

MILFORD & DOUBTFUL SOUNDS – PROPOSAL TO EXTEND THE BLUE COD AMATEUR FISHERY CLOSURES – INITIAL POSITION PAPER

Executive Summary

- 1 Milford and Doubtful Sounds (Figure 1), which lie within the Fiordland Marine Area,¹ have been closed to amateur fishing for blue cod (*Parapercis colias*) since 30 June 2005. The closures resulted from the concerns of the Fiordland Marine Guardians² (the Guardians) about localised depletion due to fishing pressure.
- 2 The Guardians have recommended to the Ministry of Fisheries (MFish) that the existing four year closures³ of Milford and Doubtful Sounds to amateur blue cod fishing be extended for a further period of one year, to the 29 June 2010. They are currently due to end on 29 June 2009.
- 3 Blue cod stocks in the closed areas have been monitored during the existing closures and, at the date of writing, four summers' data have been collected.⁴ The results of the monitoring do not show any clear trend in blue cod abundance over the course of the closures. No baseline data are available for either area immediately prior to the closures, and it may be too soon for any improvement in abundance to have occurred.
- 4 Data from the marine reserve (Piopiotahi) in Milford Sound indicate that fish may be larger and more abundant there than the (more recently closed) remainder of Milford Sound. No rigorous statistical analysis has been done to confirm this as there is not yet enough data. But, the data suggest that improvement in blue cod abundance is possible.
- 5 The Guardians' recommendation to extend the closures will enable a further year's data to be collected. They hope that this will lead to a better understanding of the blue cod stocks in Milford and Doubtful Sounds and, consequently, better informed management decisions. An extension of one year would also coincide with the review⁵ scheduled for 2010 to determine the effectiveness of the overall management of the Fiordland Marine Area.
- 6 MFish's initial position is to support extending the closures, but without specifying an end date. MFish considers that for any recovery of blue cod stocks to occur, it is likely to require a longer closure than the Guardians have recommended, but how long is unknown. An open ended closure allows for

¹ See the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005 for boundaries of the Fiordland Marine Area.

² Then, the Guardians of Fiordland's Fisheries & Marine Environment Inc.

³ Originally for two years from 30 June 2005, they were extended for a further two years from 30 June 2007.

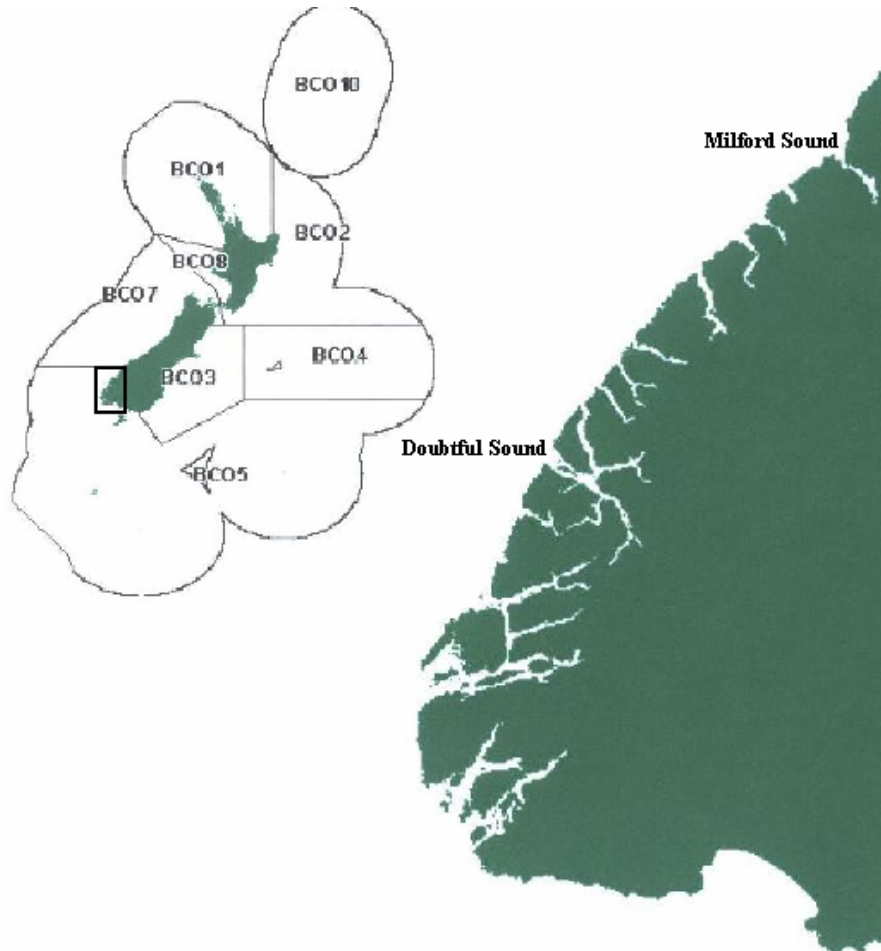
⁴ The fourth summer of monitoring was carried out in mid-February 2009, but the data has yet to be analysed.

⁵ As required under section 25 of the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005.

the areas to be reopened in the future when monitoring results shows the stocks have either recovered sufficiently or will not improve further.

- 7 MFish seeks stakeholders' views on whether to extend the closures, and if so, for how long.

Figure 1: Map showing location of Milford and Doubtful Sounds



Regulatory Impact Analysis Requirements

- 8 This initial position paper (IPP) required a Regulatory Impact Statement which was reviewed internally by MFish.
- 9 For more information on the Regulatory Impact Analysis Requirements and the meaning of the word 'significant' with reference to an IPP, please refer to the Treasury website www.treasury.govt.nz.

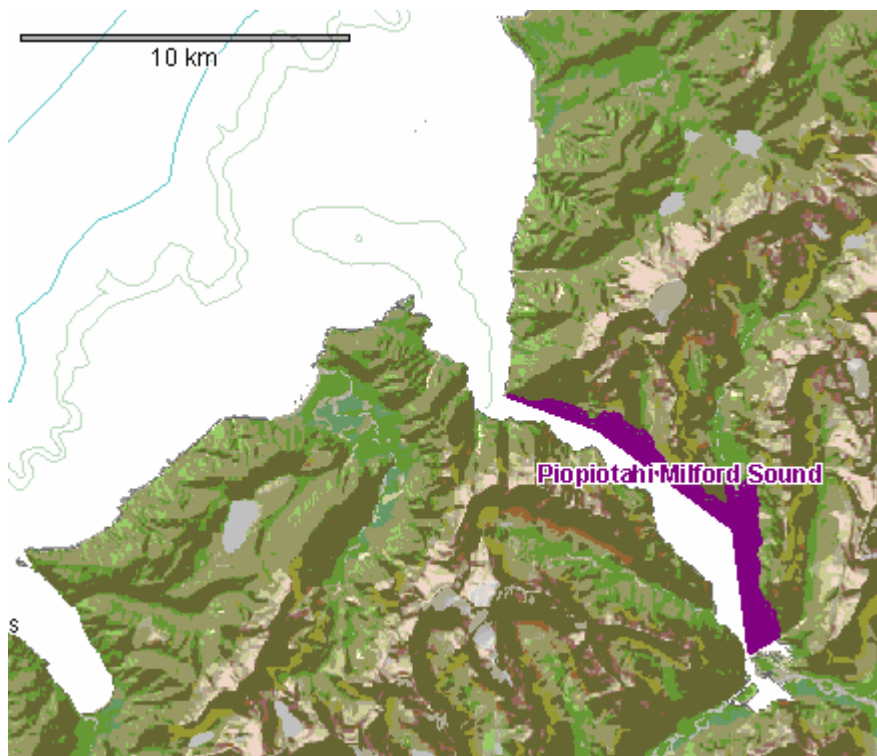
The Issue

- 10 The then Guardians of Fiordland's Fisheries & Marine Environment Inc. published the "Fiordland Marine Conservation Strategy" (the Strategy) in 2003, after several years' work, including public consultation. The Strategy was an integrated approach to managing the marine area of Fiordland. The Strategy concluded that, in regard to blue cod abundance, although blue cod were present in good numbers on the open coast:

*It is clear from views canvassed and research conducted that blue cod stocks are not likely to be plentiful inside the fiords. Furthermore, blue cod do not undertake significant movements, meaning that increasing pressure, if not managed, will result in local depletion.*⁶

- 11 Fishing pressure in Milford and Doubtful Sounds is exacerbated by the relative ease of access for fishers. These two Sounds are the only ones accessible by road and are consequently thought to be particularly vulnerable to localised depletion. This led the Guardians to advocate closing Milford and Doubtful Sounds to recreational fishing for blue cod to allow time for the stocks to recover.
- 12 Blue cod stocks in the closed areas have been monitored during the existing closures and, at the date of writing, four summers' data have been collected. The results of the monitoring do not show any clear trend in blue cod abundance over the course of the closures. No baseline data are available for either area prior to the closures, and it may be too soon for any improvement in abundance to have occurred.
- 13 Data from the marine reserve (Piopiotahi) in Milford Sound indicate that fish may be larger and more abundant there than the (more recently closed) remainder of Milford Sound. No rigorous statistical analysis has been done to confirm this as there is not yet enough data. But, the initial data suggest that improvement in blue cod abundance may be possible.

Figure 2: Map of Milford Sound, showing the Piopiotahi Milford Sound Marine Reserve (indicated by the area of solid colour)



⁶ Page 36 of the Fiordland Marine Conservation Strategy (2003).

Summary of Options

Option 1 – Status Quo - Allow the Milford and Doubtful Sounds Blue Cod Fisheries to Reopen

- 14 If the closures are not extended, the Milford and Doubtful Sounds' blue cod fisheries will reopen on 30 June 2009. Management of the blue cod fisheries would then be under the same management regime that is in place for recreational fishing in the remainder of the Fiordland Marine Area. That is: bag limit of 3 per day in the internal waters,⁷ minimum length of 33 cm,⁸ with no accumulation permitted (that is, a fisher may not possess more than the daily bag limit).⁹ Customary fishing would continue to be at the discretion of Kaitiaki/Tangata Tiaki.¹⁰ An alternative management regime could be developed for recreational fishing for blue cod in Milford and Doubtful Sounds, but none is currently proposed.

Option 2A – Extend the Current Closures for 1 year – the Guardians' Recommendation

- 15 The Guardians' recommendation is to extend the current closures to recreational fishing for a further period of one year. This will allow for one further year's data to be gathered, and coincides with the review in 2010 to determine the effectiveness of the management of the Fiordland Marine Area.
- 16 A disadvantage of this option is that it carries the possibility of the areas being reopened for a short time before being closed again, and thus setting back any recovery. This is due to the fact that the review of overall management is scheduled to be completed¹¹ after the time the closures would be due to end. If a further extension is then recommended, it will not be possible for public consultation on the proposal to be completed in time to avoid the areas being reopened for a time, probably for a few months.
- 17 MFish suggests that, if this option is chosen, the opportunity is taken to align the closures with the blue cod fishing year, which runs from 1 October to 30 September. This would make the new end date 30 September 2010, only three months longer than the Guardians' recommendation. This will somewhat mitigate the risk of the areas being reopened before any further extension could be proposed and put in place.

Option 2B – Extend the Current Closures with No Specified End Date – MFish Preferred Option

- 18 MFish prefers extending the current closures to recreational fishing without specifying an end date. The areas could be reopened when there is evidence

⁷ Regulation 4AA(1) Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991.

⁸ Regulation 6(2) Fisheries (Amateur Fishing) Regulations 1986.

⁹ Regulation 7(4) Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991.

¹⁰ Commercial fishing is closed in the internal waters of Fiordland under regulation 3(1)(c) of the Fisheries (Southland and Sub-Antarctic Areas Commercial Fishing) Regulations 1986. There is no proposal to make any change in regard to this.

¹¹ The Ministry for the Environment advises that the review report is anticipated around November 2010.

either that blue cod stocks have recovered or that the closures will not further improve blue cod abundance. The reopening could be initiated on the recommendation of the Guardians.

- 19 It is unknown whether keeping the areas closed will lead to an improvement in blue cod abundance or how long that might take. But, this option provides a better likelihood of stock recovery and allows data to be collected over a longer period. More data will allow for a better assessment of the effectiveness of the closures. This information could also be used to inform management of blue cod elsewhere, particularly in other parts of the Fiordland Marine Area.
- 20 This option will not interfere with the review to determine the effectiveness of the overall management of the Fiordland Marine Area. If reopening of the areas were recommended during the review, it is possible under this option.

Rationale for Management Options

- 21 The Guardians were established under the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005. Their role includes providing advice and recommendations to the Minister of Fisheries and MFish on fisheries management in the Fiordland Marine Area.¹² The Guardians' members come from various groups including commercial and recreational fishers, tangata whenua, charter boat operators, scientists and environmentalists. The Guardians work with management agencies¹³ providing advice and making recommendations to them.
- 22 As part of the Strategy, the Guardians advocated Milford and Doubtful Sounds be closed to recreational fishing for blue cod to allow time for the stocks to recover. Consequently, the existing closures were put in place in 2005 as part of a management package of legislative and non-legislative measures that were applied to the Fiordland Marine Area. The existing closures were brought about by an amendment to the Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991. Commercial fishing was permanently excluded from all of the inner waters of the Fiordland Marine Area at the same time that the blue cod closures were first put in place.
- 23 The 2005 closures were for a period of two years. In the Strategy, the Guardians had also envisioned at least one extension to the closure may be necessary. The closures were in fact extended for two years on the Guardians' recommendation. The closures are currently due to end on 29 June 2009.
- 24 The Guardians and the management agencies developed a monitoring programme in regard to the management package. A summary of the monitoring programme was produced which included goals, outcomes, and monitoring objectives. The stated goal in regard to the temporary closures was:

¹² Section 13(1)(a) of the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005.

¹³ The Department of Conservation, Environment Southland, the Ministry for the Environment, the Ministry of Agriculture and Forestry, and the Ministry of Fisheries.

To restore the blue cod fishery/stocks to allow reopening of the fishery in the future.

The stated outcome was:

Populations of blue cod in Milford and Doubtful Sounds are maintained or improved.

The monitoring objectives were:

To provide baseline data on blue cod population to provide data relevant to blue cod closure; and

To assess the impact of management decisions (closure and reduced bag limit) on the blue cod fishery in Milford and Doubtful Sounds.

- 25 The Guardians have recently recommended continuing the closures for a further year. They consider that there has been insufficient time for enough data to be collected to meet the monitoring objectives, particularly since no data are available for the stocks immediately prior to the closures. Based on known characteristics, such as age at maturity and the behaviour of blue cod (tending not to move far most of the time), MFish considers that there is unlikely to have been sufficient time for the stocks to recover.
- 26 Monitoring has been undertaken since the summer of 2005/06. The monitoring project (SAP2005-08) uses relative abundance (measured in catch per unit effort (CPUE)) as a measure and experimental line fishing as a method. Since November 2006, the project has included sites in the marine reserve (Piopiotahi) in Milford Sound for comparison with the (previously open) remainder of Milford Sound.
- 27 Preliminary results from the November 2006 monitoring survey appeared to show some improvement in relative abundance compared with the first summer of the study. However, the data have been highly variable, and later data has not shown any clear improvement compared to the first survey (see Table 1). MFish considers more data is needed to determine whether the closures may result in recovery of blue cod stocks. Blue cod abundance has shown similar variability over the whole of the Fiordland Marine Area¹⁴ over the time the closures have been in effect.

Table1: Average catch per unit effort (fish per hour) for blue cod in Milford & Doubtful Sounds

	Milford Sound		Doubtful Sound
Date	CPUE (previously)	CPUE (marine)	CPUE

¹⁴ Wing S. R., Jack, L.(2007) Biological Monitoring of the Fiordland (Te Moana o Atawhenua) Marine Area and Fiordland's Marine Reserve – 2007. Report prepared for Department of Conservation.

	open area)	reserve)	
Jan-06	2.657	<i>Not sampled</i>	1.588
Mar-06	1.807	<i>Not sampled</i>	0.794
Nov-06	2.650	4.838	2.581
Feb-07	2.186	4.957	0.913
Jan-08	1.893	3.163	1.325

- 28 The marine reserve (Piopiotahi) in Milford Sound was established in 1993. From the monitoring data, blue cod in the marine reserve appear to be bigger and more abundant than in the more recently closed area of Milford Sound. As there is not yet enough data, no rigorous statistical analysis has been done to confirm this. Nonetheless, the data suggest that abundance of blue cod (as measured by CPUE) has the potential to be higher than it currently is in the previously open area of Milford Sound.
- 29 The monitoring project uses tagging to examine movement of blue cod. The results suggest little movement of blue cod is occurring. However, the Final Research Report for the 2005/06 summer project remarked that, based on size frequency data, the fish within the inner sounds may not represent self-sustaining populations: fish in the inner sound population originated from outer sound or adjacent coast. This is consistent with the suggestion from studies of Dusky Sound that inner fiord blue cod stocks appear to be derived from the adjacent open coast.^{15, 16}
- 30 It is not known if blue cod stocks are breeding within Milford and Doubtful Sounds, though it seems unlikely given the presence of the low salinity layer (which would likely be a hostile environment for larval fish and eggs). If they are not breeding, increases in stock numbers will be reliant on recruitment from the outer sounds and adjacent coast. This is likely to be a slow process given the relative lack of movement of individual blue cod. In that case, it is likely to take years for the closures to lead to an increase the relative abundance of blue cod.
- 31 Factors other than fishing pressure, such as changes in food and habitat availability, might cause natural fluctuations in blue cod abundance. But, increases in abundance and size of blue cod have been demonstrated when harvesting has been excluded from an area¹⁷ (though the site in that case was

¹⁵ Carbines, G.; McKenzie, J. (2004) Movement patterns and stock mixing of blue cod in Dusky Sound in 2002. *New Zealand Fisheries Assessment Report 2004/36*. 28p.

¹⁶ Rodgers, K. L.; Wing, S. R. (2008) Spatial structure and movement of blue cod *Paraperis colias* in Doubtful Sound, New Zealand inferred from $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$. *Mar Ecol Prog Ser* 359:239-248.

¹⁷ Davidson, R. J. (2001) Changes in population parameters and behaviour of blue cod (*Paraperis colias*; Pinguipedidae) in Long Island – Kokomohua Marine Reserve, Marlborough Sounds, New Zealand.

more productive and not subject to the freshwater layer that exists in Milford and Doubtful Sounds).

- 32 A recent report¹⁸ suggests fishing pressure is also an important factor in the Fiordland Marine Area. Biological monitoring, which includes blue cod stocks, is being undertaken as part of the overall Fiordland Marine Area monitoring programme. The report of the three year (2005-07) baseline work for that monitoring notes an overall decline in blue cod abundance across the whole Fiordland area since 1985-87. The report notes the greatest rate of decline in areas open to fishing (commercial and/or recreational). It found that the inner fiords, which are closed to commercial fishing, generally had larger fish than the open coast.
- 33 In recent unpublished research undertaken by NIWA for MFish as part of the overall Fiordland monitoring programme, the researcher found that blue cod is the main recreational target species in the Fiordland Marine Area. The coastal area adjacent to and outside of Doubtful Sound was found to be one of the most popular areas for recreational fishing for blue cod in the Fiordland Marine Area.
- 34 There has been general support for the closures to date, and MFish's compliance team has not had any reports of non-compliance.
- 35 Commercial fishing is not permitted within the internal waters of Fiordland.¹⁹ Due to a voluntary rāhui there are no customary permits being issued at present. Therefore, the closures' only impact is on recreational fishing. This paper assumes that the rāhui will continue.
- 36 Based on their own knowledge, combined with background information gathered for the purposes of developing the Strategy, the Guardians believe that there has been significant depletion of the blue cod fisheries within both Milford and Doubtful Sounds. This belief is consistent with the findings of studies conducted in other areas of New Zealand which have shown a trend of local depletion occurring in more accessible areas, for example, in the inner Marlborough Sounds²⁰ and Banks Peninsula.²¹

¹⁸ Wing S. R., Jack, L.(2007) Biological Monitoring of the Fiordland (Te Moana o Atawhenua) Marine Area and Fiordland's Marine Reserve – 2007. Report prepared for Department of Conservation.

¹⁹Regulation 3(1)(c) of the Fisheries (Southland and Sub-Antarctic Areas Commercial Fishing) Regulations 1986.

²⁰ Blackwell, R G (2002). Abundance, size and age composition of recruited blue cod in the Marlborough Sounds, September 2001. Final Research Report for Ministry of Fisheries, Project BCO2001/01 (Unpublished).

²¹ Carbines, G. D.; Beentjes, M. P. (2006) Abundance of blue cod off north Canterbury in 2004-05. *New Zealand Fisheries Assessment Report 2006/30*. 26p.

Assessment of Management Options

Option 1 – Status Quo - Allow the Milford and Doubtful Sounds Blue Cod Fisheries to Reopen

Impact

37 The evidence that the stocks were depleted by fishing prior to the closures was largely anecdotal. But, the anecdotal evidence of likely depletion is supported by the results of the biological monitoring of the Fiordland Marine Area²² and studies from other areas of the South Island.^{23, 24} If the areas are depleted and are reopened too soon, the risk is that the current closures would not have provided for a rebuild and will not have addressed the localised depletion.

Costs

38 The inner waters of the Fiordland Marine Area are subject to a reduced daily bag limit,²⁵ with no accumulation permitted. MFish considers that, at current levels of abundance, this is not restrictive enough for sustainable utilisation. It is also likely that reopening Milford and Doubtful Sounds will result in further reductions in blue cod stocks in those areas and, consequently, the value of the fishery to recreational fishers.

Benefits

39 Were the fishery to be reopened, monitoring could be carried out and compared with the data collected during the existing closures, to assess the impact of renewed fishing in the currently closed areas. This could be used to guide future management decisions in the Fiordland Marine Area.

40 Reopening the areas would enable recreational fishers to utilise the blue cod stocks in Milford and Doubtful Sound. But, MFish considers this is not currently sustainable.

Option 2A – Extend the Current Closures for 1 year – the Guardians’ Recommendation

Impact

41 There is no evidence that the closures have yet improved blue cod abundance.²⁶ Given the relative lack of movement of blue cod, MFish considers it is unlikely any recovery would have occurred this quickly. MFish also considers it unlikely that one further year of closure, as recommended by the Guardians, would be sufficient to enable recovery.

²² Wing S. R., Jack, L.(2007) Biological Monitoring of the Fiordland (Te Moana o Atawhenua) Marine Area and Fiordland’s Marine Reserve – 2007. Report prepared for Department of Conservation.

²³ Carbines, G. D.; Beentjes, M. P. (2006) Abundance of blue cod off north Canterbury in 2004-05. *New Zealand Fisheries Assessment Report 2006/30*. 26p.

²⁴ Carbines, G. D.; Beentjes M. P. (2006) Relative abundance of blue cod off North Otago in 2005. *New Zealand Fisheries Assessment Report 2006/09*. 20p.

²⁵ Down from 30, at one time, to 3 currently.

²⁶ Data from the most recent experimental fishing, including February 2009 data, will be available later this year after it has been reviewed by MFish.

Costs

- 42 As Milford and Doubtful Sounds are two of the more accessible areas of Fiordland, continuing the closures may impact the cost and accessibility of recreational fishing. The research carried out by NIWA showed recreational fishing occurs in all parts of the Fiordland Marine Area. But, it is unknown if this is a change from the situation before the closures. So, there may be increased cost to recreational fishers who may have to travel further to target blue cod. This would also be the case where blue cod stocks are depleted.
- 43 There are costs associated with continuing to monitor the closures. But, MFish considers that the information gathered is essential for informing future management decisions for the closed areas.
- 44 If the areas are reopened too soon, any improvement in blue cod stocks may be set back. There is the potential for a further closure to be recommended by the Guardians, but under this option it is likely there would be a period where the fishery is open before the closures could be reinstated.

Benefits

- 45 Under this option, there will be a further year to gather information about the impact of the closures. This option allows for reopening of the fishery in 2010, should it be appropriate at that time, thus potentially allowing for utilisation sooner than under MFish's preferred option.

Option 2B – Extend the Current Closures with No Specified End Date – MFish Preferred Option

Impact

- 46 MFish considers that improvement in blue cod abundance is likely if the areas are closed for a sufficient time. How many more years of closures would be necessary is unknown without further data on the effect of the existing closures. But, given blue cod's age and size at maturity, a longer closure may be sensible to enable time for more blue cod to reach breeding size and for movement of more blue cod into the inner fiords. Monitoring is scheduled for 2008/2009, and this could be extended, regardless of how long the closures remain in place.

Costs

- 47 The potential costs to recreational fishing and costs of monitoring are similar to extending the closures for only one year, but would be incurred for a longer, and indefinite, time.

Benefits

- 48 The longer the closures continue, the more opportunity there will be for both stock recovery and research into the impact of the closures. Extending the closures will provide more information upon which to assess the closures and

base any future management decisions, and ultimately promote sustainable utilisation.

- 49 Under this option, the costly and time-consuming process of extending the closures each time they expire is avoided. Also, once the data shows that the blue cod stocks have recovered (or are not going to do so) the closures can be reviewed. This can be initiated by a recommendation from the Guardians.

Other Management Controls

- 50 The inner fiords are subject to a blue cod daily bag limit of 3 per person per day, with no accumulation. There are no proposals for different rules to apply in Milford and Doubtful Sounds if the areas are allowed to reopen.

Statutory Considerations

- 51 In forming the management options, the following statutory considerations have been taken into account.

- a) **Section 13 of the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005:** The Fiordland Marine Guardians (the Guardians) have a statutory role which includes facilitating and promoting the integrated management of the Fiordland Marine Area. Their functions also include advising and making recommendations to the management agencies, including MFish.
- b) **Section 26 of the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005:** All persons exercising powers or carrying out functions in the Fiordland Marine Area must take into account any advice or recommendations provided by the Guardians. Therefore, in deciding whether to extend the closures, and for how long, the Minister of Fisheries is required to take into account the fact that the Guardians have recommended a one year extension to the existing closures.
- c) **Regulation 3 of the Fisheries (Southland and Sub-Antarctic Areas Commercial Fishing) Regulations 1986:** This prohibits commercial fishing in Milford Sound and the internal waters of Fiordland. Although this was introduced at the same time as the amateur closures, it is independent of them. No change will be needed in this regard whether or not the amateur blue cod fisheries remain closed.
- d) **Regulation 3A of the Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991:** This established the existing closures to amateur fishers of the blue cod fishery in Milford and Doubtful Sounds. The closures began on 30 June 2005 and will expire under this regulation on 29 June 2009. The closures could be extended by amending this regulation under s 297 of the Fisheries Act 1996 (the Act). An alternative would be to implement an extension of the closures as a sustainability measure under s 11 of the Act which can be done either by regulation made under s 298 of the Act or by notice in the *Gazette*.
- e) **Section 10 of the Act:** Section 10 requires the Minister to base decisions on the best available information. Option 2A is based on the

recommendation of the Guardians. Members of the Guardians are experts on the Fiordland marine environment, and have significant knowledge of blue cod fisheries in Milford and Doubtful Sounds. Biological monitoring of the Fiordland Marine Area and other research supports the view that blue cod stocks are depleted generally, and that blue cod populations in the inner fiords derive from the outer coast areas. Data from the ongoing monitoring is insufficient at present determine the impact of the closures. However, other available information (including the wider biological monitoring of the Fiordland Marine Area) is consistent with localised depletion being caused by fishing pressure. Data from the monitoring of the closures suggests that blue cod abundance could be improved in the closed areas, though the timeframe for this to happen is unknown.

- f) **Section 11:** Before setting or varying any sustainability measure for the blue cod stocks, the Minister of Fisheries must take into account any effects of fishing on the stock and the aquatic environment,²⁷ any existing controls that apply to the stock or area concerned,²⁸ and the natural variability of the stock concerned.²⁹ No existing controls under the Act for blue cod will be affected by the continuation of the closures. The Minister of Fisheries may close an area to the taking of any species to assist in replenishing fisheries resources that have become depleted. A closure can last for any specified period of time or be indefinite. MFish's preferred option is that the existing closures be extended indefinitely. Reopening of the areas will depend on the recovery of the blue cod stocks and the outcome of the ongoing research.
- g) **Section 11(2A)(b):** There are no approved Fisheries Plans for BCO 5.
- h) Other statutory considerations are set out in the appendix.

²⁷ Section 11(1)(a)

²⁸ Section 11(1)(b)

²⁹ Section 11(1)(c)

Appendices

Other Statutory Considerations

- 52 **Section 5(a) of the Fisheries Act 1996:** A wide range of international obligations relate to fishing (including sustainability and utilisation of fish stocks and maintaining biodiversity). MFish considers issues arising under international obligations are adequately addressed in the management options for these stocks.
- 53 **Section 5(b):** MFish considers issues arising under the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 are adequately addressed in the management options for these stocks. It is noted that tangata whenua are represented on the Guardians.
- 54 **Section 8:** The purpose of the Fisheries Act 1996 describes the overriding objective of fisheries management: providing for the utilisation of fisheries resources while ensuring sustainability. Management of blue cod stocks must be consistent with this requirement. Providing for utilisation while ensuring sustainability may be achieved in different ways and the objective may be reached over time. Utilisation of blue cod fisheries resources in closed areas would be restricted for the period of the closures. However, the closed areas are small in relation to total area of BCO 5 and the Fiordland Marine Area. The benefits of obtaining a better understanding of the impacts of fishing on stocks and allowing time for recovery to occur outweigh any lost utilisation of the fishery in the short term.
- 55 **Section 9(a), (b), and (c):** This section provides three environmental principles that must be taken into account when exercising powers in relation to utilisation of fisheries resources and ensuring sustainability. First, associated or dependent species should be maintained above a level that ensures their long term viability. Second, biological diversity of the aquatic environment should be maintained. Third, habitat of particular significance for fisheries management should be protected. As the closures are only in regard to blue cod, fishing pressure on other species may increase while these areas remain closed, and pressure on blue cod stocks in neighbouring areas may also increase. If blue cod stocks increase within Milford and Doubtful Sounds, this may also impact the abundance of their prey species.
- 56 **Section 11(2A) (a and c):** MFish is not aware of any provisions applicable to the coastal marine area known to exist in any policy statement or plan under the Resource Management Act 1991, or any management strategy or plan under the Conservation Act 1987, which are relevant to the continuation of blue cod closures.
- 57 **Section 12:** In considering the setting of sustainability measures, there is an obligation under Section 12 to undertake consultation. MFish will be consulting customary, environmental, commercial, and recreational interests on the proposals in this IPP.

58 **Section 13:** The total allowable catch of BCO 5 will not be affected by these proposals.

- a) **Section 21(1)(a and b) and (4)(i and ii) and (5) statement:** As the TACC, customary and recreational allowances are not altered; there are no implications for section 21 from this proposal.

Biology

- 59 Blue cod (*Parapercis colias*) is a bottom-dwelling species endemic to New Zealand. They are not a true cod but a member of the sandperch family (Pinguipedidae). Blue cod are distributed throughout New Zealand, and are most commonly found near foul (rocky) ground to a depth of 150m, although there have been some reported catches from as deep as 360m. They are highly prized by commercial and non-commercial fishers, and are generally the most important recreational finfish in Southland.
- 60 Blue cod growth rates have been shown to vary considerably and may be influenced by a number of factors, including sex, habitat quality and fishing pressure. Size at sexual maturity also varies according to location. Data for Southland suggests an age at maturity of 4-5 years, which is at 26-28 cm total length.³⁰ In Southland, male blue cod take 7 years and females around 9 years to reach minimum legal size (33cm).³¹ The maximum age of blue cod is thought to be around 18 years.³²
- 61 Blue cod are believed to be diandric protogynous hermaphrodites.³³ This means that they may change sex from female to male (secondary males), but that some individuals begin life as males (primary males). The largest animals in blue cod populations tend to be male. Based on studies of related species, it is thought likely that sex change is regulated by the presence or absence of larger males in a population. It is also thought that fishing may impact on population structure by removing large males and some studies have shown a shift from the expected sex ratio in areas subject to heavier fishing pressure.^{34, 35}
- 62 Blue cod have an annual reproductive cycle. A study conducted in Dusky Sound³⁶ suggests that blue cod populations in Fiordland have a similar spawning season to other areas of Southland where spawning occurs from spring to summer.³⁷ Eggs are pelagic for about five days after spawning, and

³⁰ Carbines, G D (2003) Age, growth, movement and reproductive biology of blue cod (*Papapercis colias* – Pinguipedidae): Implications for fisheries management in the South Island of New Zealand. PhD Thesis, University of Otago, unpublished. 225 p.

³¹ Carbines, *ibid.*

³² Carbines, *ibid.*

³³ Carbines, *ibid.*

³⁴ Carbines, G. D.; Beentjes M. P. (2006) Relative abundance of blue cod off North Otago in 2005. *New Zealand Fisheries Assessment Report 2006/09*. 20p.

³⁵ Beentjes, M. P.; Carbines, G. D. (2005) Population structure and relative abundance of blue cod (*Parapercis colias*) off Banks Peninsula and in Dusky Sound, New Zealand. *New Zealand Journal of Marine and Freshwater Research* 39:77-90.

³⁶ Carbines, G and McKenzie J 2004. Movement patterns and stock mixing of blue cod in Dusky Sound in 2002. *New Zealand Fisheries Assessment Report 2003/37*. 35p.

³⁷ Carbines, G. (2003) Age, growth, movement and reproductive biology of blue cod (*Papapercis*

the larvae are pelagic for about five more days before settling to the seabed. Juveniles then migrate from shelf waters to shallow areas inshore. Juveniles are not caught by commercial potting or lining and, therefore, blue cod are not vulnerable to the main commercial fishing methods until they are sexually mature. Recreational methods do catch juveniles, but the survival of these fish is good if they are caught using large hooks (6/0) and/or barbless hooks and returned to the sea quickly.

- 63 Blue cod are relatively territorial (tending to stay in about the same place), and most tagged fish are found to have travelled less than 1km (although some have been recorded travelling up to 156km).³⁸ The Dusky Sound study found a similar pattern where most individuals are moving only relatively short distances. The study also concluded that blue cod stocks in the inner fiords appear to originate from the outer areas and that blue cod populations in the inner fiords are 100% resident. Because of their “home-loving” nature, it has been suggested that management of blue cod on smaller geographical scales to avoid localised depletion may be appropriate.^{39, 40}

colias – Pinguipedidae): Implications for fisheries management in the South Island of New Zealand. PhD Thesis, University of Otago, unpublished. 225 p.

³⁸ Carbines, G D 2001. Movement patterns and stock mixing of blue cod in Southland. Final report to the Ministry of Fisheries for Project SOBC04. 77p.

³⁹ Carbines (2003) *ibid*.

⁴⁰ Warren, E.; Grindley, R.; Carbines, G.; Teirney, L. (1997) Characterisation of the Southland Blue Cod Fishery. Report held by Ministry of Fisheries, Dunedin, New Zealand. 38 p.

REGULATORY IMPACT STATEMENT

Milford & Doubtful Sounds –

Proposal to Extend the Blue Cod Amateur Fishery Closures

a) Executive summary

Milford and Doubtful Sounds have been closed to amateur fishing for blue cod (*Parapercis colias*) since 30 June 2005. The closures resulted from the concerns of the Fiordland Marine Guardians⁴¹ (the Guardians) about localised depletion due to fishing pressure.

The areas will reopen to amateur fishing for blue cod on 30 June 2009. However, MFish does not believe that the management measures that would then apply are adequate to address concerns about localised depletion of blue cod. The Guardians have recommended to MFish that the existing closures are extended for a further period of one year, to 29 June 2010.

Extending the closures provides a better opportunity for blue cod stock recovery. MFish believes this will take longer than the one year recommended by the Guardians. Therefore, MFish's initial position is to support extending the closures, but for an indefinite period, to be reopened when monitoring shows either blue cod stocks have recovered or that there will be no further improvement from the closures.

b) Adequacy statement

This RIS has been approved by the RIA Review Group and found to be adequate.

c) Status quo and Problem

Milford and Doubtful Sounds, closed to amateur fishing for blue cod since 30 June 2005, will reopen on 30 June 2009. The closures resulted from the concerns of the Guardians about localised depletion due to fishing pressure.

The Guardians have a statutory role⁴² to advise and make recommendations to the Minister and Ministry of Fisheries (MFish). The Guardians have recommended to MFish that the existing four year closures⁴³ of Milford and Doubtful Sounds to amateur blue cod fishing are extended for a further period of one year, to 29 June 2010.

MFish does not believe that the management measures that would apply when the areas are due to reopen are adequate to address concerns about localised depletion of blue cod. Those management measures are: a bag limit of 3 per day in the internal waters,⁴⁴ minimum length of 33 cm,⁴⁵ with no accumulation permitted.⁴⁶

⁴¹ Then, the Guardians of Fiordland's Fisheries & Marine Environment Inc.

⁴² Under s 13 of the Fiordland (Te Moana o Atawhenua) Marine Management Act 2005.

⁴³ The current closures began on 30 June 2005. They were originally for two years, but were extended for a further two years from 30 June 2007.

⁴⁴ Regulation 4AA(1) Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991

d) Objectives

The key fisheries management objectives for the blue cod stocks in Milford and Doubtful Sounds are:

- The sustainable utilisation of the resource; and
- Management of the resource is credible.

The Guardians and the management agencies developed a goal in regard to the blue cod closures, which is:

To restore the blue cod fishery/stocks to allow reopening of the fishery in the future.

Restoring the blue cod fishery will contribute to the overall objective of sustainable utilisation.

e) Alternative options

The alternative options are:

- Allow the areas to reopen to recreational blue cod fishing;
- Extend the closures for one year, as recommended by the Guardians.

MFish considers that neither alternative option provides adequately for blue cod stock recovery in Milford and Doubtful Sounds. There is no evidence of improvement in blue cod abundance over the course of the closures, nor that there will be improvement in only a further year. But it can be inferred from what is known that improvement is possible.

f) Preferred option

MFish's initial position is to support extending the closures, but for an indefinite period, until blue cod stocks recover or until there is evidence that the closures will not improve blue cod abundance further.

MFish considers that improvement in blue cod abundance is likely if the areas remain closed for sufficient time to allow the stocks to recover. MFish notes that its consideration that improvement is possible is inferred from what is currently known about blue cod, including in Fiordland, and that there is no direct evidence to support this.

The longer the closures continue, the more opportunity there will be for both stock recovery and research into the impact of the closures. The results from the research can be used to better inform future management decisions, including when to reopen the areas. There are ongoing costs for this research, as well as costs in terms of lost fishing opportunities and the need for recreational fishers to travel further to fish for blue cod in Fiordland.

If the closures are to be extended indefinitely, this would be contrary to what the Guardians are recommending. MFish considers that the Guardians standing should not be adversely impacted as a result, but acknowledges that there is a risk that this

⁴⁵ Regulation 6(2) Fisheries (Amateur Fishing) Regulations 1986.

⁴⁶ Regulation 7(4) Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991

may happen. However, MFish considers that reopening of the areas would occur upon the recommendation of the Guardians, and that would mitigate any risks in this regard.

One option to extend the closures is the use of a Gazette Notice. This would have no impact on existing regulations. The alternative would be to amend existing regulation 3A of the Fisheries (Southland and Sub-Antarctic Areas Amateur Fishing) Regulations 1991. No additional regulations would be required, and there is no overlap with any other existing regulations.

g) Implementation and review

This proposal will be given effect on 30 June 2009. It will be consulted on externally for six weeks, and will be sent to EDC in due course to be implemented.

Affected parties (recreational fishers) will be notified by Gazette Notice and fisheries information (signage, pamphlets, and website) provided by MFish. Compliance with the regulations will be undertaken by MFish (as currently).

It is intended that the existing project monitoring the closures will continue. When the monitoring shows that, either blue cod abundance has recovered sufficiently, or that the closures will not result in any further improvement in blue cod abundance, the areas can be reopened. This can be done by revoking the Gazette Notice or Regulation (whichever is used to continue the closures).

h) Consultation

The IPP will be released for general public consultation for six weeks through MFish's website and copies sent to relevant fishing clubs and other recreational fishing organisations, Tangata Whenua, and the Guardians of Fiordland.