

Blue Cod 5 (BCO 5): Final Advice Paper

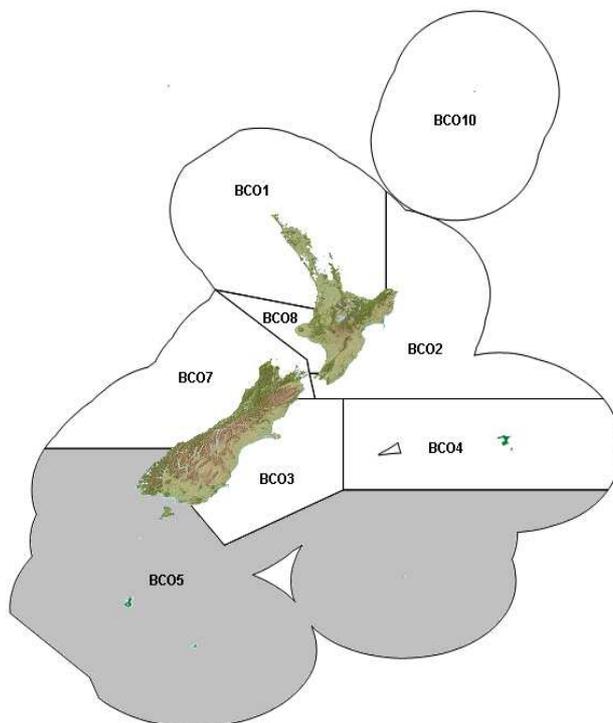


Figure 1: Quota Management Areas for Blue Cod

Summary

1 The Ministry recommends that you consider the following management options for BCO 5:

Table 1: Proposed Management Options for BCO 5.

Option	TAC tonnes (t)	TACC (t)	Māori customary allowance (t)	Other sources of mortality (t)	Recreational	
					Allowance (t)	Bag limit
1	1 809.47	1 548.47	2	20	239	30 blue cod
2 <i>Ministry preferred option</i>	1 452	1 239	2	20	191	20 blue cod
3	1 273	1 084	2	20	167	15 blue cod

2 The Ministry’s preferred option (Option 2) is to reduce the Total Allowable Commercial Catch (TACC) for BCO 5 from 1 548.47 tonnes (t) to 1 239 t, and to set a recreational daily bag limit of 20 blue cod for BCO 5.

3 No Total Allowable Catch (TAC) or allowances have been previously set for BCO 5. The Ministry recommends you set a TAC of 1 452 t, a Māori customary allowance of 2 t, a recreational allowance of 191 t, and an allowance for other sources of fishing related mortality of 20 t.

4 The annual commercial catch from BCO 5 has been declining for the last five years, during which time the catch per unit effort (CPUE) has declined below the long term mean. Other fishery indicators and surveys suggest the average size of blue cod caught is also reducing, and that fishing mortality may be higher than optimal. All sector groups have expressed concern for the fishery.

5 Option 1 places greater weight on the uncertainty of the available information within the context of a full stock assessment being available in 2013, however, it also carries the greatest risk. Options 2 and 3 take progressively more conservative approaches to the risk of stock decline below B_{MSY} . Option 2 takes action to address this risk, but with greater weight on the uncertainty of information and on maintaining current utilisation benefits than Option 3.

6 The Ministry proposes to set recreational daily bag limits in line with the recreational allowances under Options 2 and 3. Option 2 has a daily bag limit of 20 and Option 3 a daily bag limit of 15 blue cod (within the mixed finfish bag limit of 30 fish).

7 Of the submissions received, none support Option 1, nine support Option 2, three support Option 3, four propose alternative options, and four did not indicate a specific preference.

Key Considerations

Need to Act

8 Although existing information is not conclusive, fishery indicators suggest there may be a sustainability risk to BCO 5 under current management settings.

9 BCO 5 stock status information shows commercial catches and catch rates have declined since 2004-05. During this period, CPUE has declined to below the long term mean and effort, as measured by the number of pot lifts, has been stable or increased slightly. In the last fishing year the TACC was 22% under caught.

10 Potting surveys undertaken in some parts of the fishery suggest the average size of blue cod caught may also be declining, and that fishing mortality may be higher than optimal.

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

- a. Ngai Tahu iwi¹ has expressed concern about the abundance of blue cod in BCO 5 and, via input at the Te Waka a Maui me Ona Toka Iwi Forum, requested management intervention.
- b. The BCO 5 Steering Committee² (the Committee), has requested a decrease to the BCO 5 TACC. The Committee has agreement from 90% of BCO 5 quota

¹ 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.

² A commercial stakeholder group operating under the umbrella of South East Finfish Management Limited, formed over four years ago in response to concerns from quota owners,

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 in the 2008-09 fishing year.

- c. 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., Ruapuke Island).

12 Much of this concern is based on anecdotal information, which carries less weight than peer-reviewed science research. In this case, the anecdotal information is consistent with the available research information, which also indicates a decline in abundance in BCO 5.

BCO 5 Stock Status

13 Standardised CPUE and fisheries-independent survey information provide indicators of current BCO 5 stock status.

14 Commercial 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.

15 Researchers have also carried out fishery-independent potting surveys in areas of BCO 5, including Dusky Sound and Foveaux Strait, to estimate relative abundance and determine the population structure. The surveys indicate that proportions of legal sized fish may have declined in parts of the fishery and, in these areas; the current level of fishing mortality may be higher than optimal.

16 The commercial stakeholder organisation for BCO 5, the BCO 5 Steering Committee, has initiated a \$500,000 direct purchase research programme over 4 years. The programme is scheduled for completion in 2012. The results of this information will be available for a stock assessment proposed for 2013.

Biological Characteristics of Blue Cod

17 The 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. This is because blue cod:

- are relatively slow growing and long lived, reaching a maximum age of 32 years
- tend to be territorial as they generally move less than 1 km
- populations may be isolated from each other and there may be several distinct populations within a management area, and
- are protogynous hermaphrodites³ with some (but not all) females changing into males as they grow.

Relevant Fishery Information

18 BCO 5 entered the Quota Management System (QMS) in 1986 with a TACC of 1 190 t. Quota Appeal Authority decisions resulted in a further 358 t TACC increase to the

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

current level of 1 548.471 t. No TAC or allowances for Māori customary non-commercial interests, recreational interests and other sources of fishing-related mortality have been set for the fishery.

19 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.

20 Although BCO 5 covers a much wider area, over 50% of the commercial fishery and over 90% of the estimated recreational catch is taken from Foveaux Strait (statistical area 025).

Māori Customary

21 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 Māori customary harvest. Customary harvest reports are provided for the whole of the BCO 5 area.

22 Since 2007, 16 customary permits have been issued and reported for BCO 5 covering 2 750 individual fish plus another 750kg, which equates to about 2 t of fish at 33cm.

Commercial

23 Ninety seven percent of the BCO 5 commercial catches are taken by target cod potting.

24 The TACC has not been achieved since 2003-04, and commercial catch has been declining since then, coincident with a decline in CPUE (refer figure 2). These factors combined with indications from the potting surveys of a decline in fish size suggest declining stock abundance.

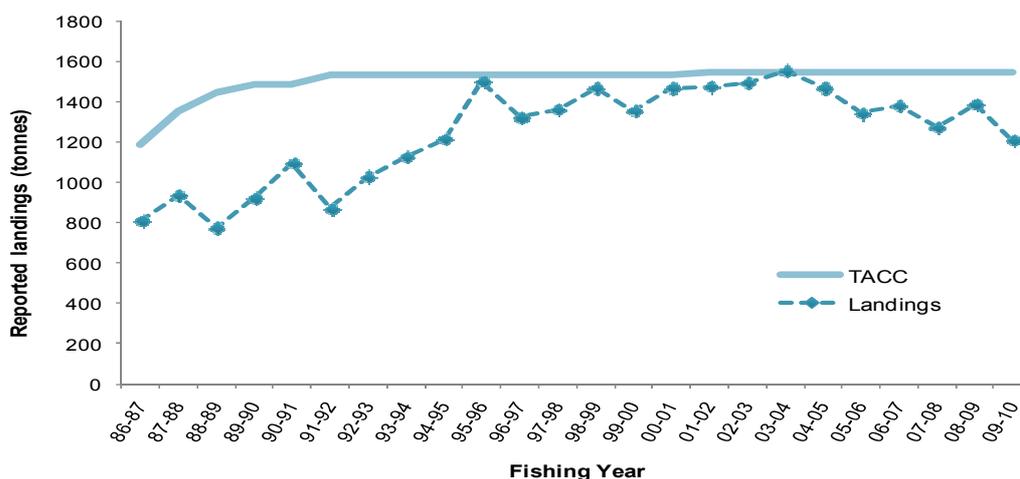


Figure 2: BCO 5 reported commercial landings and the TACC from 1986-87 to 2009-10.

Recreational

25 The results of a survey of the Southland recreational blue cod fishery (REC2009/03) have become available since the IPP was released. While the area of this survey is not

congruent with the area of BCO 5, the survey shows that the Southland⁴ recreational finfish fishery is almost exclusively concentrated on blue cod, both by target and landings. It also indicates that the recreational and commercial fisheries appear to be largely spatially separate.

26 Data from the survey shows that, of the trailer boat fishers surveyed, almost 90% landed 20 blue cod or less and 77% caught 15 blue cod or less (refer figure 2).

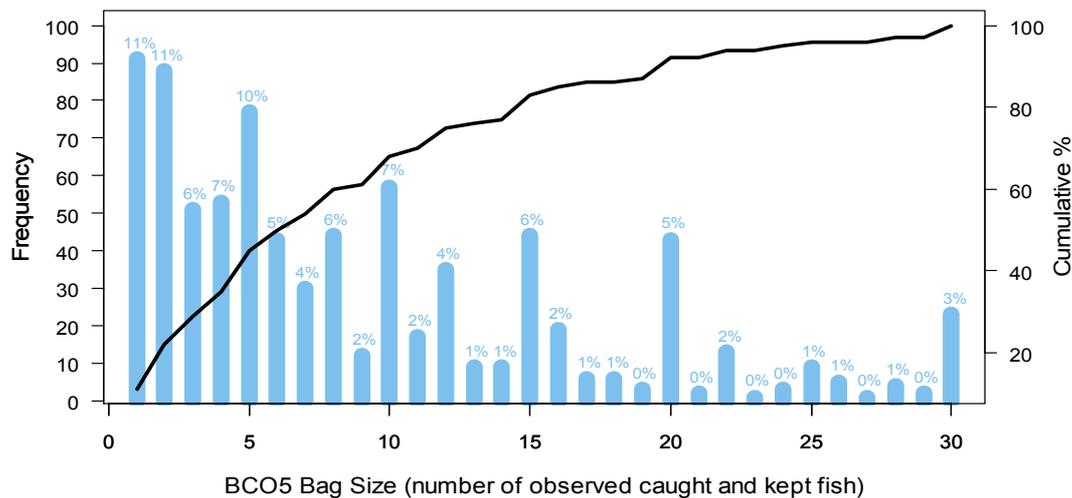


Figure 2: Frequency of different numbers of BCO 5 caught per observed fisher during 2009/10 survey (REC2009/03) in Southland. *Note: 27 fishers recorded as taking 31 or more and zero bags are not included in this data set.*

27 The Ministry notes that there are limitations on this data, including that the results are solely observed landings of blue cod; they do not take account of released fish or zero catches (including these data if they were available would decrease the proportions of bag frequency greater than one), they do not consider the composition of the fishers combined species bag, they do not include some bags recorded at over 30 fish (which would have an unknown effect on the bag frequency distribution) and they do not include the Fiordland area. Therefore, nothing can be inferred about BCO 5 catchability, and the data presented is a small fraction of the total blue cod bag frequency as not all days throughout the year were sampled and not all fishers/fishing methods were surveyed.

28 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 coefficients of variation (CV).

⁴ The Fiordland Marine Area component of BCO 5 has a 20 blue cod daily bag limit on the outer coast and a three blue cod daily bag limit within the fiords and was not covered by this survey.

Table 2: Recreational catch estimates for BCO 5

Year	Estimated Number caught	Coefficient of Variation ⁵ (%)	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

29 Commercial fishers that take blue cod for non-commercial (e.g., 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 t of fish at 33 cm).

Other sources of fishing related mortality

30 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.

31 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.

32 Non-commercial line fishing methods often result in the harvest of undersized blue cod. The survival of these fish on return to sea has been shown to be related to various factors including hook size. Larger hook sizes (i.e., 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.

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

Proposals Consulted On

34 The Ministry proposed the following management options for BCO 5 in the IPP for consultation purposes (Table 3):

Table 3: Proposed Management Options consulted on for BCO 5.

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

⁵ Is a measure of data variability e.g. the higher the coefficient of variation the more variability in the data.

3	1 273	1 084	2	20	167	15 blue cod
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35 Option 1 represents the “status quo” TACC and sets allowances for Māori customary, recreational and other sources of fishing related mortality using the best available estimates of current catch and mortality. No changes to the BCO 5 TACC or recreational bag limit would be made under this option.

36 Option 2 proposes a TAC of 1 452 t, a 20% reduction in the TACC to 1 239 t, along with a recreational allowance of 191 t (20% less than Option 1) and a recreational daily bag limit of 20 blue cod.⁶ The same settings as Option 1 are proposed for Māori customary and other sources of fishing related mortality.

37 Option 3 proposes a TAC of 1 273 t, a 30% reduction in the TACC to 1 084 t, along with a recreational allowance of 167 t (30% less than Option 1) and a recreational daily bag limit of 15 blue cod. Again, the same settings as Option 1 are proposed for Māori customary and other sources of fishing related mortality.

Submissions

38 Twenty submissions were received. Twelve submissions were from commercial stakeholders, or representatives of commercial organisations. Six submissions were from recreational fishers or organisations, one from Māori customary and one from an environmental organisation. The submitters were:

- Anderson Family Trust Partnership
- Ross L Divett
- Cyril Lawless
- BCO 5 Steering Committee (the Committee)
- W.D. King and Sons Ltd
- Sanford Bluff, Urwin & Co Ltd, W.D. King and Sons Ltd, Riverton Fishermen’s Co Ltd/Johnson & DeRijk
- B. Smellie, Southern Fresh Blue Cod and Seafood Ltd
- Riverton Fishermens’ Company Ltd
- Bayside Fish Supply
- New Zealand Sport Fishing – (NZSF)
- The New Zealand Seafood Industry Council Ltd – (SeaFIC)
- Sanford Limited
- Ngai Tahu
- N. Cross and A. Key
- Environment and Conservation Organisations of New Zealand Inc. – (ECO)
- Southeast Finfish Management Ltd
- New Zealand Recreational Fishing Council – (NZRFC)
- Bill Hartley
- A Ballantyne
- FMA 3 and 5 Recreational Fishing Forum

39 Of the submissions received, none support Option 1, nine support Option 2, three support Option 3, four propose alternative options and four do not state a preference.

⁶ The Fiordland Marine Area component of BCO 5 already has a 20 blue cod daily bag limit on the outer coast and a three blue cod daily bag limit within the fiords. This paper does not propose any daily bag limit changes for this area.

40 In general, support for Option 2 is based on there being uncertainty in the information available on which to base a decision. These, submitters support not cutting the TACC more than 20% until the stock assessment information is available in 2013.

41 A. Ballantyne, Bayside Fish Supply, the Anderson Family Trust and the Riverton Fishermen’s Company Limited submit that the decline in catch could be the result of reduced effort in the fishery. The Ministry notes, however, that during the period of declining catch effort as measured by the number of pot lifts has been stable or increased slightly.

42 Some submitters consider that the IPP did not cover off specific obligations under various sections of the Act (ECO, NZSP) and/or Supreme Court decisions (NZRFC, SeaFIC). The Ministry’s view is that it is not the purpose of an IPP to present legal arguments, but rather to test options and seek out relevant information. The Ministry considers that detailed information on statutory obligations is more appropriately addressed in an FAP, such as this.

43 Other submissions are discussed in detail under the option(s) to which they relate (in the *Final Proposals* section below).

Final Proposals

44 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 current information that the minimum legal size, or gear restrictions are not optimally set.

45 The Ministry proposes the following management options for BCO 5 for your consideration:

Table 4: Proposed Management options for BCO 5.

Option	TAC (t)	TACC (t)	Māori customary allowance (t)	Other sources of mortality (t)	Recreational	
					Allowance (t)	Bag limit
1	1 809.47	1 548.47	2	20	239	30 blue cod
2 <i>Ministry preferred option</i>	1 452	1 239	2	20	191	20 blue cod
3	1 273	1 084	2	20	167	15 blue cod

46 The current biomass of BCO 5 and the biomass that can support the maximum sustainable yield (MSY) cannot be reliably estimated. In such circumstances, you 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 the biomass that can produce MSY (B_{MSY}) (section 13(2A) of the Act). No new information to assess stock status is expected until 2013. Under the Act you are required to act on the best available information and not postpone your decision due to the absence of, or uncertainty in, information.

47 In general, the lower TAC options (Options 2 and 3) take progressively more conservative approaches to the risk of stock decline below B_{MSY} but will create potential or actual costs for recreational and commercial fishers as the lower TACs are achieved by reducing commercial and recreational catches. Option 1 defers making changes to catch levels until more robust information becomes available in 2013.

48 All options set allowances for Māori customary, recreational and other sources of fishing related mortality for the first time.

Option 1 - TAC of 1 809 t; Status Quo TACC and Allowances

49 Option 1 represents the “status quo”. Under Option 1, the existing TACC would be retained and allowances for Māori customary, recreational and other sources of fishing related mortality would be set using the best available estimates of current catch and mortality. No changes to the BCO 5 TACC or recreational bag limit would be made under this option.

50 Option 1 does not respond to sustainability concerns. The Ministry notes that information on stock status is uncertain and the CPUE index has only recently fallen to just below the long-term mean. However, the current TACC has not been fully caught in the last six years and, under the current catch levels, the catch rate has continued to decline. Other fishery indicators and surveys suggest the average size of blue cod caught is declining, and that fishing mortality may be higher than optimal. The Ministry considers Option 1 the least likely option to meet your TAC setting obligations.

51 None of the submitters support this option; therefore, Option 1 would not be responsive to the concerns of all sectors of the fishery.

52 The BCO 5 industry proposes to fund a full stock assessment in 2013.⁷ Researchers are also carrying out fishery-independent potting surveys in areas of BCO 5. Under Option 1, the stock could be reconsidered for review once the outcome of these assessments is available.

53 If you choose to await recommendations resulting from the stock assessment before changing from the *status quo*, this would mean delaying your decision on potential reductions to the TACC and recreational bag limits until at least the 2013-14 fishing year. Compared with Options 2 and 3, this poses the highest risk to stock sustainability and could result in reduced benefits for all fishery participants over the long-term should blue cod abundance continue to decline.

Māori Customary allowance

54 Under Option 1 (and all the options), a Māori customary allowance of 2 t would be set.

55 NZSF proposes a Māori customary allowance of 30 t but provides no rationale for this proposal. The Ministry notes that the proposed allowance of 2 t is based on reported information on customary authorisations. The Ministry considers this information to be accurate as there is full reporting of harvest authorised by Tangata Tiaki in BCO5. Therefore, the Ministry considers that 2 t provides fully for current annual customary harvest levels.

⁷ Alternatively, it may be considered for tender through the Ministry’s cost recovered research.

Recreational allowance

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

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

57 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 could have increased in the past 10 years but there is no quantitative information to confirm this.

58 N. Cross and A. Key submit that recreational catch is unlikely to be as high as the 239 t outlined in the IPP, as the weather in the south severely limits the number of fishable days. The Ministry notes there is uncertainty in estimates of the recreational catch in BCO 5, but also notes that the estimate of 239 t is the best available information.

59 Some research surveys have found that recreational catches tend to fluctuate with fish abundance; recreational blue cod catch may therefore have declined in recent years. There is no quantitative information to confirm this.

Allowance for other sources of fishing related mortality

60 The Ministry proposes an allowance for other sources of fishing related mortality of 20 t, approximately 2% of the proposed TAC.

61 SeaFIC and Sanford Ltd question the basis for using 2% of the current TAC to set the estimate of other sources of fishing related mortality. While there is no definitive information available to estimate other sources of fishing-related mortality, the Ministry is aware there is both method related mortality and illegal take within the fishery. The Ministry considers 2% to be a reasonable estimate for this unreported mortality.

Option 2 - TAC of 1 452 t; 20% reduction in TACC and recreational catch

62 Under Option 2, the Ministry proposes a TAC of 1 452 t. Within this, the Ministry proposes a 20% TACC reduction to 1 239 t, resulting in a catch limit that is just above the total commercial landings for the 2009-10 fishing year (1 210 t), and about 10% below the average catch of the last three fishing years (1 294 t).

63 The proposed TAC may not be low enough to halt a decline in relative stock abundance. However, there is uncertainty in some of the information on BCO 5 stock status, and it may be beneficial to wait for further information on the fishery that will become available on the fishery over the next two years. The BCO 5 Steering Committee has purchased a research programme to investigate the decline within the fishery and results will be available in 2012. A stock assessment is also programmed for 2013. At the same time, new information on the recreational fishery will become available from the Large Scale Multi-Species Survey.

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

65 The proposed 309 t TACC reduction equates to \$1.3 million (based on a port price of \$4.20 per kg) which would theoretically not be available to the commercial sector. However, the industry has not caught the TACC since 2005 so some 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).

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

Recreational allowance

67 The Ministry proposes an allowance for recreational interests of 191 t. The allowance is a 20% reduction from the 239 t estimate used under Option 1, and is consistent with the TACC reduction under this option.

68 To give effect to this allowance a bag limit of 20 blue cod is proposed under this option (currently it is 30 as part of the mixed finfish bag limit).

69 R. Divett and NZRFC ask why the allowance under the TAC for recreational fishing is reduced by 20% under this option but the daily bag limit is reduced by 33%. The Ministry noted in the IPP that the relationship between bag limit reductions and the recreational allowance is uncertain. However, it is unlikely to be directly proportional as few fishers are likely to take the maximum number of blue cod able to be harvested.

70 This is supported by the data collected by the survey of the Southland recreational blue cod fishery, which has become available since the IPP. The survey shows that of 800 trailer boat fishers surveyed, 23 caught the daily bag limit of 30, and 13% of those surveyed took more than 20 blue cod. Used directly, these data suggest⁸ that a 33% reduction in bag limit would achieve a 6% actual decrease in recreational take for those surveyed trailer boat fishers. However, the extent to which a reduction in daily bag limit will actually reduce catch in the BCO 5 is uncertain due to an absence of robust information on total and individual recreational catches through time.

71 At this time, the Ministry has taken a moderate approach to reducing the bag limit, assuming that the analysis underestimates the actual impact of the bag limit cut, in particular because it only surveys trailer boat fishers. The Ministry considers the bag limit should be looked at again in 2013 when new information will be available on recreational catches and the status of the BCO 5 stock.

Option 3 - TAC of 1 276 t; 30% reduction in TACC and recreational catch

72 Under Option 3, the Ministry proposes a TAC of 1 273 t. This option would result in a 30% decrease to the TACC (to 1 084 t).

73 This reduction is more likely to reduce the risk to stock sustainability than Options 1 and 2, and may increase benefit to fishery participants over the long-term through improved catch rates.

74 ECO, B. Hartley and B. Smellie submit that the TACC needs to be reduced below the level of current catch and, therefore, support Option 3.

⁸ The use of this data is subject to the caveats set out under *Relevant Fishery Information*

75 NZRFC, NZSF, N. Cross and A. Key, and R. Divett also submit that the TACC should be reduced to the 1986 level (1 190 t) or lower. They variously submit that declining catch, declining CPUE, and declining size show the fishery at current catch levels is unsustainable and a TACC should be set below actual current catch. However, they support no or little change in recreational allowance.

76 The Ministry considers that, taken on their own, indicators such as a CPUE below the long term mean, and declining catch and fish size do not necessarily show a sustainability issue. However, when combined, a trend of decline in all these factors suggests that the fishery is under fishing pressure at current levels of catch.

77 There are actual costs and opportunity costs, however, under this option. A 464 t 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 as the TACC has been under-caught by between 10% and 22% in the last five years.

78 The directors of W.D. King and Sons Ltd submit that a 30% cut in the TACC would jeopardise the industry research programme and make implementing management strategies very difficult. While the Ministry acknowledges that a reduction of income will result from a 30% cut and that this may make research funding more difficult, the long term health and sustainability of the fishery will also be of significance to their income longer term.

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

Recreational allowance

80 Under Option 3, the Ministry proposes an allowance for recreational interests of 167 t. The allowance is a 30% reduction from the 239 t estimate of current catch levels and is consistent with the TACC reduction proposed under this option.

81 To give effect to this allowance a bag limit of 15 blue cod proposed under this option. The relationship between bag limit reductions and the recreational allowance is uncertain, however, it is unlikely to be directly proportional as few fishers are likely to take the maximum number of blue cod able to be harvested (30).

82 This is supported by the data collected by the Survey of the Southland recreational blue cod fishery, which has become available since the IPP. The survey shows that of the 800 trailer boat fishers surveyed, a 15 blue cod daily bag limit equates to an actual reduction of 10% in the recreational blue cod take.⁹ However, the extent to which a reduction in daily bag limit will actually reduce catch in BCO 5 is uncertain. This is because of an absence of robust information on total and individual recreational catches through time. As with Option 2, the Ministry considers a moderate approach to reducing the bag limit is appropriate at this time. The Ministry considers the bag limit should be looked at again in 2013 when new information will be available on recreational catches and the status of the BCO 5 stock.

⁹ The use of this data is subject to the caveats set out under *Relevant Fishery Information*

Additional Management Controls

Recreational Daily Bag Limits

83 Under Options 2 and 3, the Ministry proposes setting the maximum recreational daily bag limit for blue cod at 20 and 15, respectively.¹⁰ The impact of these proposed bag limits on recreational catch cannot be confidently predicted but the use of the best available information has been used to set recreational allowances corresponding to each option.

84 These options will reduce utilisation opportunities for some recreational fishers. Of the three options, Option 3 would have the most impact on recreational benefits.

85 The bag limits would be introduced within the mixed species bag limit of 30 finfish. The mixed finfish bag limit of 30 fish, including blue cod was introduced in the early 1980's. Some BCO 5 recreational fishery participants have indicated the 30 bag limit is too high for blue cod and should be reduced in conjunction with a BCO 5 TACC reduction. However, there is no consensus in submissions on what the bag limit should be.

86 Tangata whenua and commercial submitters consider the daily bag limit should be reduced from 30 fish per day down to between 20 and 10. On the other hand, recreational submitters disagree with the options as provided in the IPP. N. Cross and A. Key, with support from the FMA 3 & 5 Recreational Fishing Forum, submit that the bag limits (and recreational allowances) should remain unchanged, as there are relatively few fishable days available to southern fishers as a consequence of the weather. No information to justify a particular bag limit was provided by submitters.

87 NZSF submit that what is considered an adequate and reasonable bag limit can be determined on its merits and there is no need to link a particular TAC option with only one bag limit option. Further, there is no valid case made in the IPP for any reduction in the daily bag limit or the overall recreational allowance. The NZSF states that the "Kahawai case" established that it is the Minister's discretion to allow for recreational fishing and no information has been provided to guide this decision.

88 The Ministry agrees that you have discretion when setting or varying the TAC. Similarly, you have discretion in setting bag limits (and are not constrained to the format of the options). However, the options proposed represent an approach of sharing the proposed cuts across the two sectors, with options 2 and 3 taking progressively more conservative approaches to the risk of stock decline below B_{MSY} .

89 N. Cross and A. Key submit that a voluntary bag limit be applied until reliable estimates of recreational take are available. The Ministry does not have confidence that voluntary recreational bag limit reductions would work as effectively as regulatory measures would in the BCO 5 fishery. The recreational daily bag limit is the most effective management tool in constraining recreational take of BCO 5.

90 The recreational daily bag limit proposals will require a regulatory change and separate implementation process. If adopted, a bag limit change would come into effect as soon as possible. There will be some cost involved in implementing any changes made to recreational bag limits, including notices, new signage and updates to recreational rule handbooks.

¹⁰ The lower daily bag limits that currently apply in the Fiordland Marine Area for blue cod are excluded from these proposals and would not be changed. See Regulation 4AA of the Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991.

Other Management Measures

91 The Ministry has reviewed the deemed value rates criteria for BCO 5 and is proposing you increase the interim deemed value rate from \$1.00 up to \$1.88, and the annual deemed value rate from \$2.00 up to \$3.75. For further information, please refer to the separate Deemed Value Rate FAP.

92 B. Smellie, Ngai Tahu, the BCO 5 Steering Committee, D.W. Kings and Sons Ltd, C. Lawless and Sanford Bluff, Urwin & Co Ltd, W.D. King and Sons Ltd, Riverton Fishermens' Co Ltd/Johnson & DeRijk all submit that an increase in the pot mesh size limit and or an increase in the minimum legal size (MLS) would have a positive effect on the fishery, with fewer fish caught for the same tonnage, and greater numbers of fish in the water to reproduce. The BCO 5 Steering Committee plans to implement a number of management strategies (e.g. ACE shelving and a mesh size increase on cod pots) to improve the fishery and its economic growth potential.

93 N. Cross and A. Key wish to see recreational blue cod potting banned as they believe this method of fishing is outside the realm and ethics of recreational fishing.

94 While the Ministry agrees it is possible the method controls and other measures proposed by these submitters could have a beneficial effect on the fishery, these measures are separate to the issues in this paper and require further discussion on how they would assist in meeting management objectives for this fishery.

Assessment against Statutory Obligations

General Obligations

95 The Ministry considers that all options presented in this paper satisfy your obligations under section 8 of the Act in that they provide for utilisation in the BCO 5 fishery while ensuring sustainability. Each management option proposed will ensure the long term sustainability of the stock. Option 1 reflects the uncertainty in stock status information and effectively defers making changes to management measures until better information is available in 2013. Option 1 therefore is the least likely of the three options to address any current sustainability risks and could result in reduced benefits for all fishery participants over the long-term. Option 2 (the Ministry's preferred option) places greater weight on potential sustainability concerns, while maintaining current utilisation benefits to a greater extent than Option 3. Option 3 would reduce utilisation opportunities for fishers in the short term. However, fishers may benefit from improved stock abundance and reduced risk of localised depletion over the longer-term.

96 In setting or varying sustainability measures, you must also act in a manner consistent with New Zealand's international obligations to fishing and the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

97 There are no specific international obligations relating to BCO 5. A wide range of international obligations relate generally to fishing, including use and sustainability of fishstocks; and maintaining biodiversity (section 5(a)). The Ministry considers that the management options for BCO 5 are consistent with these international obligations.

98 The Ministry also considers the proposed management options to be consistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (section 5 (b)). On-going work is being done within the area covered by BCO 5 to promote policies that

help to recognise customary use and management practices, including, but not limited to new Iwi Fisheries Management Plans.

99 The Ministry has an obligation to provide for input and participation of tangata whenua and have particular regard to kaitiakitanga (under section 12). The Ministry sought input from and provided an opportunity for participation to Ngai Tahu whose rohe covers the boundaries of the BCO 5 QMA, prior to the development phase for the BCO 5 IPP. Ngai Tahu specifically requested a review of this stock, expressing concern about abundance and the ability of the stock to meet the long term needs of its people. Ngai Tahu also expressed support for a 20% reduction to the TACC, and a recreational daily bag limit of 10 blue cod. Ngai Tahu did not provide any specific information on customary catch or customary interest in BCO 5 at this time.

100 Additionally, the Ministry, under section (12)(1), provided an opportunity for all stakeholders and tangata whenua to provide their views on the BCO 5 IPP during the consultation phase.

TAC

101 Section 13(2A) requires you to 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 doing so, you must have regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock, and set a TAC using the best available information. You must not use the absence of, or uncertainty in, the best available information as a reason for postponing or failing to set a TAC.

102 The 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.

103 In considering the way in which, and rate at which, a stock is moved towards or above B_{MSY} , you must have regard to such social, cultural, and economic factors as you consider relevant (section 13(3)). There is no statutory guidance on what an appropriate ‘way and rate’ might be in any given case – it is a matter for you to determine having regard to social, cultural and economic factors. Relevant social, economic and cultural information is set out in this paper.

104 The TAC options presented in this FAP take into account the requirements listed in s 13 of the Act, and offer differing approaches to managing the potential risk to sustainability of the fishery that reflect the uncertainty in available information. The options are also consistent with the information principles set out in section 10 of the Act.

Environmental principles

105 The Act requires that adverse effects of fishing should be avoided, remedied or mitigated. More specifically, section 9 requires you to take into account that associated or dependent species should be maintained at or above a level that ensures their long-term viability, that the biological diversity of the aquatic environment should be maintained, and habitat of particular significance for fisheries management should be protected.

106 The BCO 5 fishery is considered to have minimal adverse effects as the target fishery methods are potting and hand lining. Any adverse impacts (including ecosystem impacts and impacts on the aquatic environment) are likely to be reduced if there is a reduction to the TACC.

Section 11 considerations

107 In making your decision on sustainability measures for BCO 5 you must also have regard to the requirements of section 11 of the Act as follows:

- a. Section 11(1)(a): Before setting or varying any sustainability measure for any stock, you must take into account any effects of fishing on any stock and the aquatic environment. The majority of BCO 5 commercial take is a target potting fishery (97%) with minimal bycatch. Under Options 2 and 3, less harvest of BCO 5 is allowed for than under the status quo. Therefore, any impacts on other stocks and the environment would be reduced. Under Option 1, there is potential for impacts to increase if effort were increased to try and catch the full TACC and bag limits.
- b. Section 11(1)(b): Before setting or varying any sustainability measure for any inshore stock, you must take into account any existing controls under the Act that apply to the stock or area concerned. Standard management controls apply to the BCO 5 fishery, for example deemed value rates, recreational bag limits, minimum size limits, and fishing method constraints. The proposed settings for the TAC and proposed changes to the TACC do not affect these measures. However, Options 2 and 3 propose a reduction to the BCO 5 recreational daily bag limit.
- c. Section 11(1)(c): Before setting or varying any sustainability measure for this stock, you must take into account the natural variability of the stock. Natural variability of blue cod does occur year to year, although this can be attributed to a host of factors such as fish biology and behaviour and weather conditions.
- d. Sections 11(2)(a) and (b): Before setting or varying any sustainability measure for any stock, you must have regard to any provisions of any regional policy statement, regional plan, or proposed regional plan under the Resource Management Act 1991 and any management strategy or management plan under the Conservation Act 1987 that apply to the coastal marine area and you consider relevant. The Ministry is not aware of any such provisions, management plans or strategies that apply to the coastal marine area that you might consider relevant to BCO 5.
- e. Section 11(2)(c): Before setting or varying any sustainability measure for any inshore stock, you must have regard to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 that apply to the coastal marine area and you consider relevant. The boundaries of the BCO 5 area do not intersect with the Park boundaries.
- f. Section 11(2)(d) Before setting or varying any sustainability measure for this stock you must have regard to any provisions of a planning document lodged with the Minister of Fisheries by a customary marine title group under section 91 of the Marine and Coastal Area (Takutai Moana) Act 2011. That Act establishes the process for applying for a customary marine title, but no such title has been granted as yet.
- g. Section 11(2A)(b): Before setting or varying any sustainability measure for any stock, you must take account of any relevant and approved fisheries plans. There is no approved fisheries plan in place for BCO 5 at this time.

- h. Sections 11(2A)(a) and (c): Before setting or varying any sustainability measure for any stock, you must take into account any conservation or fisheries services, or any decision not to require such services. While there are no existing or proposed services that materially affect the proposals for this stock, the provision of a stock assessment to be completed in 2013 may influence your decision. No decision has been made to not require a service in this fishery at this time.

Setting Allowances

108 When setting any TAC, section 21 of the Act requires you to allow for Maori customary non-commercial interests, recreational fishing interests, and for any other sources of fishing-related mortality, when setting or varying the TACC. The Act does not provide an explicit statutory mechanism to apportion available catch between sector groups either in terms of a quantitative measure or prioritisation of allocation. Accordingly, you have the discretion to make allowances for various sectors based on the best available information.

109 For all options, reductions in the TACC and the recreational allowance are proportional. The Māori customary allocation is derived from recorded actual harvest from customary permits. The allowance for other sources of fishing related mortality is based on a reasonable estimate from known fishing method mortality and from estimates of take by illegal fishing.

110 Section 21(4) requires that any mātaihai reserve or closures/restrictions under s 186B to facilitate Māori customary fishing be taken into account. The following mātaihai reserves are located within BCO 5:

- Te Whaka a Te Wera
- Kaihuka
- Pikomamaku, Horomamae
- Oreti.

111 The Ministry notes Te Whaka a Te Wera reserve has a daily bag limit of two blue cod. The Ministry further notes that the proposals in this paper will not impact on, or be impacted by, the above areas.

Other relevant legislation

112 The Fiordland (Te Moana o Atawhenua) Marine Management Act 2005 requires that you must take into account any advice or recommendations provided by the Guardians. This proposal has been drawn to the attention of the Guardians. However, no advice or recommendations have been received. No changes are proposed to the recreational daily bag limits in place for the Fiordland area.

Conclusion

113 The Ministry's preferred option in Option 2. The available information shows annual commercial catch and CPUE in BCO 5 has been declining for the last 5 years. Other fishery indicators and surveys suggest the average size of blue cod caught is declining, and that fishing mortality may be higher than optimal. All sector groups have expressed concern for the fishery and the current TACC may not be consistent with the objective of maintaining the stock at or above, or moving the stock to a level at or above B_{MSY} .

114 Option 2 takes action to address this risk by setting a TACC that is approximately 10% below the last three year's average commercial landings. Option 2 also sets a

recreational allowance at 20% less than the current estimate, and reduces the daily bag limit from 30 to 20 blue cod.

115 Further information will become available on the fishery over the next two years. The BCO 5 Steering Committee has purchased a research programme to investigate the decline within the fishery and results will be available in 2012. A stock assessment is also programmed for 2013. At the same time new information on the recreational fishery will become available from the Large Scale Multi-Species Survey.

116 The Ministry notes that you have broad discretion in exercising your powers of decision making, and may make your own independent assessment of the information presented to you in making your decision.

Summary of Recommendations

117 The Ministry recommends that for the BCO 5 fishery, you either:

Option 1 YES/NO

A. **Agree** to set a TAC of 1 809.471t and within this:

- i. **set** an allowance for Māori customary fishing of 2t
- ii. **set** an allowance for recreational fishing of 239t
- iii. **set** other sources of fishing related mortality at 20t
- iv. **retain** a TACC of 1 548.471t

AND

- v. **Agree** to set a recreational BCO 5 daily bag limit of 20 blue cod within the mixed finfish species bag limit of 30 finfish

OR

Option 2 YES/NO

B. **Agree** to set a TAC of 1 452 t and within this:

- i. **set** an allowance for Māori customary fishing of 2t
- ii. **set** an allowance for recreational fishing of 191t
- iii. **set** other sources of fishing-related mortality at 20t
- iv. **decrease** the TACC from 1 548.471 t to 1 239 t

AND

- v. **Agree** to set a recreational BCO 5 daily bag limit of 20 blue cod within the mixed finfish species bag limit of 30 finfish

OR

Option 3 YES/NO

C. **Agree** to set a TAC of 1 273 t and within this:

- i. **set** an allowance for Māori customary fishing of 2t
- ii. **set** an allowance for recreational fishing of 167t
- iii. **set** other sources of fishing-related mortality at 20t
- iv. **decrease** the TACC from 1 548.471 to 1 084 t

AND

- v. **Agree** to set a recreational BCO 5 daily bag limit of 15 blue cod within the mixed finfish species bag limit of 30 finfish.

Leigh Mitchell
for Director General

AGREED / AGREED AS AMENDED / NOT AGREED

Hon Phil Heatley
Minister of Fisheries and Aquaculture