with the current standards, VMS operating requirements, vessel coverage, and security of the system. The ability of MFish to support any increased VMS requirements will need to be ensured. In addition, alternative technologies that may be more suitable for smaller vessels will need to be considered.
- 10 The Initial Position Paper (IPP) has been developed for the purpose of consultation. This paper contains MFish's initial position on the most appropriate VMS requirements to be implemented by 1 January 2008 for the STN fishery in response to international obligations.

Preliminary Recommendation

- 11 MFish recommends:

EITHER to:

- i) Continue requiring those vessels exceeding an overall length of 28 metres to operate ALCs (status quo);

OR regulations be amended to

- ii) Require vessels exceeding a minimum standard⁵ targeting STN to operate ALCs;

OR

- iii) Require vessels exceeding a minimum standard² using the method of surface longline to operate ALCs;

OR

⁵ The minimum vessel size required to operate ALCs to be based on the minimum standard adopted by the CCSBT compliance committee at its April 2007 meeting.

- iv) Require all vessels regardless of vessel size, targeting STN, to operate ALCs;

OR

- v) Require all vessels regardless of vessel size, using the method of surface longline, to operate ALCs.

Rationale for Management Proposal

- 12 The CCSBT has recognised as critically important the need to adopt and implement an integrated package of compliance measures at the earliest possible time. The purpose of these measures would be to reduce illegal, unregulated and unreported (IUU) fishing and to provide more accurate data as a basis for a new stock assessment. At its Thirteenth Annual Meeting, the CCSBT adopted (among other compliance measures) a draft resolution for implementing a VMS. Details of the minimum requirements are to be developed in the next few months ready for implementation by 1 January 2008. This is binding on New Zealand as a member of CCSBT.

Problem Definition

- 13 The CCSBT has agreed to reduce regional catch limits for STN (although the New Zealand catch limit of 420 tonnes is not affected) in order to rebuild the depleted stock, and tighten catch reporting systems to cut down on IUU fishing.
- 14 The CCSBT has resolved that members should require their vessels fishing for STN to operate under a VMS. The intent is to introduce an integrated package of monitoring, control and surveillance (MCS) to improve compliance with the new sustainability measures. The CCSBT considers that an effective and fully operational VMS will combat IUU fishing for STN.
- 15 A VMS standard for the STN fishery is yet to be specified by the CCSBT. The resolution refers to members implementing a mandatory VMS for vessels above a specified size, but does not specify what the vessel size, if any, should be. Members are expected to finalise agreement on standards in inter-sessional meetings in April 2007 before the Fourteenth Annual Meeting of CCSBT. Consultation on this proposal will form the basis of the New Zealand position to CCSBT. The VMS is to be implemented by 1 January 2008 (Appendix 1, Paragraph 2).
- 16 New Zealand regulations already require vessels exceeding 28 metres in overall length to carry and operate an ALC. This requirement is a key component of New Zealand's monitoring regime across all fisheries. Most vessels that reported fishing for STN during 2005/06 were smaller than this overall length and therefore not subject to the ALC requirement. Accordingly, in order to more effectively meet the CCSBT resolution, to ensure the improvement in compliance that the CCSBT is seeking, and to be consistent with rules on the High Seas, it may be necessary to specify a smaller overall size or include all vessels regardless of size in the VMS. Effective levels of vessel monitoring coverage can assist with management of STN given the nature of the issues to be managed by New Zealand and other CCSBT participants.

- 17 The Fisheries (Satellite Vessel Monitoring) Regulations 1993 (VMS regulations) require an ALC to be carried and operated on board certain vessels. It is proposed that any alteration to the current STN VMS arrangement be given effect by an amendment to these regulations.
- 18 The target fishery is seasonal and area specific, but STN is also commonly taken as bycatch in surface longline fisheries for other species. To ensure the integrity of catch limits set for STN it is important that all catch, including bycatch, be reported. Accordingly to be effective any extension in the requirements of the VMS regulations to the STN fleet should consider including all vessels using the method of surface longline.
- 19 MFish notes that the physical requirements of the current permitted equipment, may be an impediment to extending VMS coverage to all vessels, particularly very small vessels.
- 20 For example, vessels must be capable of ensuring a constant uninterrupted power supply to the ALC as there is a requirement to operate it continuously. The use of an auxiliary power supply is recommended as is the use of waterproof connectors for both antenna and power connections. Furthermore, the antenna site must be suitably distant from antennas of other communications systems, navigation antennas or magnetic compass. The antenna cable must be installed in such a way as to avoid interference with normal ship activity or to be protected by a reinforced conduit if this is impossible. The antenna must be installed in a place where it has continuous, unobstructed view of the satellite.
- 21 The proper installation of an ALC to MFish specification aboard a vessel is a pre-condition for its qualification for use in the VMS scheme. This means that it must be capable of continuous, reliable operation and be installed by MFish qualified technicians.
- 22 The types of ALC currently approved for use in New Zealand may not be suitable for all vessels operating in the STN / surface longline fishery. Accordingly, MFish may need to identify more suitable VMS technology that could be used by these vessels to achieve the same monitoring purposes and make the necessary consequential legislative amendments to achieve this.

Management proposals

- 23 The CCSBT has yet to specify a vessel size standard for VMS for the STN fishery. The resolution on the development and implementation of a VMS (see Appendix 1) refers only to members implementing a mandatory VMS for vessels above a specified size, but does not specify what the vessel size, if any, should be. The following options consider those that would potentially, at least meet, if not exceed, the likely CCSBT minimum standards and which provide a logical fit with the makeup of the New Zealand STN fleet.

Option 1 - Status quo

- 24 Pursuant to the VMS Regulations New Zealand already makes the carrying and operating of ALCs mandatory for the following vessels:
- a) all foreign fishing vessels, including fish carriers;
 - b) all foreign chartered vessels registered as New Zealand fishing vessels;
 - c) all foreign unlicensed fishing vessels wishing to land their catch in New Zealand;
 - d) all New Zealand fishing vessels over 28 metres;
 - e) any New Zealand fishing vessels 28 metres or less which fish for orange roughy or scampi or deepwater clam;
 - f) any New Zealand fishing vessel operating outside the New Zealand EEZ.
- 25 Regulations already require vessels greater than 28 metres overall length to carry and operate VMS unless the requirements are separately specified. One option is to retain the current VMS arrangements. Three vessels of the 40 that reported fishing STN during 2005/06 were above this overall length and therefore already subject to the VMS requirement.
- 26 However, 40 of the 43 vessels (see Table 1 in Appendix 2) that reported targeting STN during 2005/06 were smaller than the 28 metre overall length and therefore not subject to the VMS requirement. Therefore, in order to more effectively meet the CCSBT resolution, and be a more effective measure for management of the New Zealand fishery, it will be necessary to consider extending the VMS requirements to smaller vessels in the New Zealand STN fleet.

Specified size of vessel exceeding minimum standard (e.g. 15m overall length)

- 27 The CCSBT resolution refers to other Regional Fisheries Management Organisations (RFMOs) with VMS having experiences that may be useful in developing a CCSBT VMS. Further, the CCSBT compliance committee⁶ suggests rules similar to those implemented by the Indian Ocean Tuna Commission (IOTC) might be appropriate⁷. Accordingly one option based on the IOTC standard may be to specify VMS for vessels exceeding 15 metres of overall length.

Option 2 – Require all vessels fishing for STN, exceeding minimum standard size, to operate an ALC

- 28 Accordingly, a potential option is to impose VMS requirements on vessels greater than 15 metres overall that are targeting STN. If this standard was to be imposed, about 70% of vessels fishing for STN in 2005/06 (about 27 additional vessels) would be required to operate VMS.

⁶ Report of the first meeting of the CCSBT Compliance Committee 8-9 October 2006.

⁷ The IOTC Agreement is that all vessels greater than 15 meters in length overall shall operate an ALC for vessels operating in the IOTC area and on the high seas (Resolution 06/03).

- 29 If this option were to be adopted those vessels smaller than 15 metre overall length (currently about 13 vessels) would be exempt from operating VMS. These vessels could face the greatest potential difficulty in installing the currently specified ALCs, as noted above in paragraph 19, because of their size and hence more limited facilities.
- 30 MFish notes that CCSBT members are expected to finalise agreement of standards in inter-sessional meetings in April 2007. Accordingly, this option is to adopt a minimum standard based on what will be decided by the CCSBT compliance committee in April 2007. Analysis is based on the IOTC minimum standard. There is a level of risk associated with this analysis because agreements on CCSBT requirements are yet to be made.

Option 3 – Require all vessels fishing for STN, regardless of vessel size, to operate an ALC.

- 31 MFish notes that the Australian Fisheries Management Authority has established a VMS requirement for the entire Commonwealth fleet. As the Australians consider it appropriate and feasible for all vessel sizes to be included in a VMS, it is open to New Zealand to do the same. This would provide the optimal level of coverage for New Zealand's management purposes.
- 32 In New Zealand, if the Australian standard was to be imposed for vessels fishing for STN about 40 additional vessels (based on the 2005/06 fleet profile) would be required to operate an ALC.
- 33 VMS has been extended to include vessels regardless of overall length that are used at any time during the fishing year in fishing for orange roughy, scampi and deepwater clam fisheries. This option is consistent with the approach taken for these fisheries.
- 34 For the purposes of the smallest vessels it might be necessary to implement this option in two phases. The first is to introduce an interim requirement of less than 28 metres overall length, e.g. those below 15 metres overall length, by the 2008 deadline with a longer timeframe for the remaining smaller vessels. This would allow time for scoping alternative ALC types and for any subsequent implementation issues to be considered.

Option 4 – Require all vessels using the method of surface longline, regardless of vessel size, to operate an ALC

- 35 MFish notes that the vessels currently required to carry VMS while fishing for orange roughy, scampi and deepwater clam are almost entirely involved in target fisheries. This means that only vessels targeting these species need to carry VMS.
- 36 However, the nature of the STN fishery is more complex. Target fishing is seasonal and area specific, but STN is also commonly taken as bycatch in surface longline fisheries for other species such as bigeye tuna, swordfish, yellowfin tuna, Pacific bluefin and albacore. To ensure the integrity of catch limits set for STN it is important that all catch, including bycatch in these other fisheries, be reported. Accordingly to be effective, any extension of the requirements of VMS to the STN

fleet should preferably include all vessels that report taking STN. The best way to do this is to include all vessels using the method of surface longline.

- 37 If this measure was to be imposed on vessels that report taking STN about 51 additional vessels (based on 2005/06 records) would be required to operate an ALC. This is an additional 11 vessels to those that report targeting STN.
- 38 This option would be easier to administer than option one as it is simpler to establish a basis for operating an ALC on an actual fishing method (SLL) rather than a nominated target species (STN).
- 39 MFish notes that the Western and Central Pacific Tuna Fishery Commission⁸ has also agreed to implement a VMS. This RFMO (New Zealand is a member) is responsible for managing highly migratory species such as bigeye tuna, swordfish, yellowfin tuna, and albacore tuna. While the current proposal is for VMS to be optional in national waters⁹ there might be an advantage in extending VMS to cover fishing of other HMS in terms of more credible compliance measures for these species.

Assessment of proposals

Nature of international obligations

- 40 Current international law recognises that the marine living resources in a coastal state's maritime zones are within its sovereignty or sovereign rights and can in principle be managed, explored and exploited to the exclusion of other states¹⁰. However, rather than giving the coastal state freedom to do as it chooses, a wide range of obligations seek to safeguard the interests of the international community. Depending on the type of species, coastal states must ensure optimum utilisation of stocks within their jurisdiction and cooperate with other states in relation to trans-boundary stocks¹¹. Accordingly, freedom of fishing both on the high seas and within exclusive economic zones (EEZs) is becoming subject to conservation and cooperation, particularly since RFMOs, such as CCSBT, have been formed.
- 41 The CCSBT came into being in 1994, formalising a previously voluntary arrangement that had existed since 1986 following concerns about the status of STN stocks in the 1980s. The mandate of the Commission is to ensure, through appropriate management, the conservation and optimum utilisation of STN. New Zealand is a foundation member of the CCSBT, and a signatory to the convention.
- 42 RFMOs have increasingly focused on two key issues: data gathering and ensuring compliance with their management objectives. VMS assists in achieving both.

⁸ The objective of the WCPTC is to ensure, through effective management, the long-term conservation and sustainable use of HMS stocks in the western and central Pacific Ocean in accordance with the 1982 United Nations Convention on the Law of the Sea and the 1995 UN Fish Stocks Agreement.

⁹ Draft outline of components to be considered in development of a Conservation and Management Measure for the WCPFC VMS. WCPFC-TCC2-2006/Attachment G

¹⁰ United Nations Convention on the Law of the Sea 1982. Articles 61, 62.

¹¹ United Nations Convention on the Law of the Sea 1982 Articles 61 to 64. Agreement for the implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the conservation and management of straddling fish stocks and highly migratory fish stocks. Article 8.

Effectiveness of proposals

- 43 The CCSBT intends introducing an integrated package of monitoring, control and surveillance (MCS) measures to improve compliance with its conservation and management measures in order to ensure the long-term sustainability of the STN stock. To be effective MCS measures need to apply to all sectors of the global STN fishery.
- 44 CCSBT considers that an effective satellite-based monitoring system, in conjunction with other measures will assist in combating illegal, unregulated and unreported fishing for STN.

Economic, social and cultural considerations

- 45 Improved compliance with STN catch limits is likely to better enable people to provide for their social, cultural and economic wellbeing, although the benefits may take time to materialise given the longevity of the species in general. A rebuilt fishery will provide substantial economic and social benefits to New Zealand. For example New Zealand will benefit directly with an increase in the TACC from 420 tonnes to 1,000 tonnes in 2010¹².
- 46 Enabling people to provide for their economic needs is of particular importance for this fishery as the species is very valuable and can achieve very high export prices. The average quota price for STN is almost \$100,000 per tonne, based on 59 transactions between 2004 and 2006. This makes STN the highest quota value finfish and is over twice the relative value of snapper (SNA 1) the next highest value finfish. The 2006 port price for STN was \$22.83 per kilogram greenweight.
- 47 The species is taken only occasionally on a non-commercial basis as a sports fish.

Environmental considerations

- 48 New Zealand is an important breeding ground for approximately eighty seabird species and the greatest variety of albatross and petrel species in the world. Mortality in the STN / surface longline fisheries poses a threat to many petrel and albatross species, and affects 25 out of the 30 species listed as being killed in fishing operations in New Zealand waters. Seabirds, particularly albatrosses and petrels, are vulnerable to surface longlining because they attack baited hooks during gear deployment, sometimes diving beneath the water's surface. Other marine life, such as turtles and some marine mammals are also vulnerable to being caught on surface longlines in some areas.
- 49 New Zealand has adopted a National Plan of Action (NPOA) as the principal framework for mitigating the impact of fishing on seabirds. The NPOA lists a mix of regulated and voluntary measures imposed in the form of minimum standards for mitigation on an individual vessel basis. More recently the practise of setting longlines only at night, adopted on a voluntary basis by much of the longline fleet has been formalised in regulation. The introduction of VMS would assist with allowing patterns of likely seabird/turtle interactions in the fleet to be examined in near real time and scientific observer coverage to be targeted more efficiently.

¹² Press release from Minister of Fisheries Jim Anderton (17 October 2006).

Compliance Considerations

- 50 Internationally there is a significant risk of IUU fishing for STN. A global MCS is required in order to protect the legitimate fisheries of CCSBT member states. In this context recovery of the STN stock will have a significant (multi-million dollar) benefit to New Zealand through an increased share of the global catch (the VMS proposal is part of a package of measures attempting to bring about a stock recovery). Monitoring the high seas activities of the international fleet is seen as a key component of MCS measures for STN, as is the monitoring of domestic fleet activity. This is consistent with a range of international obligations and New Zealand domestic management regimes.
- 51 While the majority of fishing for STN by New Zealand nationals occurs within New Zealand fisheries waters this may change over time. New Zealand has also been required to have regard to the views of other CCSBT members that MCS measures should be consistent both on the high seas and within areas of national jurisdiction.
- 52 The benefits are difficult to quantify as VMS is part of an integrated package of any MCS. Nevertheless an effective MCS regime improves compliance and aligns the behaviour of the fleet with conservation and management measures, thus ensuring sustainability of the stock. It is generally recognised that an effective satellite-based monitoring system in conjunction with other measures combats IUU fishing.
- 53 MFish notes that VMS provides additional management information about fleet patterns such as fishing, and vessel movements that do not appear on catch effort returns.
- 54 New Zealand has recognised the benefits of VMS since 1994 and is currently operating a VMS involving up to 200 vessels. The New Zealand experience is that VMS is a cost effective means to monitor the activity of fishing vessels and assists with targeting compliance efforts in commercial fisheries for greatest effectiveness.
- 55 However there are cost implications for both MFish and Industry. The installation and maintenance of ALCs will impose a cost for industry and for smaller vessels in particular. There will be increased systems and workload implications in MFish monitoring any additional vessels. Including the entire STN fleet would increase from about 200 to about 250 the number of vessels currently monitored. The level of monitoring will also determine the resources required.
- 56 The key issue in the New Zealand STN fishery is ensuring compliance with commercial catch limits. VMS will assist with detecting activity in near real time where fishers may be catching and not declaring or discarding catch. Accordingly, if implemented, it is likely VMS will become an important component of the MCS for the STN fishery.

Statutory Considerations

57 Appendix Three contains the 'Statutory Considerations' relevant to this paper.

Costs and benefits of proposals

58 The value of an effective compliance regime to the fishery in economic, social and ecological terms will determine the benefits to the fishery. These factors are difficult to quantify but a healthy rebuilt fishery will provide substantial increased economic and social benefits to New Zealand.

59 VMS costs will be borne entirely by the vessel owners. There will be the initial cost of the Argos or Immarsat-C compliant ALC units, the installation costs by MFish certified technicians, and on-going data transmission costs associated with this proposal. According to the Food and Agriculture Organisation of the United Nations (FAO) per vessel costs of \$US5,000 (~\$NZ 7,700) for establishment and less than \$US1,000 (~\$NZ 1,500) per annum for ongoing costs are possible¹³. The set-up cost in purchasing and installing a compliant unit is non-trivial but is a one-off cost. The on-going cost of polling (transmitting and recording data) the unit is likely to amount to \$NZ 3-5 dollars a day.

60 These costs must be weighed against the improvements in monitoring provided by VMS and the need for a globally consistent management regime.

61 A potential complication is that only two types of ALC are currently approved for use in New Zealand and these may not be suitable for many of the smaller vessels operating in the fleet. Accordingly suitable types of equipment for smaller vessels, and the effect of implementing this will need to be considered. Alternative technology would be evaluated to see whether these can offer the same benefits at a reduced cost to the industry and could feasibly be implemented by MFish. A two phased implementation process would allow existing VMS coverage to be extended to a significant proportion, if not all, of the fleet to support current management and CCSBT needs. A longer term process could be adopted for smaller vessels if these are unable to operate current ALC technology.

62 Although not primarily a safety device, VMS may contribute to increased vessel safety and is akin to safety based requirements being considered by New Zealand as a consequence of International Maritime Organisation requirements. Some ALC transceivers can send a range of different data/communication types and may allow, for example, constant two-way communication between the vessel and shore side monitors. If an accident were to occur, the recorded track of the vessel may aid rescue efforts. Some units are also capable of sending text messages or distress calls.

63 Operators whose vessels participate in the VMS might be able to access their own information as well. Access to the overall results of the analysis of transmitted information could assist in more effective fishing (more catch in less time or shorter fishing trips).

¹³ FAO Technical Guidelines for Responsible Fisheries - Fishing Operations - 1 Suppl. 1 - 1. Vessel Monitoring Systems

Administrative implications

- 64 Confidentiality and security of information is essential for the success of VMS. The possibility that near real-time location could end up in the hands of competitors is bound to impact on acceptance and, if already in operation, on compliance and cooperation. Confidentiality and security risks are unlikely in the New Zealand context as VMS information is not shared with any other parties, and appropriate measures are already being taken to address these risks. New Zealand also has legislation relating to the disclosure of confidential and commercially sensitive information (Official Information Act 1992). However, risks exist in every phase of transmission and accordingly the utmost diligence must be taken. One specific consideration of the type of VMS regimes and technology considered during the CCSBT process is the ease with which the unit or data sent can be tampered with or intercepted. This would similarly apply to any process for considering alternative technology for smaller vessels.
- 65 Adopting either option would best be given effect by an amendment to the VMS Regulations. This would involve adding the class of vessels required to carry an ALC.
- 66 A consequential amendment to the approved list of ALCs might also be required to implement any alternative types of ALC that could apply to smaller vessels. This would involve amending regulation setting out the standards and specifications for Type Approved ALCs in New Zealand.

APPENDIX 1: ATTACHMENT 10 OF THE REPORT OF THE THIRTEENTH ANNUAL MEETING OF THE CCSBT

Draft Resolution on the development and implementation of a Vessel Monitoring System (*adopted at the Thirteenth Annual Meeting – 10-13 October 2006*)

Draft Resolution on the development and implementation of a Vessel Monitoring System

The Extended Commission for the Conservation of Southern Bluefin Tuna,

Noting the intention of the Extended Commission to introduce an integrated package of monitoring, control and surveillance measures to improve compliance with the conservation and management measures of the Extended Commission in order to ensure the long-term sustainability of the stock;

Recognising the need for monitoring, control and surveillance measures to apply to all sectors of the global STN fishery;

Further recognising the value of an effective and fully operational satellite-based Vessel Monitoring System in combating illegal, unregulated and unreported fishing for STN and ensuring compliance with the Commission's conservation and management measures;

Aware that some Members and other regional fisheries management organizations have established Vessel Monitoring Systems and that the experiences of such Members and organizations may be useful in developing and implementing a Commission for the Conservation of Southern Bluefin Tuna Vessel Monitoring System;

Agrees that:

1. The Commission Members and Cooperating Non- Members shall develop and implement their satellite-linked Vessel Monitoring Systems for fishing vessels catching STN and flagged to Members and Cooperating Non-Members.

2. Members and Cooperating Non-Members shall finalise the details of their Vessel Monitoring Systems in inter-sessional meetings before the Fourteenth Annual Meeting of the Commission, in order to agree minimum standards at that meeting. These Vessel Monitoring Systems shall be implemented by 1 January 2008.

3. The Vessel Monitoring Systems shall include the following elements:

- i) Flag states/fishing entities shall monitor and manage their vessels equipped with vessel monitoring devices.
- ii) Rules and conditions of use shall be developed intersessionally to protect and ensure the confidentiality of any data transmitted to the Secretariat.

- iii) The following data shall be continuously and automatically reported, at a frequency that allows the fishing activity of a vessel to be identified, while the vessel is fishing: the vessel identification; its geographical position; and the date and time.
- iv) Vessel monitoring devices shall be tamper-resistant and located in a sealed unit with official seals that indicate whether the unit has been accessed or tampered with.
- v) In the event of a technical failure of the device, the master or owner of a vessel shall be required to report to the flag state/fishing entity, at a frequency that allows the fishing activity of a vessel to be identified, the vessel's identification, its geographical position, and the date and time.

4. Members and Cooperating Non-Members shall implement a mandatory Vessel Monitoring System for fishing of STN inside the Exclusive Economic Zone by 1 January 2008 for vessels above a specified size.

5. The VMS shall not derogate from the rights and responsibilities of flag states/fishing entities.

6. Arrangements in other regional organisations shall be drawn upon in developing rules and conditions relating to confidentiality.

7. Members and Cooperating Non Members shall ensure their domestic regulations and rules enable them to act in accordance with the Vessel Monitoring System to be developed under paragraphs 1 and 2.

8. This resolution shall bind all Members and Cooperating Non-Members.

APPENDIX 2: PROFILE OF THE NEW ZEALAND STN FLEET

Table 1: Number of vessels in three size ranges (metres overall length) that report targeting southern bluefin tuna (Target) and those reporting target fishing for bigeye tuna, southern bluefin tuna, swordfish, yellowfin tuna, albacore tuna and Pacific bluefin tuna using the method of surface longline (All SLL) for the two most recent fishing years. Data was derived by linking through the trip code the TUN field “target fishing” with the field “vessel length overall (m)” contained on CLR forms.

Fishing year	0-15 metres		15-28 metres		28+ metres		Total	
	Target	All SLL	Target	All SLL	Target	All SLL	Target	All SLL
2004/05	8	12	36	41	2	2	47	57
2005/06	13	14	27	36	3	3	43	54

APPENDIX 3: STATUTORY CONSIDERATIONS

- 67 In reviewing the requirement to carry and operate VMS in the southern bluefin tuna fishery, the following statutory considerations have been taken into account. Fisheries Act 1996 (FA96):
- 68 Section 5(a) requires all persons exercising or performing functions, duties, or powers conferred or imposed by or under the FA96 to act in a manner consistent with New Zealand's international obligations relating to fishing.
- 69 The CCSBT's thirteenth annual meeting has created new international obligations, requiring New Zealand to develop and implement satellite-linked VMS systems for fishing vessels catching STN. New Zealand needs to undertake a review of its current VMS monitoring system and consider putting in place additional monitoring requirements.
- 70 The Commission is to pass a resolution establishing a mandatory VMS requirement for vessels, perhaps above a specified size.
- 71 Section 5(b) requires all persons exercising or performing functions, duties, or powers conferred or imposed by or under the FA96 to act in a manner consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.
- 72 MFish considers that any of the proposals contained in this IPP are consistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.
- 73 Section 8. The purpose of the FA96 is to provide for the utilisation of fisheries resources while ensuring sustainability.
- 74 The review is intended to improve compliance with STN measures. Proposals should contribute to ensuring that the fishery is sustainable and the relationship with interdependent stocks is also improved.
- 75 Improved compliance with STN catch limits is likely to better enable people to provide for their social, cultural and economic wellbeing, although the benefits may take time to materialise given the longevity of STN in general. Enabling people to provide for their economic needs is of particular importance for this fishery as the species can achieve very high export prices. The species is taken on a non-commercial basis as a sports fish. While taken by sport fishers in small numbers the species is highly sought after highlighting its social value.
- 76 Section 9 requires all persons exercising or performing functions, duties, or powers conferred or imposed by or under the FA96, in relation to the utilisation of fisheries resources or ensuring sustainability, to take into account the following environmental principles: (a) Associated or dependent species should be maintained above a level that ensures their long-term viability: (b) Biological diversity of the aquatic environment should be maintained: (c) Habitat of particular significance for fisheries management should be protected.
- 77 Tuna longline fisheries occasionally catch sea birds and turtles within New Zealand fisheries waters. There are therefore potential impacts on associated and dependent

species, biodiversity and protected species that require monitoring and possibly future management action. The introduction of VMS monitoring of STN will improve the ability to address these issues by near real time monitoring. There are no habitats of particular significance that will be affected by the proposals. Accordingly, MFish considers that the environmental principles set out in section 9 of the Act will be better met.

- 78 Section 10 requires all persons exercising or performing functions, duties, or powers conferred or imposed by or under the FA96, in relation to the utilisation of fisheries resources or ensuring sustainability, to take into account the following information principles:
- a) Decisions should be based on the best available information:
 - b) Decision makers should consider any uncertainty in the information available in any case:
 - c) Decision makers should be cautious when information is uncertain, unreliable or inadequate:
 - d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of that Act.
- 79 MFish considers that further information would strengthen its ability to assess the best available information. There is uncertainty about whether the ALC currently approved for use are suitable for all vessels operating in the STN fishery. There is uncertainty about what the CCSBT resolution regarding mandatory VMS requirements will be. In terms of sustainability outcomes, adoption of more stringent VMS requirements would be acting in a more cautious manner than continuing with the status quo.
- 80 Section 11 (2A) –Before setting any sustainability measure under Part III of the Act, the Minister must have regard to any provisions of any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991, and any management strategy or management plan under the Conservation Act 1987 that applies to the coastal marine area and is considered to be relevant by the Minister. MFish is not aware of any provisions in any strategy or planning document under the Resource Management Act or Conservation Act that are relevant to the reviewing of these measures for southern bluefin tuna.
- 81 Similarly, before setting any sustainability measure relevant to the Hauraki Gulf (e.g. real time monitoring of southern bluefin tuna), the Minister must have regard to s 7 and s 8 of the Hauraki Gulf Marine Park Act 2000 Act. The Hauraki Gulf is defined in that Act to include all coastal waters and offshore islands from near Te Arai Point offshore to the Moko Hinau Islands, and south to Homunga Point (north of Waihi Beach). This Act’s objectives are to protect and maintain the natural resources of the Hauraki Gulf as a matter of national importance. While southern bluefin tuna are not known to occur within the boundaries of the Hauraki Gulf, MFish considers that reviewing compliance measures for southern bluefin tuna will better meet the purpose of the Act.
- 82 Section 11(2)(a) and (b) – Before setting any sustainability measure, the Minister must also take into account any conservation services or fisheries services, any

relevant fisheries plan approved under the Act, and any decisions not to require conservation services or fisheries services. There are no relevant fisheries plans approved that would have any bearing on these measures for southern bluefin tuna. Conservation and fisheries services apply to tuna fisheries generally in order to assess and monitor the impacts of fishing on non target fish and non-fish species. The Pelagic Fisheries Medium Term Research Plan outlines research directions already adopted by MFish.

- 83 While mātaimai reserves exist within STN 1 the values of the mataitai will not be compromised as southern bluefin tuna are an oceanic stock. No area has been closed or fishing method restricted for customary fishing purposes in STN 1 that would affect the fishery. No restrictions have been placed on fishing in any area within STN 1.
- 84 Section 12 MFish has provided this Initial Position Paper (IPP) for the purposes of consulting with those who have an interest in STN.
- 85 Section 297(ca) enables the Governor General to make regulations requiring the installation and maintenance of equipment to monitor fishing or transportation and the payment of any associated fees and charges.
- 86 Section 297(o) enables the Governor General to make regulations implementing any provisions of, or giving effect to, any convention, or agreement to which New Zealand is a signatory or a party, and any understanding concluded by the Government of New Zealand and the government of any other country; and declaring any such regulations to apply beyond the outer limits of New Zealand fisheries waters in respect of any New Zealand citizen, person entitled to reside in New Zealand indefinitely, body incorporated in New Zealand, or any New Zealand ship or vessel registered under the FA96.