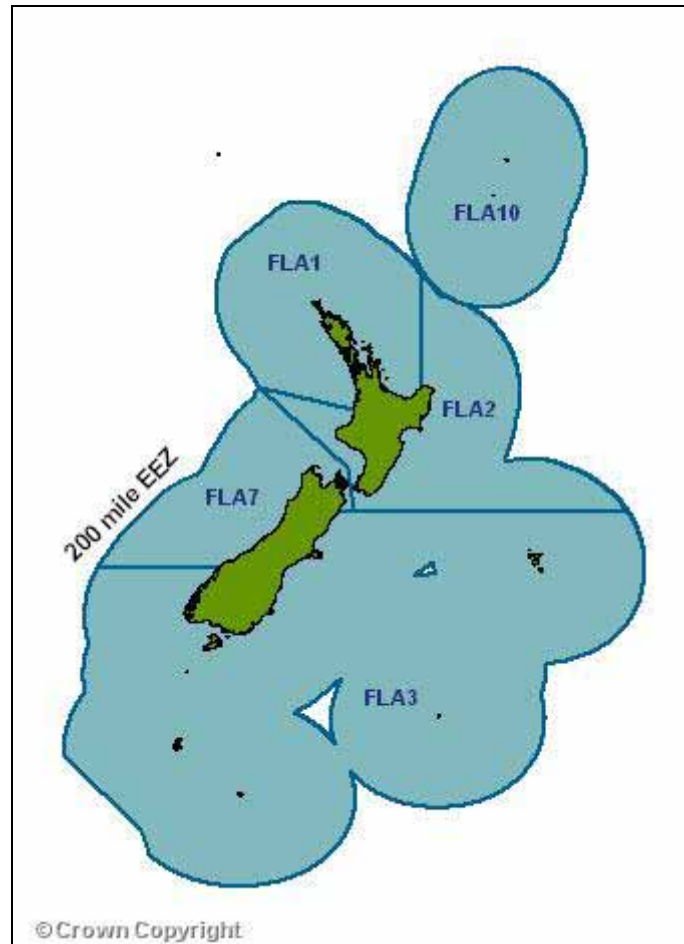


# FLATFISH (FLA 3) – FINAL ADVICE

Figure 1: Quota Management Area (QMA) for Flatfish FLA 3



## Executive Summary

- 1 Following a review of the FLA 3 fishery, you are requested to make a decision on the appropriate Total Allowable Catch (TAC) and allowances for FLA 3. A TAC and other allowances have not yet been set for FLA 3; although a Total Allowable Commercial Catch (TACC) of 2 681 tonnes is in place.
- 2 An Initial Position Paper (IPP), released 19 June 2007, proposed four TAC options for FLA 3. TACs, TACCs, and allowances were based on recent catches and/or historic allocations. TAC options represented increasingly cautious steps in terms of sustainability, with correspondingly greater socio-economic impacts.
- 3 There is little research information on the abundance of flatfish in FLA 3, and estimates of current and reference biomass are not available. The TACC has never been fully caught and recent commercial catches have been substantially below the TACC. Anecdotal information from commercial and recreational fishers suggests current catches may not be sustainable. Recreational fishers consider FLA 3 abundance is so low that they are effectively being denied access to the resource.

- 4 Some fishers consider that intensive fishing effort in recent years has caused a decline in recruitment and abundance. Flatfish populations, however, are highly variable and, rather than fishing pressure, the decline in abundance may be caused by environmental or climatic factors.
- 5 The 2007 Plenary for FLA 3 states that a constant catch at the level of the current TACC is unlikely to be attainable or sustainable, nor would it be likely to allow the stock to move towards a size that will support the maximum sustainable yield ( $B_{MSY}$ ).
- 6 Given this statement, which has remained unchallenged in submissions on the IPP, it is unlikely that a TAC based on the status quo TACC (Option 1 in the IPP) will meet your requirement to set a TAC that maintains the FLA 3 stock at or above  $B_{MSY}$ .
- 7 The three remaining TAC options are increasingly cautious in terms of sustainability, but are likely to have correspondingly greater socio-economic impacts.
- 8 Socio-economic impacts will be greatest under Option 4. MFish estimates that active fishers that fish their own quota holdings could lose up to 15% of that portion of their income derived from catching flatfish.
- 9 There is increased uncertainty around the socio-economic impact of Option 4, compared with other options, as the Option 4 TACC will limit fisher's ability to secure ACE. This increased uncertainty may make this a less-preferred option.
- 10 Economic impacts will also vary depending on where commercial fishers fish within FLA 3. Anecdotal information indicates that flatfish are more abundant in the southern part of the fishery, and smaller fishing operations operating in the south are currently catching their entire Annual catch Entitlement (ACE). Fishers in southern FLA 3 will need to purchase ACE if they wish to continue to fish at their current level.
- 11 Non-commercial catch is relatively small for FLA 3, and proposed allowances are less 16% of the TAC under all options. Nevertheless, MFish has included additional options (Option 3b and Option 4b) in the final list of options to allow you to consider whether to proportionally reduce the recreational allowances on the same basis as the TACC.
- 12 Any decision that you make in this FLA 3 fishery should have regard to the decision that you make in the RCO 3 fishery since the outcome of that paper is likely to impact on the FLA 3 fishery as well. This is of particular relevance in a mixed inshore trawl fishery.

## The Issue

- 13 Available information suggests that flatfish recruitment and abundance in FLA 3 may be declining.
- 14 The 2007 Plenary report noted that for FLA 3: "The sizes of the populations depend heavily on the strength of the recruiting year classes and are, therefore, highly variable. For this reason, a constant catch at the level of the current TACC is unlikely to be attainable or sustainable, nor would it be likely to allow stocks to move towards a size that would support the MSY." The current landings and TACC are 40% and 170%, respectively, above the level that is considered sustainable using indicative yield estimates based on the estimated maximum constant yield (MCY).

- 15 Flatfish abundance is naturally variable and some commercial fishers are concerned that a lower TACC will limit their ability to access fish in years of high abundance. MFish notes that FLA 3 is listed on the Second Schedule of the Fisheries Act 1996, allowing the Minister to increase the TAC (under s 13(7) of the Act) and the ACE (under s 68 of the Act) during the fishing year. Although FLA 3 is listed on the Second Schedule of the Act there is no decision rule developed that would allow the Minister to determine an in season increase to the TACC in years of high abundance.
- 16 Recreational fishers participating in the MFish southern region Recreational Fishers Forum are concerned about the sustainability of the current TACC. Forum members state they have stopped fishing for flatfish because of the decreased abundance. Forum members consider the current TACC is effectively denying them access to FLA 3.
- 17 Customary fishers have only taken 65% of the authorised FLA 3 catch over the last five years. The information provided by the customary permits does not specify the reason for not taking the catch that was authorised. In discussions at the Customary Regional Forums around the South Island the reasons put forward all relate to the lack of abundance of flatfish in the traditional areas.
- 18 Some commercial fishers are also of the view that the FLA 3 TACC is not sustainable. Since 1983, the average landing of FLA 3 has been 1 772 tonnes. Commercial fishes are concerned that the intensive fishing that has taken place in recent years is affecting the sustainability of the stock.
- 19 MFish recognises that commercial fishers are not obliged to fully catch their catch entitlements. Various reasons unrelated to abundance of the stock (for example market demand or price) can affect how much flatfish fishers choose to take. However, the existing TACC appears to be artificially high, given that it has never been caught. In addition, even if current commercial catches are not contributing to declining recruitment, MFish considers the possible decline in recruitment needs to be taken into account even if it is due to environmental or climatic factors.
- 20 MFish notes that reducing the amount of unfished FLA 3 ACE may reduce competitive fishing for FLA 3 and provide a framework for quota holders to obtain more value from the FLA 3 stock.

## Summary of Options

### *Initial Proposal*

- 21 The IPP proposed the following options:

**Table 1: Proposed TAC (tonnes), TACC (tonnes) and allowances for FLA 3**

	Proposed TAC (tonnes)	Customary allowance (tonnes)	Recreational allowance (tonnes)	Other sources of fishing-related mortality (tonnes)	Proposed TACC (tonnes)
Option 1 (TAC based on present TACC + allowances)	2 893	5	150	57	2 681
Option 2 (TAC based on average catch over last 15 years)	1 974	5	150	39	1 780
Option 3 (TAC based on average catch over last 5 years)	1 617	5	150	32	1 430
Option 4 (TAC based on estimate of MCY)	980	5	150	20	805

- Option 1 - TAC of 2 893 tonnes, with a TACC of 2 681 tonnes. This is, in effect, the status quo TACC with additional allowances based on current catch estimates to create a TAC.
- Option 2 - TAC of 1 974 tonnes, including a TACC of 1 780 tonnes. This TACC is the commercial catch averaged over 15 years to account for any cyclical changes in flatfish catches over time. For example, commercial catches have peaked twice in the last 20 years, in 1988-89 and, again, between 1995 and 1998. The 15 year period incorporates the years 1995-96 to 1997-98 during which flatfish catches were substantially higher than in other years. Other allowances are as per Option 1.
- Option 3 - TAC of 1 617 tonnes. It uses the same estimates for customary and recreational catch, and other sources of fishing-related mortality, as Option 2 but sets a lower TACC of 1 430 tonnes. This TACC is calculated from commercial catches over a different period, the average of the last five years 2001-06.
- Option 4 - TAC at 980 tonnes. This TAC is calculated from the indicative yield estimate of MCY for FLA 3 in the Plenary report. It uses the same estimates for customary and recreational catch, and other sources of fishing-related mortality as Option 2, but results in a TACC of 805 tonnes. This is substantially lower than recent catches.

## ***Final Proposal***

1 The options available for consideration are:

EITHER

- a) Option 1 (status quo) – set a TAC of 2 893 tonnes for FLA 3 and within that set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 150 tonnes;
  - iii) an allowance of 57 tonnes for other sources of fishing-related mortality; and
  - iv) leave the TACC unchanged at 2 681 tonnes.

OR

- b) Option 2 - set a TAC of 1 974 tonnes for FLA 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 150 tonnes;
  - iii) an allowance of 39 tonnes for other sources of fishing-related mortality; and
  - iv) reduce the TACC to 1 780 tonnes.

OR

- c) Option 3a - set a TAC of 1 617 tonnes for FLA 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 150 tonnes;
  - iii) an allowance of 32 tonnes for other sources of fishing-related mortality; and
  - iv) reduce the TACC to 1 430 tonnes.

OR

- d) Option 3b - set a TAC of 1 587 tonnes for FLA 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a reduced recreational allowance of 120 tonnes;

- iii) an allowance of 32 tonnes for other sources of fishing-related mortality; and
- iv) reduce the TACC to 1 430 tonnes.

OR

- e) Option 4a - set a TAC of 980 tonnes for FLA 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 150 tonnes;
  - iii) an allowance of 20 tonnes for other sources of fishing-related mortality; and
  - iv) reduce the TACC to 805 tonnes.

OR

- f) Option 4b - set a TAC of 897.5 tonnes for FLA 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a reduced recreational allowance of 67.5 tonnes;
  - iii) an allowance of 20 tonnes for other sources of fishing-related mortality; and
  - iv) reduce the TACC to 805 tonnes.

## Consultation

- 22 Your decision on a TAC for FLA 3 is made under section 13(1) (with references to s 13(2)(b)) of the Act and, therefore, the consultation requirements of section 12 apply. Further, in respect of your decision whether or not to adjust the TACC for FLA 3, the consultation requirements set out in section 21(2) apply.
- 23 Consultation on the IPP was undertaken with such persons or organisations representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Maori, environmental, commercial, and recreational interests. Further, provision was made for the input and participation of tangata whenua having a non-commercial interest in the stock or an interest in the effects of fishing on the aquatic environment in the area concerned, having particular regard to Kaitiakitanga.

- 24 In addition to written requests for submissions on the IPP, MFish has discussed these proposals at:
- Iwi forums at Kaikoura, Canterbury, Araiteuru (Otago), Murihiku (Southland) and Wharekauri/Rekohu (Chatham Islands)
  - The South Recreational Forum
  - A meeting with SeaFIC and South East Finfish Management Ltd.

## Submissions Received

Submissions regarding this proposal were received from:

- Araiteuru Customary Fisheries Regional Forum
- Environment and Conservation Organizations of NZ Inc (ECO)
- Graham Fraser, fisherman Taieri Mouth
- New Zealand Recreational Fishing Council (NZRFC)
- Ngati Mutunga O Wharekauri Iwi Trust
- Ocean Fisheries Ltd
- Royal Forest and Bird Protection Society of New Zealand Inc.(Forest & Bird )
- Sanford Ltd
- South East Finfish Management Ltd (South East Finfish)
- The New Zealand Seafood Industry Council Ltd (SeaFIC)
- Talley's Ltd ( Talley's)
- Tasman and Sounds Recreational Fisher's Association (TASFISH).

## MFish Discussion

- 25 Most submitters acknowledge that the TACC for FLA 3 is a problem that has to be addressed.
- 26 **SeaFIC, Ocean Fisheries, South East Finfish Management Ltd and Talley's Ltd** all acknowledge that the TACC for FLA 3 needs addressing, but support the status quo Option 1 and recommend various stakeholder initiatives as alternatives to TACC reductions. These include:
- providing economic data to support the fishery,
  - completing a characterisation of the fishery,

- analysing CPUE,
- working collaboratively with MFish on a specific fisheries plan, and
- working with MFish to develop an in-season decision rule for a TACC increase under Schedule 2 of the Act.

- 27 **Graham Fraser** quota owner and fisherman of Taieri Mouth submitted that he never had a problem catching his quota. This is indicative of a north-south split in the health of the fishery. Mr Fraser supports Option 1 as any reduction in TACC results in economic harm to his business.
- 28 Some quota owners submitting in support of Option 1 also included a proposal to withhold excess ACE from the fishery.
- 29 MFish notes there is a statutory obligation under section 13(2)(b) of the Act to set the TAC at a level that enables a stock below a biomass of MSY to be restored to a level that can produce MSY having regard to the interdependence of stocks, the biological characteristics of the stock and any environmental conditions affecting the stock. When exercising discretion as to the way and rate the stock is restored to this level the Minister must have regard to social, cultural and economic factors he considers relevant. Shelving (or withholding ACE) and other stakeholder initiatives may be used as a mechanism to assist the way or rate at which the stock is restored to a level that can produce MSY. However, they may not be used as an alternative to setting an appropriate TAC at the appropriate level, as required by section 13 of the Act.
- 30 **Sanford Ltd** supports Option 2, which uses the average of the last 15 years commercial catch to set a TACC. Sanford points out that this still leaves reasonable headroom for utilisation during years of abundance. Sanford would also like management under s14 of the Act to be considered. MFish considers there are arguments in favour of both section 13 and section 14 options, but that shifting to section 14 has not been consulted on in this process. This issue can be reviewed during the development of a Fisheries Plan for the Southern Inshore Finfishery, scheduled for 2008-09.
- 31 FLA 3 is on Schedule 2 of the Act, allowing in-season adjustment of the TAC (and ACE). A research project to determine in-season TAC adjustment mechanisms has been referred to the MFish Inshore Research Planning Group. This will be forwarded to the MFish Research Co-ordinating Committee later this year to determine an in-season TAC adjustment mechanism.
- 32 Option 3 was supported by **ECO** and **Forest and Bird** as both organisations considered this option as a move toward MSY. A split of the TAC into separate species was also promoted as a management tool. This, however, is beyond the scope of this paper and can be reviewed during the development of a Fisheries Plan for the Southern Inshore Finfishery.
- 33 Option 4 attracted support from **NZRFC** and **TASFISH** as both these organisations believe that this option meets the requirements of Section 13 of the Act.
- 34 Recreational and customary allowances were commented on by Sanford, SeaFIC, South East Finfish, and Talleys. These organisations believe that recreational and customary

allowances should be reduced proportionally to the TACC. MFish notes this issue was discussed in the introduction to the IPP (see Para 108-115). MFish agrees that in the context of a shared fishery, utilisation must mean the ability of all sectors to have a reasonable opportunity to utilise the fishery. An over-generous allocation to one sector may impede reasonable utilisation by other sectors and therefore may impede the proper purpose of the Act. MFish notes that under all options, except Option 4, non-commercial allowances make up less than 10% of the TAC. Under Option 4, they amount to 16% of the TAC.

- 35 MFish would further comment that there are no fixed shares of the TAC allocated to each sector in this fishery. The current review involves setting a TAC for all sectors based on current catch. If the TACC was currently fully caught and a reduction was occurring, then, the issue of reallocation to non-commercial could arise. This is not the case. Nevertheless, MFish has included additional options (“Option 3b” and “Option 4b”) in the final list of options for you to consider. These additional options proportionally reduce the recreational allowance on the same basis as the TACCs; 20% reduction for Option 3b and 55% reduction for Option 4b.
- 36 Recreational sector wellbeing in relation to FLA 3 fish stocks is hard to quantify. The information provided in the Recreational fisher forums is that fishers are being denied access to fish as they believe that the commercial sector has depleted stocks in certain areas. The general belief is that this sector gains little value from this fishery as there are very few fish for recreational fishers to catch.
- 37 Flatfish is also a species of customary significance. Pātiki (flounder) have traditionally been a popular food source that could easily be caught by spear fishing. Customary design patterns based on the flounder shape have been related to hospitality and being able to provide abundant food. Localised depletion certainly lessens the value obtained by customary fishers.
- 38 **Ngati Mutunga O Wharekauri Iwi Trust** supports a lowering of the TACC for FLA3 if research has shown that this is required to support the long term sustainability of these fish stocks.
- 39 Customary allowances were discussed at the **Araiteuru, Wharekauri/Rekohu, Murihiku, Kaikorua** and **Canterbury** Customary Fisheries Regional Forums. The customary allowance was generally accepted with the acknowledgement that customary catch was often taken as recreational take.

## Rationale for Management Options

- 40 New Zealand flatfish species are believed to be fast growing, short-lived and prolific. Most stocks in the QMS are managed under section 13. Section 14 provides an alternative means for setting a TAC under certain circumstances where it would better meet the purpose of the Act. As raised in submissions, there are arguments in favour of both section 13 and section 14 options, however this issue is outside the scope of this review. Management under section 14 is an option that can be investigated under the Fisheries Plan for the Southern Inshore Finfishery, to be developed with stakeholders in 2009.

## Assessment of Management Options

- 41 TAC options represent increasingly cautious steps in terms of sustainability, with correspondingly greater socio-economic impacts.
- 42 **Option 1**, is the existing TACC, with additional allowances based on current catch estimates. This option involves the greatest risk to stock sustainability, given that the TACC has never been caught and the current stock status of FLA 3 is unknown. The current plenary assessment for the stock is that, if it were fully caught, the existing TACC is unlikely to move FLA 3 towards a level that could sustain MSY. Given this statement, which has remained unchallenged in submissions on the IPP, it is unlikely that this option will meet your requirement to set a TAC that maintains the FLA 3 stock at or above the biomass that will support the maximum sustainable yield (BMSY).
- 43 **Options 2 and 3** both propose to base the TAC on estimates of recent catches. The two options differ in the period over which they estimate current commercial catch. Option 2 averages commercial catch over a fifteen year period. This option makes greater provision for the natural variability of flatfish, and incorporates past years in which commercial catches have been higher than at present. Option 2 allows fishers to cover catch in most years and presents a lower sustainability risk than Option 1.
- 44 Option 3 averages commercial catches over the last five years. This option more closely reflects historic low catches in the commercial fishery. Using the period of lower average catch places more weight on a possible decline in flatfish abundance and recruitment. Commercial catches have exceeded the TACC proposed under Option 3 in most years. Option 3 is a more conservative option with respect to sustainability risk and reduces the competitive nature of the present fishery. This option places a greater constraint on commercial fishers in the mixed inshore trawl fishery. As FLA 3 is largely a target fishery commercial fishers should be able to constrain their catches within the TACC proposed under option 3.
- 45 Over the last three years, less than half the TACC has been caught. In addition, the number of fishers and vessels operating in the fishery has declined. MFish considers that options 2 and 3 will not overly constrain the ACE or quota price as ACE price only increases as catch levels draw close to the amount of fish available.
- 46 **Option 4** uses the estimate of MCY as a proxy for MSY. This option places the TACC well below current and historic catch levels. This option removes the pressure on by-catch stocks and ends the open access nature of the present fishery. Option 4 is the most conservative option with respect to sustainability risk. However, it also has the greatest social and economic impact. The level of risk to the stock by harvesting the population at the estimated MCY value cannot be determined.
- 47 Option 4 would set the TACC at less than the current catch level. In considering Option 4 MFish recommends that you note the increased deemed values proposed in the current Deemed Value Review paper (Volume 4). Setting the appropriate deemed value for FLA 3 will be challenging given the number of species included in FLA 3 and the variable price (between \$1 and \$5 per kilogram) received for landed fish.
- 48 Option 4 is likely to limit the ability of fishers to secure ACE and may drive the price of both ACE and quota up. MFish does not know the extent to which this will impact on

local support businesses (eg, Licensed Fish Receivers), or the extent to which fishers could shift effort outside FLA 3 to maintain their fishery.

- 49 The potential for ACE price to rise also raises the incentive to dump or “high grade” for catch that is likely to attract the maximum value from processors. Higher ACE prices are likely to narrow profit margins for operators purchasing ACE.
- 50 MFish notes the increased uncertainty over the social and economic impact of Option 4 may make this a less-preferred option.
- 51 Non-commercial catch is relatively small for FLA 3, and proposed non-commercial allowances comprise less 16% or less under all options. Nevertheless, additional options **Option 3b** and **Option 4b** have been included in the list of final options to proportionally reduce recreationally allowances on the same basis as the TACC.
- 52 Table 1 provides a tabular summary of the costs and benefits of each option;

**Table 1 Summary of cost and benefits associated with options 1 to 4**

<b>Option 1 Costs</b>	<b>Option 1 Benefits</b>
<ul style="list-style-type: none"> <li>• Greatest risk that fishing exploitation leads to stock biomass below <math>B_{MSY}</math> in the future.</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing utilisation at current level: landed value of approximately \$7.9 million, if TACC fully caught.</li> </ul>
<ul style="list-style-type: none"> <li>• Possible depletion of individual species in certain areas further limiting Recreational utilisation.</li> </ul>	<ul style="list-style-type: none"> <li>• Continued management under an industry-driven structured fishing plan, although efficacy of this plan not known.</li> </ul>
<ul style="list-style-type: none"> <li>• In the case of over-exploitation, forgone future utilisation.</li> </ul>	<ul style="list-style-type: none"> <li>• Continued collection of data.</li> </ul>
<b>Option 2 Costs</b>	<b>Option 2 Benefits</b>
<ul style="list-style-type: none"> <li>• If TACC was fully caught, potential immediate landed value loss of approximately \$2.7 million although no loss in current landed value.</li> </ul>	<ul style="list-style-type: none"> <li>• Using average catches, Option 2 results in no loss in landed value.</li> </ul>
<ul style="list-style-type: none"> <li>• Possibly that some small vertically integrated fishing operations will become un-viable due to uneconomic catch packages.</li> </ul>	<ul style="list-style-type: none"> <li>• Lower overall exploitation rate across the stock, which means increased certainty over the long-term sustainability, less potential pressure on limited by catch species.</li> </ul>
<ul style="list-style-type: none"> <li>• An increase of 7% cost to fisherman who have to pay for ACE to make up for reduction Based on average ACE trades and 2006/2007 port prices.</li> </ul>	
<ul style="list-style-type: none"> <li>• Possibly less biological information collected.</li> </ul>	
<b>Option 3 Costs</b>	<b>Option 3 Benefits</b>
<ul style="list-style-type: none"> <li>• Immediate gross revenue loss greater than Option 2. If TACC was fully caught, potential immediate landed value loss of approximately \$3.7 million.</li> </ul>	<ul style="list-style-type: none"> <li>• Lower overall exploitation rate across the stock, which means a greater certainty of the long-term sustainability, and long-term sustainable utilisation, of FLA 3.</li> </ul>
<ul style="list-style-type: none"> <li>• Possibly that some small vertically integrated fishing operations will become un-viable due to uneconomic catch packages.</li> </ul>	
<ul style="list-style-type: none"> <li>• An increase of 9.9% cost to fisherman who have to pay for ACE to make up for cut Based on average ACE trades and 2006/2007 port prices.</li> </ul>	
<ul style="list-style-type: none"> <li>• Possibility of ACE prices rising as the ACE market is more fully allocated.</li> </ul>	
<ul style="list-style-type: none"> <li>• Possibly less biological information collected.</li> </ul>	
<b>Option 4 Costs</b>	<b>Option 4 Benefits</b>
<ul style="list-style-type: none"> <li>• Immediate gross revenue loss greater than Option 3. If</li> </ul>	<ul style="list-style-type: none"> <li>• Lower overall exploitation rate across the stock, which means</li> </ul>

TACC was fully caught, potential immediate landed value loss of approximately \$5.5 million.	a greater certainty of the long-term sustainability, and long-term sustainable utilisation, of FLA 3.
<ul style="list-style-type: none"> <li>An increase of 14.7% cost to fisherman who have to pay for ACE to make up for cut Based on average ACE trades and 2006/2007 port prices,</li> </ul>	
<ul style="list-style-type: none"> <li>Possibility of ACE prices rising as the ACE market is more fully allocated. Uncertain downstream economic impacts.</li> </ul>	
<ul style="list-style-type: none"> <li>Possibly less biological information collected.</li> </ul>	

53 As a simple summary list, the costs and benefits cannot be summed, or the costs netted out against the benefits to derive the superior option. In general, there are unquantified sustainability risks and benefits from each option, with more known (and to some degree quantifiable) utilisation costs and benefits.

### **Conclusion**

54 The 2007 Plenary for FLA 3 states that a constant catch at the level of the current TACC is unlikely to be attainable or sustainable, nor would it be likely to allow the stock to move towards a size that will support the MSY. MFish notes this TACC has never been fully caught.

55 Given this statement, which has remained unchallenged in submissions on the IPP, it is unlikely that a TAC based on the status quo TACC (Option 1 in the IPP) will meet your requirement to set a TAC that maintains the FLA 3 stock at or above the biomass that will support the maximum sustainable yield (BMSY).

56 The three remaining TAC options represent increasingly cautious steps in terms of sustainability, with correspondingly greater socio-economic impacts. Active fishers that fish their own quota holdings could lose between 7% and 15% of that portion of their income derived from catching flatfish.

57 Socio-economic impacts will be greatest and also more uncertain under Option 4, as the TACC set under this option will limit fisher's ability to secure ACE. This uncertainty may make Option 4 a less-preferred option.

58 While non-commercial catch is relatively small for FLA3, additional options (Option 3b and 4b) have been included that proportionally reduce recreational allowances on the same basis as the TACC.

## Statutory Considerations

59 The following statutory considerations have been taken into account when forming the management options for FLA 3:

- a) The purpose of the Act (as provided in s 8) is to provide for the use of fisheries resources while ensuring sustainability. Because information about flatfish abundance is uncertain, MFish has provided four options that could be consistent with the Act's purpose. Utilisation is provided by way of setting allowances for commercial, recreational and customary fishers.
- b) All the options proposed rely on section 13(2)(b) to set the TAC, to enable the stock to be restored to or above a level that can produce MSY. As noted, there is uncertainty about where FLA 3 is in relation to the level that can produce the MSY. Because of this uncertainty, four TAC options are proposed. MFish considers, on the information available, that options 2, 3 and 4 are more likely to restore or move the stock towards a level that can support MSY.
- c) The proposed TAC options have also taken into account the following factors:
  - i) Flatfish stocks may vary from year to year because they are affected by *environmental conditions*. However, specific environmental conditions have not been identified that would affect the movement of the stock towards a level that will support the MSY (s 13(2)(b)(ii) of the Act).
  - ii) The *biological* characteristics of flatfish have been considered when proposing options for the TAC (s 13(2)(b)(ii)).
  - iii) Most flatfish is caught in target bottom trawl fisheries that catch a range of bycatch. Small quantities of flatfish are caught as bycatch in other inshore fisheries. Section 13(2) notes that, when setting a TAC, the Minister shall have regard to the *interdependence of stocks*. There is no biological information to suggest that the interdependence of stocks should affect the level of the TAC set for FLA 3 at this time.
- d) Social and economic consequences are a relevant factor when the Minister considers the way in which and rate at which a stock is moved towards or above a level that can produce the MSY (s 13(3)). MFish has identified differing social and economic consequences of altering the TAC and TACC under each of the four options.
- e) Section 11(1)(a) requires the Minister to take account of any effects of fishing on any stock and the aquatic environment. Given that the recommended options proposed are a reduction in the TACC, there is a potential for less fishing pressure therefore the effects on the stock from fishing will be reduced.
- f) Natural variability of the stock is a mandatory consideration when setting or altering a sustainability measure such as a TAC (s 11(1)(c)). This factor has been taken into account when choosing the periods over which to calculate average commercial catch.
- g) Section 9 sets out some environmental principles that must be taken into account

when setting or altering sustainability measures:

- 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.
- h) The options proposed here are unlikely to lead to increased catches, or an expansion of fishing effort into previously unfished areas. All options are, therefore, considered to adequately take into account these environmental principles).
- i) Associated or dependent species (s 9a) are any non-harvested species – such as seabirds or marine mammals – that are affected by the taking of any harvested species. There have been instances on the South Island east coast where endangered Hector’s dolphins have been caught in commercial and non-commercial set nets and in commercial trawl nets. To manage this risk, set netting has been controlled by codes of practice and regulation in areas of concern on the coast within FLA 3. There have been reports of Hector’s dolphin sightings in some east coast harbours and estuaries where set netting for flatfish sometime occurs. The proposed TAC options will not result in set net effort increasing in areas where Hector’s dolphins may be found.
- j) Maintenance of the biological diversity of the aquatic environment also needs to be considered (s 9(b)). Likewise, s 9(c) concerns the protection of habitat of particular significance for fisheries management. Because no increase in fishing effort is anticipated, it is not expected that the proposed TAC options would have any additional impact on biological diversity or significant habitats.
- k) A wide range of international obligations relate to fishing, including use and sustainability of fishstocks; and maintaining biodiversity (s 5(a)). MFish considers that the management options for FLA 3 are consistent with these international obligations.
- l) The existing control measures are the present fishing regulations and appropriate deemed value controls. These have been considered when making recommendations for any change to measures used to control the FLA 3 fishery (as outlined in s 11(1)(b)).
- m) No relevant fisheries plan has been approved that requires consideration under s 11(2A)(b) of the Act.
- n) This paper has considered whether there are any relevant conservation services or fisheries services (as outlined in s 11(2A)(a and c)). No suggestion is made at this stage to alter any decision about whether such services are required. However, MFish does consider that some further research to update the catch per unit effort analysis for FLA 3 is required and project FLA 2007-01 will be carried out in 2007-2008.
- o) There are no known relevant provisions concerning the coastal marine area in any

policy statement or plan under the Resource Management Act 1991, or any management strategy or plan under the Conservation Act 1987 (as outlined in s 11(2)(a) and (b) of the Fisheries Act).

- p) Section 11(2)(c) requires the Minister to have particular regard to ss 7 & 8 of the Hauraki Gulf Marine Park Act 2000. FLA3 stock are not within the Hauraki Gulf Marine Park area.
- q) Fiordland (Te Moana o Atawhenua) Marine Management Act 2005: In recognition of the Fiordland (Te Moana o Atawhenua) Marine Area's local, national, and international importance, unique marine environment, distinctive biological diversity, and outstanding landscape and cultural heritage, the Government passed the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005 (the 2005 Act). The Fiordland Marine Area is within the FLA 3 QMA.
- r) The 2005 Act states in s 26 that all management agencies exercising powers or carrying out functions in the Fiordland (Te Moana o Atawhenua) Marine Area must take into account any advice or recommendations provided by the Guardians (this includes powers and functions under the Fisheries Act 1996).
- s) MFish sought comment from the Guardians but has not received a submission.
- t) The nature of the fishery and the interests of each fishing sector have been considered in proposing the TACC and allowances for recreational and customary interests and other sources of fishing-related mortality (sections 21(1)(a and b), 21(4)(i and ii) and 21(5)). There are currently three mātaihai reserves within FLA 3. Areas have been closed for customary fishing purposes in FLA 3, but the closures do not affect flatfish fisheries. There is no taking of commercial fish in the internal waters of Fiordland - introduced in 2005 as part of the Fiordland Marine Management Strategy to reduce fishing pressure in this area.
- u) Section 10 sets out information principles that are to be taken into account when setting TACs.
- v) MFish has used the surveys of recreational fishing in 1999-00 and 2000-01 as the basis for estimates of recreational catch in FLA 3. Limitations are acknowledged with the use of these surveys. However, in the absence of other information on recreational catches, the surveys are nonetheless considered to provide the best available information.
- w) Customary information was sourced from the customary catch details data base held by Te Runanga O Ngai Tahu. This data base is a summary of all the customary permits issues by Ngai Tahu Tangata kaitiaki since 1998.
- x) All commercial information was sourced through MFish records of catch landing returns contained in the FishServe databases.
- y) Sections 21(1)(a) and 21(1)(b); and 21(4)(i) and 21(4)(ii); and 21(5). The nature of the fishery and the interests of the respective fishing sectors have been considered in setting the TACC and allowances for recreational and customary interests and all other mortality to the stock caused by fishing.

- z) Mātaitai Reserves to date. Mātaitai reserves have been established in the FLA 3 area at Rapaki Bay and Koukourārata (Port Levy) in Banks Peninsula waters, and in Paterson Inlet (Te Whāka a Te Wera). Bylaws prevent skate from being taken in the Rapaki Mātaitai Reserve and there are additional restrictions on the taking of FLA 3 stocks in the Te Whāka a Te Wera Mātaitai Reserve.
- aa) Taiāpure-Local Fisheries. Taiāpure-local fisheries have been established in Akaroa Harbour on Banks Peninsula, and East Otago just north of Otago Peninsula. A committee has been appointed for the East Otago Taiāpure-local fishery, and a committee is in the process of being established for Akaroa Harbour.
- bb) Temporary Closures No temporary closures apply to areas where FLA 3 stocks are likely to occur
- cc) Deed of Settlement In 1998, The Deed of Settlement between Ngāi Tahu and the Crown settled grievances associated with the Crown's failure to act in good faith in relation to land purchase agreements in the 1800s. The Deed of Settlement was given effect by the Ngāi Tahu Claims Settlement Act 1998.
- dd) Of relevance to the FLA 3 was the decision to vest the ownership of the bed of Te Waihora (Lake Ellesmere) to Ngāi Tahu. No FLA 3 species/stocks are listed as taonga species or “non-commercially harvested species” under the Ngāi Tahu Claims Settlement Act.

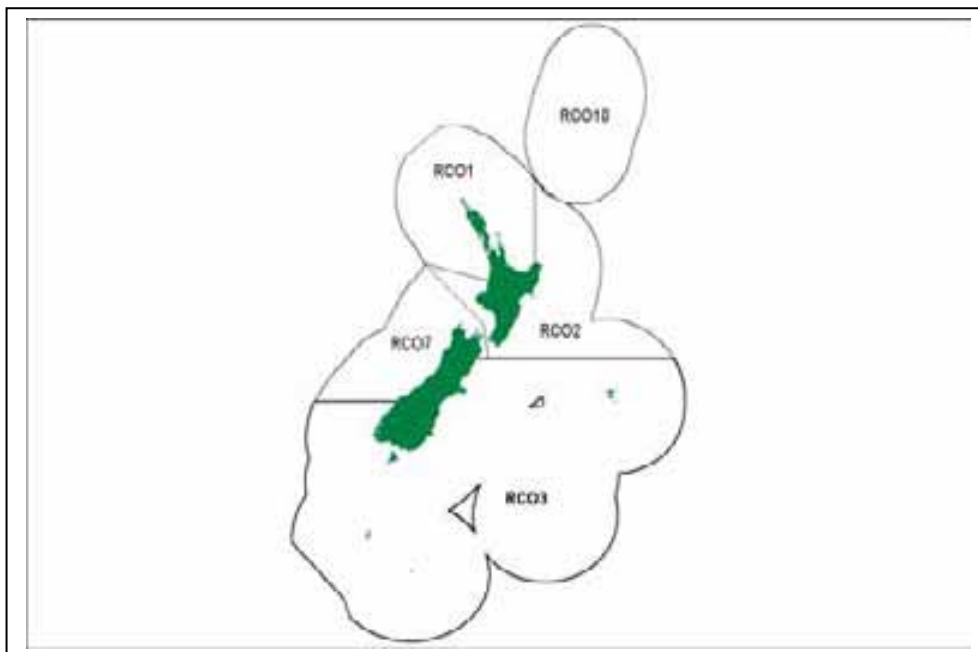
## Other Management Issues

- 60 MFish intends to begin working with Tangata Whenua and stakeholders on a Fisheries Plan for the southern finfish stocks in 2008-09. Other flatfish management issues, such as managing flatfish under section 14, managing eight species as one stock complex, and the use of improved technology to improve reporting would best be investigated within the context of this plan.
- 61 A submission from Ngati Mutunga O Wharekauri Iwi trust on the Chatham Islands discussed the establishment of a separate Wharekauri/Chatham Fisheries Management Area, and the desire for the local iwi and community to establish a flat fishery in this area. MFish will be working with Tangata Whenua and stakeholders on Fisheries Plans for both Southeast finfish and the Chatham Islands in the next few years. These will be the forums in which to discuss these initiatives as they are outside the scope of this paper.
- 62 Within the submissions on FLA3 TAC, a set net ban was proposed by Forest and Bird. Such a ban is outside the scope of this paper but MFish notes that less than 2% of the FLA 3 catch is taken by set netting.
- 63 The submission from TASFISH detailed concerns about issues in FLA7. These issues are also outside the scope of this paper.



# RED COD (RCO 3) – FINAL ADVICE

Figure 1: Quota Management Areas (QMA) Red cod (RCO 3)



## Executive Summary

- 1 You are required to make a decision on the appropriate Total Allowable Catch (TAC) and allocations for the RCO 3 fishery. A TAC and other allowances have not yet been set for RCO 3.
- 2 An Initial Position Paper (IPP) released 19 June 2007 proposed four TAC options for RCO 3.
- 3 The review was initiated to address sustainability concerns expressed to you by a number of fishers at a meeting in Timaru and, subsequently, all fishery sectors raised anecdotal concerns about the sustainability and utilisation of RCO 3 stocks off the east coast of the South Island.
- 4 Commercial landings have declined substantially since the mid 1990s and recreational fishers consider they no longer have access to valued local fisheries.
- 5 Red cod is a key target species within a complex of fished species in the Southern Inshore (trawl) Finfish Fishery (SIF fishery). Fishers target their operations around the inter-annual variation in the abundance of the species that make up this fishery complex. RCO 3 is a very large QMA covering FMAs 3, 4, 5 and 6.
- 6 Red cod are highly fecund and recruitment is strongly mediated by environmental conditions. Thus, the annual abundance of red cod varies significantly. The TACC for RCO 3 has been set at historically high catch levels to enable fishers to take advantage of years of high abundance. MFish believes that the RCO 3 fishery requires a review of the

assumption that the fishery be managed at a level that is independent of biomass (because of the life history of red cod).

- 7 Red cod is listed on the Second Schedule of the Fisheries Act 1996 (the Act). Inclusion on the Second Schedule allows for an increase to the TAC within a fishing year.
- 8 Available information on red cod on the east coast South Island lends itself to using the Second Schedule. An analysis of the recruitment-environment relationship shows there is a strong correlation between recruitment and environmental variables, with a 14 month lag. Further, the east coast South Island winter trawl survey has recommenced this year and should be able to provide fishery independent information on the relative abundance of year class strength and recruitment into the fishery. This information may allow for the development of a decision rule to give effect to within season TAC increases.
- 9 The red cod fishery is highly dependent on recruitment success and is based almost exclusively on two and three year old fish. Red cod live to six years of age.
- 10 Recruitment appears to have failed or not been significant for the past seven years. All indicators show the fishery at a very low level. This year's catch is anticipated to be less than 15% of the TACC. The recent east coast South Island trawl survey (May 2007) results put the relative biomass at 40% of the previous lowest biomass estimate. More importantly, the survey has not revealed any recruitment pulse which, if correct, means there is little likelihood of an improvement in the fishery for the next two to three years. Continued fishing pressure may further reduce spawning stock abundance.
- 11 MFish is concerned that, on current available information, the RCO 3 biomass is below maximum sustainable yield (MSY) and requires rebuilding to a level that will support the MSY.
- 12 The most recent stock assessment (2001) is largely based on data which is now nine years old and which had followed an extended period of high landings. This information is now out of date and is unlikely to apply to the fishery in its current situation.
- 13 Nevertheless, the Plenary considered that, if fully caught, the existing TACC is unlikely to be attainable or sustainable. Given this statement, which has remained unchallenged in submissions, it is unlikely that the *status quo* (Option 1) will meet your requirement to set a TAC that maintains a stock at or above the biomass that will support the maximum sustainable yield ( $B_{MSY}$ ).
- 14 The three remaining proposed TAC options represent increasingly cautious degrees of sustainability risk, with correspondingly greater socio-economic impacts. At the current port price and cost of Annual Catch Entitlement (ACE), active fishers that fish their own quota holdings are unlikely to sustain losses above 10% on that portion of their income derived from catching red cod.
- 15 In addition, the current substantial disparity, between biomass available to be caught and available ACE, may contribute to a number of anomalies and inefficiencies in the fishery. The disparity can also influence the ACE market.
- 16 The South-east Finfish Management Co, the relevant Commercial Stakeholder Organisation, and SeaFIC, have submitted that explicit consideration be given to quota

owner management initiatives to maintain a high overhead in the TACC but to manage ACE by shelving during periods of low abundance.

- 17 While this proposal in itself is an excellent initiative, it does not absolve you from setting a TAC that will move the stock to a level that can produce MSY.
- 18 The South-east Finfish Management Co, SeaFIC and other quota holders also submit that they strongly support a proportional allocation process. MFish notes that allowing for all non-commercial extraction under any of the proposed TAC options amounts to less than 4% of the TAC and that the proposed non-commercial allowances are unlikely to have a substantial material impact. Recreational fishers equally strongly believe that the non-commercial catch has not contributed to the current state of the fishery. Under option 4, a reduced daily bag limit is proposed at the request of local recreational fishers, with a corresponding reduced recreational allowance.
- 19 Nevertheless, should you consider proportional allocation appropriate to give effect to providing for social, economic and cultural wellbeing, alternative options are provided.
- 20 MFish does not consider the quantities provided for recreational catch impact materially on the commercial harvest of RCO 3, and, that in the Canterbury region, and Banks Peninsula in particular, “Akaroa cod” is a defining commercial and recreational species.
- 21 Any decision you may make in regard to RCO 3 should be made with reference to any decision you may make in regard to the TAC review for FLA 3 which is also before you at this time. This is of particular relevance as both RCO 3 and FLA 3 are components of a mixed inshore trawl fishery.

## The Issue

- 22 You requested a review of the RCO 3 TAC following a meeting with commercial fishers at Timaru in 2006. Currently, there is no TAC set for this fishery. The fishery has a Total Allowable Commercial Catch (TACC) of 12 395.702 t. Under s.13 you are required to set a TAC.
- 23 Red cod is a key target species within a complex of fished species in the Southern Inshore (trawl) Finfish Fishery (SIF fishery). Fishers target their operations around the inter-annual variation in the abundance of the species that make up this fishery complex.
- 24 Anecdotal information from all fishery sectors has raised concerns about the sustainability and utilisation of RCO 3 stocks off the east coast of the South Island. Commercial landings have declined substantially since the mid 1990s and recreational fishers consider some valuable local fisheries are lost.
- 25 You asked the Ministry of Fisheries (MFish) to review RCO 3 catch limits in response to these concerns. MFish believes that, on current available information, the RCO 3 biomass is below  $B_{MSY}$  and requires rebuilding to a level that will support the MSY.
- 26 The most recent stock assessment (2001) is largely based on data which is now nine years old and which had followed an extended period of high landings and is now out of date. Nevertheless, the Plenary considered that, if fully caught, the existing TACC is unlikely to move RCO 3 towards a level that could support the MSY.

- 27 Red cod abundance is naturally variable (in response to environmental variables) but the length and magnitude of the decline in commercial landings (anticipated to be in the order of 15% of the TACC this year) indicates fishing pressure may have significantly reduced spawning stock abundance.
- 28 The May 2007 east coast South Island winter trawl survey has been completed and biomass estimates for red cod are 40% of the previous lowest estimate in 1991.<sup>73</sup>
- 29 Further, the RCO 7 fishery has historically mirrored the RCO 3 fishery, however, for the last three years, including the current year, the RCO 7 TACC has been 98% caught.
- 30 Therefore, MFish believes that the current situation requires a review of the assumption that, because of the life history of red cod and the inter-annual variability of the biomass, the fishery be managed at a level that is independent of biomass.
- 31 Red cod is listed on the Second Schedule of the Act. Inclusion on the Second Schedule allows for an increase to the TAC within a fishing year via s.13(7) of the Act.
- 32 An analysis of the red cod recruitment-environment relationship shows there is a demonstrated strong correlation between recruitment and environmental variables, with a 14 month lag. Further, the east coast South Island winter trawl survey has recommenced this winter and will be able, in future years, to provide fishery independent information on the relative abundance of year class strength and recruitment into the fishery.

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<sup>73</sup> The results need to be considered preliminary as the survey report has not been before the Working Group.

## Summary of Options

### *Initial Proposal*

33 The IPP proposed the following options:

**Table 2: The proposed TAC (tonnes), TACC (tonnes) and allowances for RCO 3 for the 2007-08 fishing year**

	Proposed TAC (tonnes)	Customary allowance (tonnes)	Recreational allowance (tonnes)	Other sources of fishing-related mortality (tonnes)	Proposed TACC (tonnes)
Option 1 (Proxy for <i>Status quo</i> )	13 299	5	280	618	12 396
Option 2 (TAC based on 25% reduction)	9 735	5	280	450	9 000
Option 3 (TAC based on average catch over last 20 years)	7 635	5	280	350	7 000
Option 4 (TAC based on average catch over last 5 years)	4 930	5	95	230	4 600

34 All options are based on RCO 3 being on the Second Schedule of the Act and, therefore, open to within fishing year TAC increases:

- Option 1 – A proxy *status quo*. This option is based on the 2001 Plenary report that the stock is above  $B_{MSY}$ , but does not take account of the age of the assessment, additional information or the Plenary comment on the sustainability of the TACC. This option incorporates estimates of recreational catch, customary catch and other sources of fishing-related mortality as a constant factor during the period without a TAC and estimates have been added to the TACC;
- Option 2 -. TAC is based around a 25% reduction to the TACC to move the TAC towards  $B_{MSY}$ , as the Plenary considered that, if fully caught, the existing TACC is unlikely to move RCO 3 towards a level that could sustain the MSY. The TAC also incorporates estimates of recreational catch, customary catch and other sources of fishing-related mortality;
- Option 3 – TAC based on the most recent 20-year average of commercial catches, plus estimates of recreational catch, customary catches and other sources of fishing-related mortality;
- Option 4 - TAC based on the most recent 5-year average of commercial catches, plus estimates of recreational catch, customary catch and other sources of fishing-related mortality.

## ***Final Proposal***

The options available for consideration are:

EITHER

- a) Option 1 - set a TAC of 13 299 tonnes for RCO 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 280 tonnes;
  - iii) an allowance of 618 tonnes for other sources of fishing-related mortality; and
  - iv) a TACC of 12 396 tonnes.

OR

- b) Option 2a - set a TAC of 9 735 tonnes for RCO 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 280 tonnes;
  - iii) an allowance of 450 tonnes for other sources of fishing-related mortality; and
  - iv) a TACC of 9000 tonnes.

OR

- c) Option 2b - set a TAC of 9 658 tonnes for RCO 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 203 tonnes;
  - iii) an allowance of 450 tonnes for other sources of fishing-related mortality; and
  - iv) a TACC of 9000 tonnes.

OR

- d) Option 3a - set a TAC of 7 635 tonnes for RCO 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 280 tonnes;

- iii) an allowance of 350 tonnes for other sources of fishing-related mortality; and
- iv) a TACC of 7 000 tonnes.

OR

- e) Option 3b - set a TAC of 7 513 tonnes for RCO 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 158 tonnes;
  - iii) an allowance of 350 tonnes for other sources of fishing-related mortality; and
  - iv) a TACC of 7 000 tonnes.

OR

- f) Option 4 - set a TAC of 4 930 tonnes for RCO 3 and within that TAC set:
  - i) a customary allowance of 5 tonnes;
  - ii) a recreational allowance of 95 tonnes;
  - iii) an allowance of 230 tonnes for other sources of fishing-related mortality; and
  - iv) a TACC of 4 600 tonnes.
  - v) Reduce the red cod recreational daily bag limit in FMAs 3 & 5 from 30 to 10 per day.

## Consultation

- 35 Your decision whether or not to adjust the TAC/TACC for RCO 3 is a decision under s.13(1) and 13(2)(b) of the Act and, therefore, the consultation requirements of s.12 apply.
- 36 Consultation on the IPP was undertaken with such persons or organisations representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Maori, environmental, commercial, and recreational interests. Further, provision was made for the input and participation of tangata whenua having a non-commercial interest in the stock or an interest in the effects of fishing on the aquatic environment in the area concerned, having particular regard to Kaitiakitanga.
- 37 MFish has undertaken specific consultation with customary forums, recreational advisory forums and has met with the South-east Finfish Management Company and SeaFIC.

## Submissions Received

38 Submissions regarding the proposed options were received from:

- Environment and Conservation Organisations of New Zealand Inc. (ECO)
- New Zealand Recreational Fishing Council (NZRFC)
- Ocean Fisheries Limited and Ocean Fisheries Quota Holding Company Limited. (Ocean Fisheries)
- Sanford Limited (Sanford)
- South East Finfish Management Limited (SE Finfish)
- Talleys Group Limited (TGL)
- The New Zealand Seafood Industry Council Limited (SeaFIC)

## MFish Discussion

39 **Ocean Fisheries Limited** and **Ocean Fisheries Quota Holding Company Limited, Talleys Group Limited.** and **The New Zealand Seafood Industry Council Limited.** support Option 1.

40 **The South East Finfish Management Limited** submission supports Option 1, however, SE Finfish notes that there is mixed opinion within the SE Finfish shareholders. The views as to the actions that should be taken to address the concerns in the fishery are varied.

41 **Sanford Limited** supports Option 2.

42 **Environment and Conservation Organisations of New Zealand Inc.** and the **New Zealand Recreational Fishing Council** support Option 4.

43 In general, the submitters that favour Option 1 acknowledge there are problems or concerns with the fishery, but consider that setting a TAC to significantly reduce the current TACC is pre-emptive. Some submit the low catch is a consequence of the natural variability in abundance of red cod. SE Finfish notes there is general consensus that there needs to be adjustment to the TACC, however, the question is whether these concerns are sufficiently urgent to require immediate action. Other submitters see no reason to adjust the TACC at all.

44 **Sanford** supports a reduction of the TACC by 25%, which is option 2 of the IPP. Sanford submits this option will ensure sustainability, whilst providing for utilisation during years of high abundance without restricting harvest levels during these periods. It will also reduce unnecessary levy costs on quota share owners under lower abundance and utilisation cycles.

45 Sanford supports the continued setting of “headroom” TACCs in these highly variable stocks to allow for harvest utilisation during years of high abundance.

- 46 **ECO** submits the TACC should be reduced to the average catch of the last 5 years as a move towards the MCY estimate.
- 47 **NZRFC** supports Option 4 but with the following changes; the recreational allowance is increased from 95 t to 195 t, the recreational daily bag limit is increased from the proposed 10 to 15, and the TACC is set at 4 500 t. The current bag limit is 30.
- 48 NZRFC submits this reduction in catch effort will also address impacts on:
- a) Associated fisheries
  - b) Associated or dependent species
  - c) Maintenance of biological diversity of the aquatic environment
  - d) Protection of habitat of particular significance for fisheries management.
- 49 NZRFC agrees that the reported catches for RCO 3 have shown an alarming decline in recent years. As red cod are a relatively short lived species, NZRFC submits that all catch history more than 8 years old should be put aside when future catch allowance decisions are being made. A conservative catch limit should be set to allow the stocks to recover. As RCO 3 is on the Second Schedule, if a rapid increase in availability is seen, further ACE can be created at short notice.
- 50 NZRFC also submits that in addition to a significant reduction in TACC, those areas known to be predominately occupied by juvenile red cod must be protected.
- 51 As outlined in the IPP, MFish believes that, on current available information, the RCO 3 biomass is likely to be below  $B_{MSY}$ . MFish notes the Plenary assessment that a constant catch at the level of the existing TACC is unlikely to be attainable or sustainable in most years. and that you are obliged to rebuild the fishery to a level that will support the MSY. MFish also believes that the current state of the fishery raises the issue of the importance of both environmental factors and the size of the spawning stock in determining the productivity of this population.
- 52 MFish concern arises from the low numbers of older fish in the fishery. The Plenary cites that in the monitored 1989-90 to 1992-93 fishing years, 80% of landings were 2+ and 3+ fish, which indicates fish are being caught before attaining these older ages. Data from the Plenary document also indicate the fishery may be catching a preponderance of breeding females (F:M 3.4:1) during the November to May peak of the fishery.
- 53 Given current landings (as an indicator of current biomass) also suggest the available spawning stock may be low, a more conservative approach to management may be prudent. Future recruitment pulses may be smaller and there may be a need to protect the stock to allow the population to re- generate a significant pulse of recruitment.
- 54 Even with the assumption that red cod stocks can respond positively from a low biomass, recent landings data reflect a trend of declining abundance and recruitment in RCO 3.
- 55 This assessment is supported by the most recently available information (subsequent to the release of the IPP) from the east coast South Island winter trawl survey (May 2007). The survey results estimate relative abundance at 40% of the previous lowest estimate (1991) with no indication of any recruitment pulse. Based on this information, it would appear unlikely there will be a significant response from the fishery for perhaps two or three years.

Should this low biomass continue to be fished hard during these years, then any meaningful recruitment pulse may be significantly delayed.

- 56 MFish believes there is sufficient information to support a degree of caution in the management strategy taken with the fishery.

### *Fisheries Plan*

- 57 Some submitters supporting Option 1 consider that, because RCO 3 covers FMAs 3, 4, 5 and 6 and that red cod is a component of a complex of species, the IPP lacked clear problem definition. These submitters support any TACC change being progressed through the Fisheries Plan process following appropriate research and a “characterisation” of the SIF fishery. These submitters consider all issues, including any TAC adjustments, should be agreed between stakeholders via a Fishery Plan that might also include alternative quota owner management measures such as withholding excess ACE (shelving) during periods of low abundance, closing juvenile grounds, mesh sizes and rotational closures.
- 58 The NZRFC also believes a partnership approach needs to be taken by way of a Fishery Plan but submits that recreational fishers are not resourced well enough to participate effectively in the plan process. NZRFC, therefore, submits that, until such time as these resourcing issues have been addressed, MFish reduce commercial landings to ensure the RCO 3 fishery moves to a stock level that will support MSY.
- 59 SE Finfish, as the commercial stakeholder organisation responsible, in support of Option 1, submits it is willing to:
- a) Provide economic data to support the fishery
  - b) Undertake a characterisation of RCO 3 fishery including CPUE analysis
  - c) Confirm its willingness to engage collaboratively with MFish to develop a SIF Fisheries Plan as agreed by the SE Finfish Board in a meeting with MFish Operations South in February 2007 as a priority
  - d) Promote the change in management from s.13 to s.14 of the Act
  - e) Develop, in conjunction with MFish, robust decision rules for in-season TACC increases that occur in a timely manner so as to provide benefit in times of high stock abundance under Schedule 2 of the Act
  - f) Seek a negotiated TACC reduction to more manageable levels in 2008 provided that all of above have been achieved.
  - g) Support the development and implementation of a hybrid trawl survey through the Inshore Fisheries Assessment Working Group and the Inshore Research Planning Group/Coordination Committee process that is specifically designed to meet the research needs of the south east inshore fisheries.
- 60 MFish agrees that RCO 3 is a very large QMA containing a number of inter-connected fisheries with attendant complexity of issues. And, that a fishery plan is an appropriate vehicle to address SIF fishery issues to obtain better value from the fishery. However, MFish notes that it is the Minister of Fisheries who is responsible for making TAC decisions. Further, if you delay until after research, completion of a “characterisation” of the fishery and fishery plan development, any resolution is likely to be four or five years hence.

### *Stakeholder Management Initiatives*

- 61 Several submitters, including SeaFIC, consider that the FAP should give explicit consideration to the alternative approach of retaining a relatively high TACC and relying on the actions of quota owners to set aside ACE in years of lower abundance (ie shelving).
- 62 MFish's position is that you have a statutory obligation to set the TAC at a level that enables a stock below  $B_{MSY}$  to be restored to a level that can produce MSY. The Minister has discretion as to the way and rate the stock is restored to this level. Shelving may be used as a mechanism to assist the way or rate the stock is restored to a level that can produce MSY. However, it may not be used as an alternative to setting the TAC at the appropriate level as required by section 13 of the Act. As noted above, MFish believes that based on current information the RCO 3 biomass is below that which can produce MSY and requires rebuilding.

### *Economic Considerations*

- 63 SE Finfish submits that the lower the TAC proposal, the greater the economic impact will be for the majority of RCO 3 quota holders who have small holdings that meet their needs for fishing under the current TACC level. The more severe each IPP proposal becomes the greater the loss of asset each of these smaller shareholders will suffer and the less ACE overhead that will be available for them to purchase to cover their catches at the new and lower TACC. A project to review the economics of these fisheries should be commissioned as soon as possible.
- 64 MFish notes that the structure of quota holdings in the RCO 3 fishery determines that the fishery is largely an ACE fishery. Under current catch all options are likely to have available ACE for the next two or three years. The top five quota holders hold 78% of the TACC. The top ten quota holders hold 91.5% of the TACC. Out of 86 quota holders, the bottom 54 hold only 1% in total of the TACC.
- 65 Of those quota holders that do also fish for RCO 3, based on a port price of \$0.54 and an ACE price of \$0.073 being a differential of 13.5%, those fishers will undergo a 3.375% loss of income from the red cod component of their catch under a 25% reduction in the TACC as in option 2. Option 3 represents a 44% reduction of the TACC which equates to a 6% reduction in income derived from red cod and, option 4 represents a 63% reduction in the TACC which equates to an 8.5% reduction in income derived from red cod.
- 66 MFish acknowledges that there is a possibility of an increase in ACE price if the TACC is reduced significantly, however, MFish note that at current catch levels there will still be significant unused ACE under all TAC options proposed. Further, there are indications that the catch level may not improve significantly within the next two or three years.

### *Management Under Section 14*

- 67 Submitters favouring Option 1 and Sanford generally support a change of management for RCO 3 from under s.13 to s.14 of the Act.
- 68 MFish considers that this measure was not consulted on in the IPP and as such is beyond the scope of this FAP. MFish notes that S 14(8)(b) of the Act sets out the criteria for inclusion on the Third Schedule of the Act, and that the management strategy for RCO 3 (including the appropriateness of s.14) will be considered as part of a Fisheries Plan for the SIF fishery.

## *Second Schedule*

- 69 Submitters in favour of Option 1 also expressed concern about the use of red cod Second Schedule status as a mechanism to facilitate within season TACC increases during years of high abundance, citing:
- what research is required to support an in-season increase, and at what cost?
  - what is the likelihood of actually obtaining in-season increases, given other MFish regulatory priorities?
  - to what extent might the uncertain policy framework for the allocation of shared fisheries impact on the ability to secure an in-season increase for RCO 3?
  - what is the ongoing cost to quota owners of the uncertainty around whether or not an in-season increase is obtained?
- 70 MFish considers these concerns to be unfounded. A research proposal is proposed for discussion at the Research Co-ordinating Committee to establish an appropriate “decision rule” based on the available information which could include year class strength data from the east coast South Island winter trawl survey and the established recruitment-environment relationship for east coast South Island red cod. This information is likely to be available within 18 months. MFish currently operates a number of pre-season assessments for some shellfish fisheries without issue. Further, MFish believes that, based on the results of the east coast South Island winter trawl survey, the need for such an in-season increase is highly unlikely in the immediate foreseeable future.

## *Allocation*

- 71 The commercial stakeholder organisations and quota holders strongly submit that the quantities proposed to allow for non-commercial fishing in Options 2, 3 and 4 amount to a re-allocation of property rights and that any TAC reduction should be proportional.
- 72 The NZRFC submits it is keen to see a rebuild in the RCO 3 fishery but doesn't accept that the amateur sector has played any significant part in fishing red cod down to the present low levels.
- 73 NZRFC submits that often the lack of accessible fish for amateurs in RCO 3 is as the result of localised depletion caused by excessive commercial fishing pressure. Given the poor state of this fishery for several years, amateurs have effectively been denied access to a reasonable daily bag and in many instances have given up trying due to the lack of available fish.
- 74 NZRFC suggests that if management measures are introduced to rebuild the fishery, that amateur take, and subsequent allowance, be reassessed at five yearly intervals. This will enable a more accurate assessment of the amateur catch to be built over time and enable [the Minister] “to allow for” as prescribed in section 21 of the Act.
- 75 The NZRFC submits that correct management resulting in truly sustainable fisheries must always be the goal.

- 76 MFish's position on proportional allocation is set out in the Statutory Obligations and Policy Guidelines section of the IPP, pages 24 and 25. MFish believe that in this instance there is no reallocation of the TAC occurring. The current process is to set a TAC. If the TACC were fully caught and a reduction to then occur, it might then be argued that there was a reallocation to non-commercial, however, this is not the case in this instance. Nevertheless, at the request of local recreational fishers, a reduced daily bag limit and corresponding reduced recreational allowance is proposed in Option 4.
- 77 MFish notes that the percentages of the TAC options proposed to allow for recreational fishing are 2.9%, 3.7% and 1.9% respectively.
- 78 MFish does not consider these quantities impact materially on the commercial harvest of RCO 3, and, that in the Canterbury region, and Banks Peninsula in particular, "Akaroa cod" is a defining commercial and recreational species. Red cod is not particularly valued in the southern portion of the QMA.
- 79 MFish notes there has not been consultation on proportional allocation for RCO 3.

## Rationale for Management Options

### *Biological characteristics*

- 80 Red cod are a fast-growing, short-lived species with few fish in the commercial fishery older than six years. Recruitment is highly variable resulting in large variations in catches between years. To allow fishers to access stocks in years of high abundance, the TACC has traditionally been set at the highest catch levels. This management approach assumes that recruitment is effectively independent of biomass.

### *Stock status*

- 81 The most recent stock assessment (2001) and estimates of biomass and sustainable catch are largely based on data up to the end of the 1997-98 fishing year. The data used for this assessment is now nine years old. MFish considers that this may no longer accurately reflect the status of the fishery.
- 82 The Plenary considered that a constant catch at the TACC level of RCO 3 was not attainable or sustainable in most years.
- 83 Two estimates of Maximum Constant Yield (MCY), using different methods, are available and are 4 400 t and 7 000 t. Landings over the seven year period from the 1992-93 fishing year until 1998-99 exceeded 8 000 t annually. Since that extended period of landings in excess of MCY estimates, landings have averaged 4 600 t and declined to 3 222 t in the 2005-06 fishing year. Landings for the current fishing year are not expected to significantly exceed 1 500 t.
- 84 The sex ratio of the RCO 3 commercial catch sampled during the period 1989-90 until 1992-93 was skewed towards females during November (ratio F:M 3.4:1) with the ratio tending to even out by May. This implies that the fishery may be catching a predominance of breeding females.
- 85 While red cod are very fecund (3 million eggs average), the fishery is based almost

exclusively on two and three year old fish and is highly dependent on recruitment success. As recruitment appears to be strongly influenced by environmental factors, there is no guarantee of a significant recruitment in the immediate term. Therefore, while the biomass is significantly down, a more conservative approach to management may be prudent. Future “average” recruitment pulses may be small because of the low biomass and there may be a need to conserve the stock to allow the population to re-generate a significant recruitment pulse.

- 86 Both commercial and recreational fishers have expressed concern at the continued decline in the RCO 3 stock over the past seven years. This observation is supported by the results of the recent east coast South Island trawl survey (May 2007) which gave estimates of relative abundance that is only 40% of the previous lowest estimate (of six) and, which also did not detect any evidence of a recruitment pulse. Given the fishery is dependent upon two and three year old fish it is, therefore, unlikely there will be any improvement in the fishery for two to three years. And, any possible improvement after that time is contingent upon a highly successful recruitment this year. Fishing the stock hard during the next two years may further reduce the spawning biomass.

**Table 2. Estimated Biomass (t) from the east coast South Island winter trawl survey**

Species	Year	Estimate of Relative Biomass (t)	Catch (t)
Red cod	2007	1 486	1 650*
Red cod	1996	4 619	10 056
Red cod	1994	5 637	12 603
Red cod	1993	5 601	7 977
Red cod	1992	4 527	9 633
Red cod	1991	3 760	6 500

\* Catch to August

### *Existing catch limits*

- 87 The total allowable commercial catch (TACC) is 12 396 t. No formal TACC amendment has been made since 1986, which explains why no TAC is established.
- 88 The original TACC for RCO 3 was set at a high level, based on 1983 catch levels that were the highest on record at that time. Since 1986, the TACC was increased from 9 000 t to 12 396 t by quota appeals. The TACC was intended to allow high levels of commercial catch in years of high abundance. However, the TACC has only been caught three times over the last 25 years and it is substantially above the level of current catches. The Plenary concluded that if it were fully caught, the existing TACC is considered unlikely to move RCO 3 towards a level that could sustain the MSY.
- 89 Given this, MFish considers it unlikely that a TAC incorporating the current TACC (as well as allowances for recreational catch, customary catch and other sources of fishing-related mortality) would move RCO 3 towards a level that would support the MSY. A TAC needs to be set that is more likely to fulfil the obligation to move RCO 3 towards the level that can produce the MSY.
- 90 MFish considers the decline in landings indicates the best value is not being achieved from this fishery. MFish is also concerned that the high TACC set for RCO 3 means that, in most years, fishers are competing for access to the available catch which may be causing over

capitalisation. In addition, the Plenary has identified bycatch and discarding issues within the fishery.

- 91 The vast majority of red cod is caught by trawl. As RCO 3 is a component of the SIF fishery, there are a number of QMS stocks that are taken as an unavoidable bycatch of trawling for red cod. Section 13(2) notes that, when setting a TAC, the Minister shall have regard to the *interdependence of stocks*. Changes in catch rates of red cod, combined with the recovery of other quota species since the introduction of the QMS, have resulted in a catch mix for which some fishers do not have the appropriate quota holdings. Bycatch problems while targeting red cod are therefore common for stargazer, red gurnard, elephant fish, rig, school shark, blue cod, groper and tarakihi.
- 92 MFish considers that the three lower proposed TAC options will move to alleviate bycatch issues associated with the interdependence of stocks and the RCO 3 fishery.
- 93 Higher catches of bycatch species may lead to over-catching these stocks and possible discarding as ACE for those stocks becomes more difficult to procure.

### ***Other factors***

- 94 As mentioned, the TACC for RCO 3 was set at the historical highest catch levels to allow fishers to take advantage of high abundance years. This management strategy was set when RCO 3 entered the QMS in 1986, prior to the current Act. MFish considers this historical provision is no longer necessary to access catch during years of high abundance as red cod is on the Second Schedule of the Act to allow for within-fishing-year TACC increases.
- 95 The Second Schedule can apply to any stock whose abundance may vary significantly from year to year. For stocks listed on the Second Schedule, in years when the stock is particularly abundant, the TAC can be increased *during* the fishing year. The aim of an in-season adjustment to the TAC is still to manage a stock at, or above, a level that can produce the MSY.
- 96 Red cod on the east coast South Island lends itself to the provisions of the Second Schedule as an analysis of the recruitment-environment relationship shows there is a strong correlation between recruitment and environmental variables, with a periodic 14 month lag. Further, the east coast South Island trawl survey has recommenced this winter and will be able, in future years, to provide fishery independent information on relative abundance, year class strength and recruitment into the fishery. This information may allow for the development of a decision rule to give effect to within season TAC increases. A research proposal to this effect is to be discussed at the Research Coordinating Committee in October.

### **Assessment of Management Options**

- 97 The Minister is obliged, under s.13(1) of the Act, to set a TAC for any stock under review that does not yet have one. MFish considers that setting a TAC and, within it, allowing for commercial and non-commercial fishing, is the best way of ensuring sustainable management of this fishery.
- 98 MFish proposes to set the TAC for RCO 3 using s 13(1) of the Fisheries Act 1996.

- 99 Most stocks in the Quota Management System (QMS) are managed under s 13. Section 14 provides an alternative means for setting a TAC under certain circumstances, where it would better meet the purpose of the Act. MFish considers that s 14 does not apply for RCO 3 because:
- a) it is possible to estimate the MSY of the species;
  - b) a catch limit for New Zealand has not been determined as part of an international agreement;
  - c) the stock is not managed on a rotational or enhanced basis; and
  - d) the stock does not include one or more highly migratory species.
- 100 Under s.13 the Minister of Fisheries must (amongst other requirements) set a TAC that maintains the stock at or above a level that can produce the MSY, having regard to the interdependence of stocks. Having regard to this, and the other requirements of s.13, MFish considers that the most current available information indicates that the existing TACC for RCO 3 is not moving the stock towards  $B_{MSY}$  and there are indications that the stock is below MSY. While red cod is known to be fecund and have highly variable recruitment, MFish is concerned that, based on the available information, RCO 3 may require several years to recover from the current low biomass and a period of rebuild is necessary.
- 101 Therefore, MFish proposes that you set a TAC under s.13(2)(b) of the Act, taking into account interdependence of stocks in the SIF fishery.
- 102 MSY is defined, in relation to any fish stock, as being the greatest yield that can be achieved over time while maintaining the stock's productive capacity, having regard to the population dynamics of the stock and any environmental factors that influence the stock.

### ***Proposed TAC options***

- 103 All options are based on RCO 3 being on the Second Schedule of the Act and, therefore, open to within fishing year TAC increases. All options recognise that the commercial fishery is responsible for 95% of the catch.
- 104 **Option 1** – A proxy *status quo*. This option is based on the current underlying assumption that the high fecundity and natural variability of red cod allows the fishery to be managed independently of the existing biomass. Estimates of recreational catch, customary catch and other sources of fishing-related mortality have been added to the current TACC to set a TAC. MFish proposes to include an estimate of 5% of the proposed TACCs for other sources of fishing-related mortality for RCO 3. It is proposed that 280 tonnes be used as the estimate for recreational catch as an input for calculating the TAC for all options, except for Option 4 where, at the request of local recreational fishers, recreational catch has been reduced by two thirds, given effect by a reduced recreational daily bag limit of 10. There are no records of customary take of red cod in RCO 3. Therefore, it is proposed that a nominal 5 t be used as the estimate for customary Maori catch as an input for calculating the TAC. The same estimate is proposed for all options.
- 105 Given the Plenary considered that a constant catch at this level is unlikely to be attainable or sustainable in most years, this is not an option preferred by MFish.

- 106 Ocean Fisheries Limited and Ocean Fisheries Quota Holding Company Limited, Talleys Group Limited and The New Zealand Seafood Industry Council Limited support this option.
- 107 **Option 2** - This TAC option is based around a 25% reduction (actual 27.4%) to the TACC to move the stock size towards  $B_{MSY}$ . This option will still provide for utilisation during years of high abundance without restricting harvest levels during most periods. Catches exceeded this level in six of the last twenty years. MFish notes that there is a growing body of support in fisheries management literature that advocates the retention of larger, older fish within the population structure. Some fish populations have been shown to more closely track short term environmental variability as a consequence of fishing down the age structure. It has also been shown that a long tailed age structure can dampen the effects of random environmental effects and thus stabilise fish populations. Options 2, 3, and 4 offer the opportunity to “bank” some fish during the highest years of productivity to stabilise the fishery and enhance a more reliable average catch.<sup>74</sup>
- 108 Fishers that fish their own holding of RCO 3 quota will experience a 3.375% reduction in income derived from their red cod landings, however, by owning quota shares they will also benefit from any future TACC increase from a rebuild of the fishery.
- 109 Sanford Ltd supports this option.
- 110 **Option 3** – This TAC option is based on the most recent 20-year average of commercial catches, which closely coincides with the MIAEL estimate of MCY. This catch level was exceeded in eight of the last twenty years. This option would have a 6% impact on revenue derived from red cod landing for fishers that catch their own quota holding of RCO 3.
- 111 **Option 4** – The TAC is based on the most recent 5-year average of commercial catches, and actually reflects the fishery over the last seven years. This catch level was exceeded once in the last five years but will not be reached this year. Option 4 is the most conservative option with respect to sustainability risk. This option places a significant constraint on commercial fishers and would have an 8.5% impact on revenue derived from red cod landing for fishers that catch their own quota holding of RCO 3. While this option is the most likely to require application of a within season TAC increase, with attendant costs, option 4 could be a “stepping stone” in a conservative, risk averse rebuild of the fishery. Recreational fishers, in support of this option, have volunteered to cut their daily bag limit from 30 to 10 red cod a day should this option be implemented.
- 112 As this option proposes a change in the recreational daily bag limit, there will be costs associated in implementing this change, including a change to the regulations, and reprinting publicity brochures.
- 113 Both ECO and the NZRFC support this option.

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<sup>74</sup> Law, R. (2007). Fisheries-induced evolution: present status and future directions. *Marine Ecology Progress Series* 335: 271–277.

Hsieh, C.H.; Reiss, C.S.; Hunter, J.R.; Beddington, J.R.; May, R.M. ; Sugihara, G. (2006). Fishing elevates variability in the abundance of exploited species. *Nature* 443: 859–862.

## Compliance

- 114 Under option 4, the recreational bag limit for RCO 3 would be decreased to 10. Any change to recreational limits will need to be countered by an information campaign to maintain voluntary compliance levels. This is a significant change from the current limit of 30 and could increase infringement offences for that species.
- 115 The potential for the ACE price to rise also raises the incentive to dump or “high grade” for catch that is likely to attract the maximum value from processors. Higher ACE prices are likely to narrow profit margins for operators purchasing ACE.

## Statutory Considerations

- 116 In forming the management options for RCO 3, the following statutory considerations have been taken into account:
- a) The purpose of the Act (as provided in s.8) is to provide for the use of fisheries resources while ensuring sustainability. Because information about red cod abundance is uncertain, MFish has provided a range of options consistent with the Act’s purpose. Options aim to provide for use while ensuring sustainability.
  - b) The TAC set under s 13 should be set at the level that can produce the MSY, or it should move the stock towards that level. MFish considers, on the information available, that only options 2, 3, and 4 are likely to move the stock towards a level that can produce the MSY.
  - c) The proposed TAC options have also taken into account the following factors:
    - i) Red cod stocks may vary from year to year because they are affected by *environmental conditions*. However, specific environmental conditions have not been identified that would affect the movement of the stock towards a level that will support the MSY (as discussed in s 13(2)(b)(ii) of the Act).
    - ii) The *biological* characteristics of red cod have been considered when proposing options for the TAC (as required under s 13(2)(b)(ii)).
    - iii) The vast majority of red cod is caught by trawl. As RCO 3 is a component of the SIF fishery, there are a number of QMS stocks that are taken as an unavoidable bycatch of trawling for red cod. Section 13(2) notes that, when setting a TAC, the Minister shall have regard to the *interdependence of stocks*. Changes in catch rates of red cod, combined with the recovery of other quota species since the introduction of the QMS, have resulted in a catch mix for which some fishers do not have the appropriate quota holdings. Bycatch problems while targeting red cod are, therefore, common for stargazer, red gurnard, elephant fish, rig, school shark, blue cod, groper and tarakihi.
    - iv) MFish considers that three proposed TAC options, other than the *status quo*, will move to alleviate bycatch issues associated with the interdependence of stocks and the RCO 3 fishery.

- d) Social, cultural and economic consequences are a relevant factor when the Minister considers the way in which and rate at which a stock is moved towards or above a level that can produce the MSY (s 13(3)). MFish has identified differing social and economic consequences of altering the TAC and TACC under the four options.
- e) Natural variability is a relevant factor to consider when setting or altering a sustainability measure such as a TAC (s 11(1)(c)). This factor has been taken into account when choosing the periods over which to calculate average commercial catch.
- f) Section 9 sets out environmental principles that must be taken into account when setting or altering a sustainability measure such as a TAC:
  - d) Associated or dependent species should be maintained above a level that ensures their long-term viability;
  - e) Biological diversity of the aquatic environment should be maintained;
  - f) Habitat of particular significance for fisheries management should be protected.
- g) The options proposed here are unlikely to lead to increased catches, or an expansion of fishing effort into previously unfished areas. All options are considered to adequately take into account these environmental principles.
- h) Associated or dependent species (s 9a) are any non-harvested species – such as seabirds or marine mammals – that are affected by the taking of any harvested species. There have been instances on the South Island east coast where endangered Hector’s dolphin have been caught in commercial trawl nets. To manage this risk, a code of practice and regulations have been put in place in areas of concern within RCO 3. The proposed TAC options will not result in effort increasing but, rather, decreasing and risk to seabirds and marine mammals from trawling for red cod will decrease accordingly.
- i) Protection of biological diversity of the aquatic environment also needs to be considered (s 9(b)). Likewise, s 9(c) concerns the protection of habitat of particular significance to fisheries management. Because no increase in fishing effort is anticipated, it is not expected that any of the proposed TAC options would have any additional impact on biological diversity or significant habitats.
- j) A wide range of international obligations relate to fishing, including use and sustainability of fishstocks; and maintaining biodiversity (s 5(a)). MFish considers that the management options for RCO 3 are consistent with these international obligations.
- k) MFish also considers that the proposed management options are consistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (s 5 (b)). Ongoing work is being done within the area covered by RCO 3 to promote policies that help to recognise customary use and management practices. This paper has identified a lack of information on the level of harvest and the

importance of red cod fisheries to customary fishers in RCO 3. Further information on this topic would be welcomed.

- l) Existing control measures have been considered when making recommendations for any change to measures used to control the RCO 3 fishery (as outlined in s 11(1)(b)). These include relevant regulations and fishery closures in RCO 3.
- m) No relevant fisheries plan has been approved under s 11(2A)(b) of the Act.
- n) MFish has considered relevant conservation services and fisheries services (as outlined in s 11(2A)(a and c)). No suggestion is made at this stage to alter any decision about whether such services are required. If the fishery moves to a CAY strategy, then development of an appropriate management mechanism or decision rule may be required.
- o) There are no known relevant provisions concerning the coastal marine area in any policy statement or plan under the Resource Management Act 1991, or any management strategy or plan under the Conservation Act 1987 (as outlined in s 11(2)(a) and (b) of the Fisheries Act). There are 3 Regional Councils and one Territorial Local Authority in the RCO 3 QMA. These are Canterbury, Otago and Southland Regional Councils and the Chatham Islands Territorial Authority. Conservation Strategies exist for the Chatham Islands, Canterbury, Otago, Southland, Stewart Island and the Sub-Antarctic Islands.
- p) **Fiordland (Te Moana o Atawhenua) Marine Management Act 2005:** In recognition of the Fiordland (Te Moana o Atawhenua) Marine Area's local, national, and international importance, unique marine environment, distinctive biological diversity, and outstanding landscape and cultural heritage, the Government passed the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005 (the 2005 Act).
- q) The 2005 Act states in s 26 that all management agencies exercising powers or carrying out functions in the Fiordland (Te Moana o Atawhenua) Marine Area must take into account any advice or recommendations provided by the Guardians (this includes powers and functions under the Fisheries Act 1996).
- r) RCO 3 includes the Fiordland coast and the Ministry has sought specific comment from the Fiordland Marine Guardians on the proposals. No submission was received.
- s) The nature of the fishery and the interests of each fishing sector have been considered in proposing the TACC and allowances for customary and recreational interests and other sources of fishing-related mortality (sections 21(1)(a and b), 21(4)(i and ii) and 21(5)). There are currently three mātaihai reserves and a taiapure within RCO 3. There is also a 186B rāhui closed area at Kaikoura. These areas have been identified for customary fishing purposes in RCO 3, but the closures do not materially affect red cod fisheries. No restrictions have been placed on recreational fishing in any area within the QMA under s 311 of the Fisheries Act.
- t) Section 10 sets out information principles that are to be taken into account when setting TACs.

- u) The best available information on the status of RCO 3 is the
  - i) Report from the Fisheries Assessment Plenary, May 2006: stock assessments and yield estimates compiled by the Ministry of Fisheries Science Group, May 2006.
  - ii) Law, R. (2007). Fisheries-induced evolution: present status and future directions. *Marine Ecology Progress Series* 335: 271–277.
  - iii) Hsieh, C.H.; Reiss, C.S.; Hunter, J.R.; Beddington, J.R.; May, R.M. ; Sugihara, G. (2006). Fishing elevates variability in the abundance of exploited species. *Nature* 443: 859–862.
  - iv) Unpublished Voyage Report KAH)0705 (July 2007) MFish Project Code INT200602

## Other Management Issues

### *Research*

- 117 It is important to note that a research proposal has already been put forward to the Inshore Research Planning Group to establish a “decision rule” such that the inclusion of red cod on the Second Schedule of the Act can be given relevant effect for in-season fluctuations in the abundance of red cod in the RCO 3 fishery. The proposal is to go before the Research Coordinating Committee in October.
- 118 MFish notes that the 2007 east coast South Island winter trawl survey any recruitment pulse which suggests that this information may not be needed in the immediate future.

### *Deemed value*

- 119 Stocks that are being considered for a TACC review as part of the October 2007 sustainability round are also being included in a deemed value review process. This is to ensure that, in situations when a TACC is adjusted, the deemed value is also set at an appropriate level to defend the new TACC. MFish considers that if the TACC is reduced then deemed value rates should increase so that they adequately protect the new TACC. The current annual deemed value rate (\$0.32 per kg) is set below both the port price (\$0.54 per kg) and average export price (\$3.58 per kg). MFish proposes to increase the annual deemed value rate so that it better reflects the current port price. Differential deemed value rates will also change in line with the proposed annual deemed value rate. The proposed deemed value rates for the 2007-08 fishing season are as follows:
  - a) Annual deemed value rate to increase from \$0.32 per kg to \$0.50 per kg.
  - b) Interim deemed value rate to increase from \$0.16 per kg to \$0.25 per kg, which is 50% of the new annual deemed value rate.
  - c) Differential deemed value rates adjusted to reflect the proposed new annual deemed value rate.
- 120 The proposed deemed value adjustments are dependant on a TACC decrease, if this is not approved by the Minister then MFish considers the deemed value rates should remain unchanged.

## ***Southern Inshore Fisheries Plan***

- 121 MFish intends to begin working with Tangata Whenua and stakeholders on a Fisheries Plan for the southern finfish stocks within the next few years. All management issues, such as managing red cod under s.14, can and will be evaluated at this time.

