



Ministry of  
**Fisheries**  
Te Tautiaki i nga tini a Tangaroa

**Review of Sustainability Measures and Other Management Controls for Blue Cod 5  
Initial Position Paper June 2011**





## Introduction

1 This Initial Position Paper (IPP) provides the Ministry of Fisheries (the Ministry's) initial views on proposals relating to sustainability measures for the blue cod 5 fish stock for the 2011/12 fishing year, commencing on 1 October.

2 The Ministry developed this Initial Position Paper (IPP) for the purpose of consultation as required under the Fisheries Act 1996 (the Act). The Ministry emphasises the views and recommendations outlined in the paper are preliminary and are provided as a basis for consultation with stakeholders.

3 In August 2011, the Ministry will compile the Final Advice Paper (FAP) for the attached proposal. This document will summarise the Ministry's and stakeholder views on the issues being reviewed, and provide final advice and recommendations to the Minister of Fisheries and Aquaculture. A copy of the FAP and subsequently the Minister's letter setting out his final decisions will be posted on the Ministry's website as soon as it becomes available with hard copies available on request.

### *Deadline for Submissions*

4 The Ministry welcomes written submissions on the proposals contained in the IPP. All written submissions on this consultation document must be received by the Ministry no later than 4pm on Friday, 29 July 2011.

Written submissions should be sent directly to:

Trudie Macfarlane  
Ministry of Fisheries  
P O Box 1020  
Wellington

or emailed to [Trudie.Macfarlane@fish.govt.nz](mailto:Trudie.Macfarlane@fish.govt.nz)

5 All submissions are subject to the Official Information Act and can be released, if requested, under the Act. If you have specific reasons for wanting to have your submission withheld, please set out your reasons in the submission. The Ministry will consider those reasons when making any assessment for the release of submissions if requested under the Official Information Act.

## Blue Cod 5 (BCO 5)

Figure 1: Quota Management Areas for Blue Cod



### Summary

6 The Ministry is seeking tangata whenua and stakeholder views on proposals to change the Total Allowable Catch (TAC) level, sector allowances and recreational bag limits for BCO 5. BCO 5 is the blue cod fishery in the Southland/Sub-Antarctic Quota Management Area (refer Figure 1).

7 It is proposed the Minister of Fisheries (the Minister) consider the following options:

Option	TAC (t)	TACC (t)	Māori customary allowance (t)	Other sources of mortality (t)	Recreational	
					Allowance (t)	Bag limit
<b>Current Settings</b>	N/A	1 548.471	N/A	N/A	N/A	30 blue cod
<b>1</b>	1 809.471	1 548.471	2	20	239	30 blue cod
<b>2</b>	1 452	1 239	2	20	191	20 blue cod
<b>3</b>	1 273	1 084	2	20	167	15 blue cod

8 The Ministry has also looked at interim and annual deemed value rates for BCO 5, which apply to commercial fishers that over-catch their annual catch entitlement (ACE). No changes to these rates are proposed (refer to the Deemed Value Initial Position Paper).

## Context

### *Need to Act*

9 BCO 5 stock status information shows commercial catches and catch rates, and possibly the proportion of legal sized fish, have declined since 2004-05. This information is not conclusive of a significant stock decline.

10 Tangata whenua, recreational and commercial fishery participants have expressed concern about the health of the BCO 5 fishery:

- The BCO 5 Steering Committee<sup>1</sup> has requested that the Minister consider decreasing the BCO 5 Total Allowable Commercial Catch (TACC). The Committee has agreement from 90% of BCO 5 quota share owners supporting a 20% reduction in the TACC for the 2011-12 fishing year. There is also some support for a larger TACC reduction of 30% within the Committee, but no formal mandate for anything beyond a 20% reduction. The Committee has previously worked with quota owners to voluntarily shelve approximately 20% of BCO 5 ACE.
- Members of the Ministry's FMA 3 and 5 Recreational Fishing Forum consider that recreational catches have decreased and the size of blue cod has declined. They also suggest there is localised depletion in parts of BCO 5 where fishing has been concentrated (e.g. central Foveaux Strait).
- Ngai Tahu iwi<sup>2</sup> has expressed concern about the abundance of blue cod in BCO 5 and noted the need for management action.

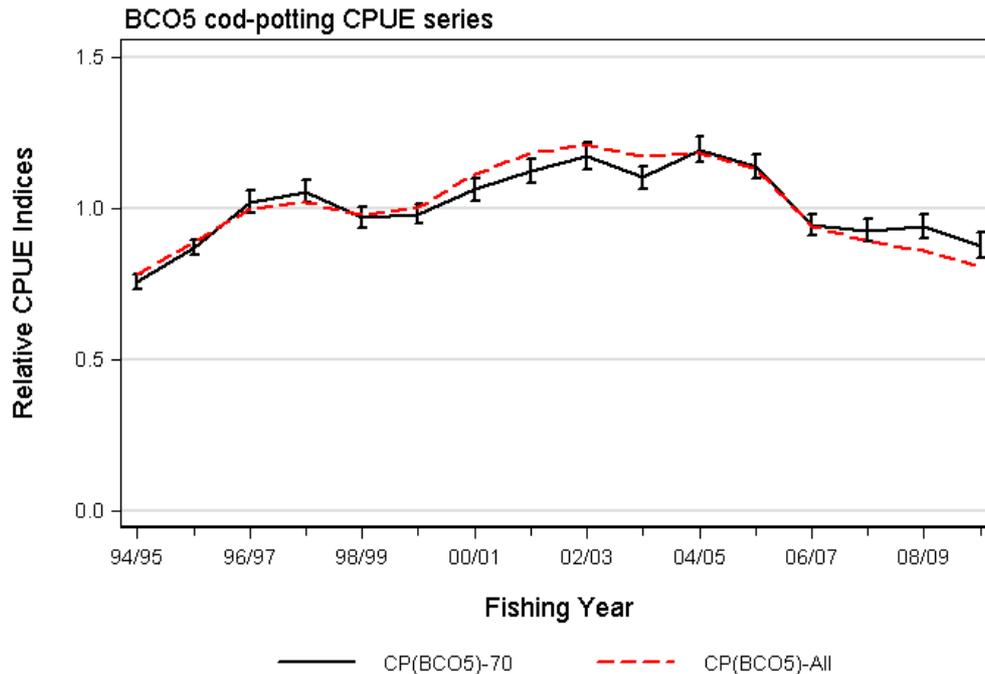
### *BCO 5 Stock Status*

11 The Ministry's Southern Inshore Working Group accepts standardised catch-per-unit-effort (CPUE) from commercial potting as an index of abundance in BCO 5. Figure 2 shows CPUE increased gradually from the start of the series (1994-95) to 2004-05, but has declined since then to just below the long-term average.

---

<sup>1</sup> A commercial stakeholder group operating under the umbrella of South East Finfish Management Limited

<sup>2</sup> Ngai Tahu is tangata whenua in the BCO 5 region. Ngai Tahu is a member of the Te Waka a Maui me Ona Toka Iwi Forum. The Forum is developing an Iwi Forum Fisheries Plan relating to South Island fisheries waters. Draft documents associated with the plan development indicate BCO 5 is a priority for action.



**Figure 2: Standardised CPUE analysis of BCO 5 (Starr and Kendrick 2011)**

Note - two CPUE indices are presented in the graph

12 Researchers have also carried out fishery-independent potting surveys in some areas of BCO 5, including Dusky Sound and Foveaux Strait, to estimate relative abundance and determine the population structure. Until 2010, these surveys used fisher-selected sites, which can create a number of biases in the information, therefore, direct comparisons cannot be made between the 2010 survey and previous surveys. Despite this uncertainty, the surveys indicate that catch rates and proportions of legal sized fish may have declined in parts of the fishery (being most apparent around the western entrance to Foveaux Strait).

### *Biological Characteristics of Blue Cod*

13 The following biological characteristics of blue cod make them susceptible to the effects of fishing and to localised depletion, which means populations may take a long time to recover once depleted:

- blue cod are relatively slow growing and long lived, reaching a maximum age of 32 years
- blue cod tend to be territorial; they generally move less than 1 km
- blue cod populations may be isolated from each other and there may be several distinct populations within a management area, and
- blue cod are protogynous hermaphrodites<sup>3</sup> with some (but not all) females changing into males as they grow.

<sup>3</sup> This means that blue cod can start life as either male or female, but the females can change into males.

## The BCO 5 Fishery

14 BCO 5 entered the Quota Management System (QMS) in 1986 with a TACC of 1 190 tonnes. Quota Appeal Authority decisions resulted in a TACC increase to the current level of 1 548.471 tonnes. No Total Allowable Catch (TAC) or allowances for Māori customary non-commercial interests, recreational interests and other sources of fishing-related mortality have been set for the fishery.

15 Other key management controls that apply to BCO 5 are a minimum legal size of 33cm applying to both recreational and commercial fishers, fishing gear restrictions limiting pot design and mesh size, and a recreational daily bag limit.

### Commercial

16 The BCO 5 fishery is New Zealand's largest commercial blue cod fishery, with a TACC of 1 548.471 tonnes and landings of 1 210 tonnes in the 2009-10 fishing year.

17 The commercial catch from BCO 5 is almost exclusively taken by the target cod pot fishery operating mainly within Foveaux Strait and around Stewart Island. The TACC has only been fully caught once, in 2003-04. Since then, commercial catch has been declining, coincident with the decline in CPUE (Figures 2 & 3).

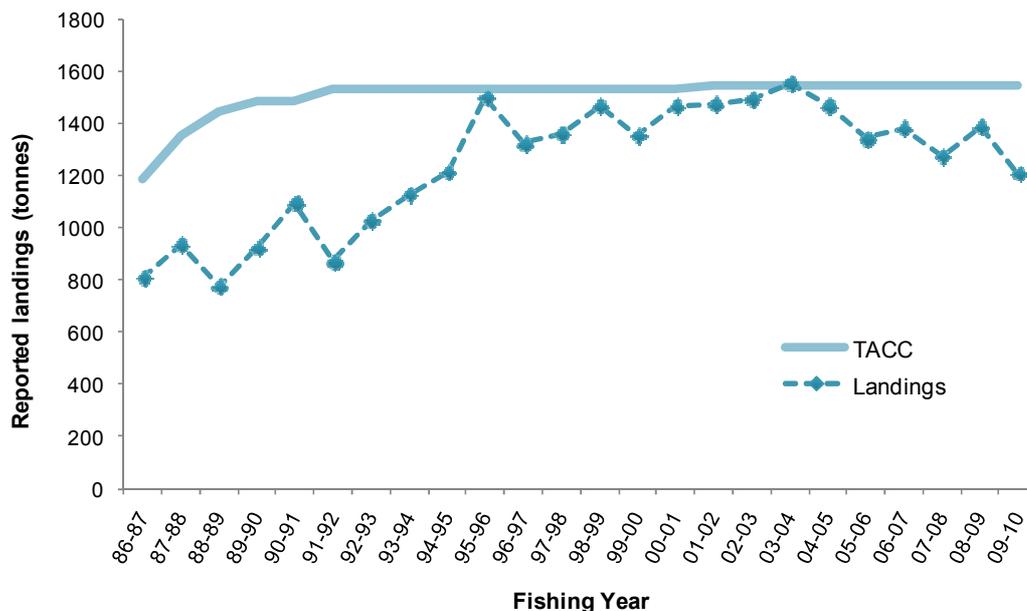


Figure 3: BCO 5 reported commercial landings and the TACC from 1986-87 to 2009-10.

18 The commercial stakeholder organisation for BCO 5, the BCO 5 Steering Committee, is concerned about reduced catch rates. The Committee is focused on ensuring sustainability and maximising productivity of the BCO 5 fishery. Recently it has led implementation of voluntary ACE shelving and it plans to implement a number of other management strategies (e.g. a mesh size increase on cod pots) to improve the fishery and its economic growth potential.

## Recreational

19 Blue cod is a popular target species for recreational fishers and is the most frequently landed species in the South Island. Recreationally caught blue cod from BCO 5 are taken mainly by line fishing from northern Stewart Island, throughout Foveaux Strait and in Fiordland. BCO 5 is included in a combined daily bag limit of 30 finfish (ie, a maximum of 30 blue cod can be taken daily per person if no other specified finfish species are taken).

20 There are no reporting requirements for recreational fishers. Estimates of BCO 5 recreational catch are available from telephone and diary surveys but are considered unreliable (Table 2). The 2011 Ministry Stock Assessment Plenary advises that the 1996 and earlier surveys contain a methodological error and the 1999-2000 estimates should be evaluated with reference to the degree of certainty.

Year	Estimated Number caught	Coefficient of Variation <sup>4</sup> (%)	Estimated harvest range (t)	Point estimate (t)
1991-92	188 000	22	150-230	N/A
1996	171 000	12	120-155	139
1999-00	326 000	28	165-293	229

**Table 2: Recreational catch estimates for BCO 5**

21 A new survey of the Southland recreational blue cod fishery (REC 2009/03) is currently being reviewed by the Ministry's Marine Amateur Fishing Group. The findings from that survey may be available to inform final advice on this proposal.

22 Commercial fishers that take blue cod for non commercial (ie, recreational) purposes require an approval under section 111 of the Fisheries Act 1996 (the Act) and must report their catch. In the 2009/10 fishing year, 21 000 individual blue cod were taken under section 111 approvals from BCO 5 (this equates to approximately 10 tonnes of fish at 33 cm).

## Māori Customary

23 Blue cod is an important kaimoana species for tangata whenua, who fish as commercial, recreational and customary fishers. Tangata Tiaki have been appointed to manage customary Māori harvest. Customary harvest reports are provided for the whole of the BCO 5 area.

24 Since 2007, 16 customary permits have been issued and reported for BCO 5 covering 2 750 individual fish plus another 750kg (this equates to about 2 tonnes of fish at 33cm).

## Other sources of fisheries related mortality

25 Other sources of fishing related mortality include unseen, method related mortality, mortality of fish that is returned to sea because it is undersize, and illegal take.

26 The commercial blue cod target fishery is almost exclusively a potting fishery. In 1994, a minimum pot cover mesh size of 48 mm was introduced (previously 38 mm) to allow the majority of undersized fish to escape and reduce predation of returned, undersized fish.

---

<sup>4</sup> Is a measure of data variability e.g. the higher the coefficient of variation the more variability in the data.

27 Non-commercial line fishing methods often results in the harvest of undersized blue cod. The survival of these fish on return to sea has been shown to be related to hook size. Larger hook sizes (ie, circle hooks with a minimum size of 6/0) has been shown to lead to better survival rates. The level of usage of large hook sizes is unknown in BCO 5.

28 Reliable estimates of illegal take of blue cod in BCO 5 are not available.

### Proposed Response

29 Of the measures available under the Act, the Ministry considers the most appropriate response to the stock status concerns is to consider a range of TAC, sector allowance, and recreational bag limit options. This is because the concerns relate to the overall sustainability of current catch limits in the fishery as reflected in the TAC, and explicitly controlled by the TACC and recreational bag limits. There is no indication that the minimum legal size, or gear restrictions are not optimally set.

30 The Ministry proposes the following management options for BCO 5 (Table 3).

Option	TAC (t)	TACC (t)	Māori customary allowance (t)	Other sources of mortality (t)	Recreational	
					Allowance (t)	Bag limit
<b>Current Settings</b>	N/A	1 548.471	N/A	N/A	N/A	30 blue cod
<b>1</b>	1 809.471	1 548.471	2	20	239	30 blue cod
<b>2</b>	1 452	1 239	2	20	191	20 blue cod
<b>3</b>	1 273	1 084	2	20	167	20 blue cod

**Table 3: Proposed Management Options for BCO 5**

31 The current status of BCO 5 in relation to the level of the stock that can produce the maximum sustainable yield ( $B_{MSY}$ ) is unknown. In such circumstances, the Minister must set a TAC that is “not inconsistent” with the objective of maintaining the stock at or above, or moving the stock to a level at or above  $B_{MSY}$ , in a way and rate considered appropriate for the stock (section 13(2A) of the Act). The TAC options presented in this IPP take into account this requirement, and offer differing approaches to managing the potential risk to sustainability of the fishery that reflect the uncertainty in available information.

32 In general, the lower TAC options (Options 2 and 3) are more likely to see stock abundance increase, but create opportunity costs for the recreational and commercial sectors. The proposed TAC options include the 20% TACC reduction proposed by the BCO 5 Steering Committee, a more cautious 30% TACC reduction, and reductions to the recreational daily bag limit from 30 to 20 or 15 blue cod.

33 While the commercial sector takes the largest share of catch in the fishery, recreational catch is also an important component of the fishery. Both sectors place high value on blue cod; hence should share the burden of ensuring the sustainability of the stock in order to share the benefits in the future.

34 It is noted that the Minister may take a different approach to setting allowances for the fishery following consideration of stakeholder views. Information from the survey of the Southland recreational blue cod fishery (REC 2009/03) may also be available and provide new information to inform final advice on the impact of alternative bag limits on total recreational catch.

#### *Option 1 (Status Quo TACC and Setting of TAC and Non-commercial Allowances)*

35 Under Option 1, a TAC of 1 809.471 tonnes is proposed and reflects current catch limits and harvest levels in the fishery. The proposed TAC comprises the current TACC of 1 548.471 tonnes and new allowances for Māori customary interests, recreational interests, and for other sources of fishing related mortality that reflect current estimated catch and mortality levels. The BCO 5 recreational daily bag would remain at 30 blue cod (as part of the Southland Fishery Management Area combined daily bag limit of 30 finfish<sup>5</sup>) under this option.

36 This option reflects the lack of conclusive information to confirm a significant decline in abundance in the stock and therefore need to reduce catch levels. Although there are indications that some parts of the QMA, may be under pressure., standardised CPUE, which is used as an index of abundance, has fallen just below the long term average and such fluctuations are typical in most fisheries.

37 The BCO 5 industry proposes to fund a full stock assessment in 2013 (alternatively, it may be considered for tender through the Ministry's cost recovered research). Researchers are also carrying out fishery-independent potting surveys in areas of BCO 5. Under Option 1, the stock would be reconsidered for review once the outcome of these assessments was available.

38 Of the three options, Option 1 poses the highest risk to stock sustainability and could result in reduced benefits for all fishery participants over the long-term if blue cod abundance continues to decline.

#### Māori Customary allowance

39 Under Option 1 (and, indeed, all the options), a Māori customary allowance of 2 tonnes would be set based on reported information on customary authorisations. This allowance provides fully for current annual harvest levels authorised by Tangata Tiaki in BCO 5.

40 Full reporting of harvest under customary authorisations occurs in QMA 5, which enables accurate setting of customary Māori allowances to provide for customary harvest requirements and to inform stock assessments. The Ministry notes that accurate information is important to support stock assessments as poor information affects the quality of the assessments. For example, an over estimate of harvest can result in overly optimistic assessments of stock productivity.

---

<sup>5</sup> <http://www.fish.govt.nz/en-nz/Recreational/Fishery+Management+Areas/Southland/Finfish.htm>

### Recreational allowance

41 Under Option 1, the Ministry proposes an allowance for recreational interests of 239 tonnes. The allowance is based on estimates of current recreational harvest levels, including:

- the 229 tonne point estimate from the 1999-2000 national diary survey of recreational fishers; and
- the 10 tonne estimate of recreational catch taken under section 111 approvals.

42 The 1999-2000 survey estimate is highly uncertain and it is unknown if it reflects current harvest levels. Anecdotal information suggests BCO 5 recreational harvest may have increased in the past 10 years but there is no quantitative information to confirm this. The Ministry notes that section 111 approvals are granted at the discretion of the Chief Executive.

### Allowance for other sources of fishing related mortality

The Ministry proposes an allowance for other sources of fishing related mortality of 20 tonnes, approximately 2% of the proposed TAC. This is similar to that set for kahawai and other comparable fisheries. There are various sources of fishing-related mortality in BCO 5, including mortality of returned undersized fish, and illegal take of blue cod. None of these incidental mortality sources are quantifiable at this time. The Ministry welcomes any information that stakeholders can provide to allow a better initial setting of this allowance.

### *Option 2 (TAC of 1 454 tonnes, including a 20% reduction to the TACC)*

43 Under Option 2, a TAC of 1 452 tonnes is proposed, based on an approximate 20% reduction to current catch levels.

44 A 20% TACC reduction to 1 239 tonnes is proposed and results in a catch limit that is just above the total commercial landings for the 2009-10 fishing year (1 210 tonnes). Commercial landings at the level of the current TACC have been taken in the past and the decline in landed catch may be indicative of declining stock abundance.

45 The proposed TACC reduction may not be significant enough to halt the observed decline in relative stock abundance (refer Figure 2). On the other hand, there is uncertainty in the available information on BCO 5 stock status, and it may be beneficial to wait for the results of the proposed BCO 5 assessment in 2013 before reducing the TACC by a greater proportion than 20%.

46 A 20% TACC reduction has substantial industry support. The BCO 5 Steering Committee has agreement from 90% of BCO 5 quota share owners supporting a 20% reduction in the TACC for the 2011-12 fishing year.

47 The proposed 309 tonne TACC reduction results in a potential annual lost opportunity cost of \$1.3 million (based on a port price of \$4.20 per kg) for the commercial sector. The industry has not caught the TACC in recent years so the majority of the estimated annual loss is already being realised (between 10% and 22% of the TACC has been under-caught in the last five years).

48 The allowances for Māori customary of 2 tonnes and other sources of fishing related mortality of 20 tonnes would be established under Option 2 in the same way as outlined in Option 1 above. The allowance proposed for recreational interests is different under this option.

#### Recreational allowance

49 Under Option 2, the Ministry proposes an allowance for recreational interests of 191 tonnes. The allowance is a 20% reduction from the 239 estimate of current catch levels and is proportionally equivalent to the reduction in the TACC.

50 To achieve the reduced allowance, a reduction to the maximum number of blue cod able to be taken daily, from 30 to 20, is proposed. The relationship between bag limit reductions and the recreational allowance is uncertain. This is, in part, because of poor information on total and individual recreational harvesting and the number of factors influencing catch of an individual species when part of a mixed species daily bag limit.

51 Whether, and the extent of, any impact of reduced abundance on recreational harvest levels in BCO 5 is unknown. Also unknown is the proportion of blue cod taken by fishers as part of the mixed species bag limit. Consequently, it is difficult to assess the bag limit reduction likely to translate to a 20% reduction in total recreational catch. The Ministry assumes that few fishers regularly take the maximum number of blue cod (30) and therefore proposes a bag limit reduction greater than 20%. Under this option, the proposed reduction is 33%, but the Ministry seeks further information from stakeholders on the impact of the associated proposed reduction in bag limit.

52 Information from the Southland recreational blue cod fishery survey (REC 2009/03), may also assist in more accurately determining the impact of reduced bag limits on recreational fishers and on total recreational catch.

#### *Option 3 (TAC of 1 276 tonnes, including a 30% reduction to the TACC)*

53 Under Option 3, a TAC of 1 273 tonnes would be established based on a 30% reduction to the current TACC, and new allowances for customary Māori interests, recreational interests, and for other sources of fishing related mortality. It is also proposed that the BCO 5 recreational daily bag limit would be reduced from 30 to 15 blue cod.

54 This option would result in a TACC (1 084 tonnes) that is below the levels of commercial landings from the last 15 years. A 30% TACC reduction has some support from industry. This is because the fishery has been under-caught by nearly 20% for the last four to five years with no sign of improvement. This reduction is more likely to reduce any risk to stock sustainability than options 1 and 2, and may increase benefit to fishery participants over the long-term through improved catch rates.

55 There is increased opportunity cost, however, under this option. A 464 tonne TACC reduction has the potential to reduce the earnings of the commercial sector by \$1.95 million (based on a port price of \$4.20 per kg). Some of these losses are already being realised by the industry because the TACC has been under-caught by between 10% and 22% in the last five years.

56 The allowances for Māori customary of 2 tonnes and other sources of fishing related mortality of 20 tonnes would be established under Option 3 in the same way as outlined in Options 1 and 2 above. The allowance proposed for recreational interests is different under this option.

## Recreational allowance

57 Under Option 3, the Ministry proposes an allowance for recreational interests of 167 tonnes. The allowance is a 30% reduction from the 239 estimate of current catch levels and is proportionally equivalent to the reduction in the TACC proposed under this option.

58 The reduced allowance is linked to the bag limit reduction from 30 to 15 blue cod proposed under this option. As noted above, the relationship between bag limit reductions and the recreational allowance is uncertain. The proposed bag limit reduction assumes few fishers take the maximum number of blue cod able to be harvested (30) and therefore a bag limit reduction of greater than 30% would be required to constrain catches to the allowance. The Ministry therefore proposes a 50% reduction in the recreational bag limit but seeks further information from stakeholders on the impact of the proposed reduction.

## **Other Management Measures**

### *Recreational Daily Bag Limits*

59 Under Options 2 and 3, reductions to the maximum number of blue cod able to be taken by recreational fishers are proposed. A maximum daily limit of 20 blue cod under Option 2, and 15 blue cod under Option 3 would be introduced within the mixed species bag limit of 30 finfish. The daily bag limits that currently apply in the Fiordland Marine Area<sup>6</sup> for blue cod are excluded from these proposals and would not be changed.

60 The bag limit proposals will require a regulatory change. Any proposed change would not come into effect from 1 October 2011, unlike the TAC and allowance proposals. A separate implementation process requiring a change of Gazette Notice will need to take place.

61 The mixed finfish bag limit of 30 fish, including blue cod was introduced in the early 1980's to allow for recreational fishing at the time and has not been altered since. Some BCO 5 recreational fishery participants have indicated the 30 bag limit is too high to apply to blue cod and should be reduced in conjunction with a BCO 5 TACC reduction. There appears to be no agreement on the level of the bag limit. The Ministry welcomes information from fishery participants to inform the setting of the BCO 5 bag limit.

62 The impact of the proposed bag limit reductions cannot be confidently predicted, but is taken into account in the recreational allowances described above for each option.

63 The bag limit reductions proposed under each option are intended to contribute to ensuring the sustainability of the stock. Reducing the blue cod recreational daily bag limit will reduce current utilisation opportunities for some recreational fishers. Of the three options, Option 3 would have the most impact on recreational benefits through reducing the maximum number of blue cod able to be taken to 15 blue cod.

64 These proposed bag limit reductions may benefit stock sustainability and reduce risks of localised depletion in popular recreational fishing areas.

---

<sup>6</sup> Regulation 4AA of the Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991.

## Conclusions

65 Stock status information shows commercial catches and catch rates, and possibly the proportion of legal sized fish, have declined since 2004-05, but this information is not conclusive of a significant stock decline. New information may become available in 2013 to better assess stock sustainability.

66 The biological characteristics of blue cod make them susceptible to the effects of fishing and to localised depletion. This means, should the stock be over-fished, recovery could be slow.

67 The Ministry is seeking information and views from tangata whenua, fishery stakeholders and other interested parties on options to manage potential risks to the sustainability of the BCO 5 stock and associated utilisation benefits. It is important to note that the Minister has broad discretion in exercising his powers of decision-making. He will make his own independent assessment of the information presented to him by both the Ministry and stakeholders before making a final decision.