Ministry for Primary Industries
Manatū Ahu Matua

Blue cod 5 (BCO5) pot mesh size review

Discussion Document

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Growing and Protecting New Zealand

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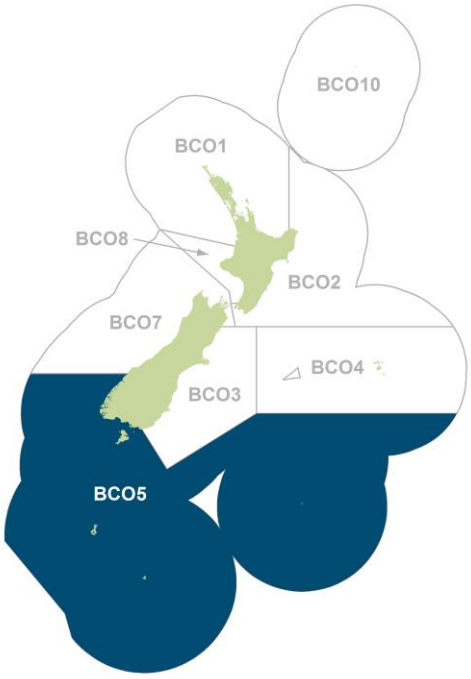

Figure 1. Fisheries Management Area (FMA) blue cod 5 (BCO5)

1 EXECUTIVE SUMMARY

The Ministry for Primary Industries (MPI) is reviewing whether the minimum cod pot mesh size in BCO5 (Figure 1) should be increased from 48 mm to 54 mm. This review reflects recent recommendations by industry and the Blue Cod 5 Management Group (BCO5MG), and is supported by MPI's Southern Inshore Working Group.

In 2012, the Total Allowable Commercial Catch (TACC) of BCO5 was reduced by 309 t due to sustainability concerns. More recently, industry and BCO5MG have expressed further sustainability concerns as an observed decrease in average landed fish size is possibly marking early stages of localised depletion in commercially important areas in BCO5. This has led them to investigate the effect of pot mesh size on the capture rate of undersized (< 33 cm) blue cod.

An industry led research project trialling three separate mesh sizes ranging between 38 mm and 54 mm found an increase in mesh size from 50 mm to 54 mm significantly reduced the catch proportions of undersized blue cod, while causing minimal change to legal catch proportions. The project concluded that providing all commercial cod pot fishermen in the area implement 54 mm mesh on their pots, the catch rate of undersized blue cod will decrease, which in turn will increase recruitment in the fishery. Increased recruitment will aid in ensuring sustainability and will promote productivity in BCO5.

MPI is seeking feedback from all stakeholders and tangata whenua on whether to increase the current minimum BCO5 pot mesh size from 48 mm to 54 mm.

1.1 SUBMISSION INFORMATION

MPI welcomes written submissions to inform the review and the proposals contained in this Discussion Document. All written submissions must be received by MPI no later than 5pm on Wednesday (15 February 2017)

Written submissions should be sent directly to:
Inshore Fisheries Management
Ministry for Primary Industries
P O Box 2526
Wellington 6011

or emailed to FMsubmissions@mpi.govt.nz

All submissions are subject to the Official Information Act and can be released (along with personal details of the submitter) under the Act. If you have specific reasons for wanting to have your submission or personal details withheld, please set out your reasons in the submission. MPI will consider those reasons when making any assessment for the release of submissions if requested under the Official Information Act.

2 PURPOSE

The purpose of this document is to initiate consultation on behalf of the Minister for Primary Industries (the Minister) on whether to amend the Fisheries (Commercial Fishing) Regulations 2001 section 79A(1) to increase the minimum cod pot mesh size from 48 mm to 54 mm in BCO5.

MPI is consulting and seeking submissions on the following two options:

Option 1 (*Preferred*)	Increase the minimum cod pot mesh size to 54 mm in BCO5
Option 2 (*Status quo*)	Retain the current minimum cod pot mesh size of 48 mm in BCO5

MPI seeks any views and information related to these proposals from tangata whenua and all stakeholders with an interest in the BCO5 fishery. Submitters' views will be included in the final advice provided to the Minister.

3 PROBLEM DEFINITION

An observed reduction in the average blue cod size being landed by commercial cod pot fishermen, suggests early stages of localised depletion may be occurring in commercially important areas within BCO5. Recent research, supported by the Blue Cod 5 Management Group (BCO5MG) and reviewed by MPI's Southern Inshore Working Group (SINSWG), suggests an increase in cod pot mesh size from the current minimum legal size of 48 mm to 54 mm will decrease the proportion of undersized blue cod caught. A decrease in undersized blue cod captures, as a result of an increased mesh size, is predicted to increase recruitment within the fishery.

On this basis, MPI considers there is an opportunity to amend the regulation to increase the minimum legal cod pot mesh size from 48 mm to 54 mm. This would provide a number of benefits, including stock stability and increased productivity of the BCO5 fishery.

4 OBJECTIVE

The purpose of the Fisheries Act 1996 is to provide for utilisation while ensuring sustainability. Therefore the overall purpose of this review is to provide for the utilisation of the BCO5 fishery while ensuring sustainability. MPI considers that all options considered in this review are consistent with this purpose.

BCO5 is a "Group 1" fishery under MPI's Draft National Fisheries Plan for Inshore Finfish. Such fisheries are considered valuable to commercial fishers, are prized by recreational fishers and are considered taonga by many iwi. Stocks in this group are highly desirable and have relatively high biological vulnerability, as such they require close monitoring and management to ensure utilisation in a sustainable way. MPI seeks to develop greater access and economic benefits from such stocks while supporting sustainability initiatives by stakeholders and tangata whenua. The options proposed in this paper are consistent with this management approach.

5 BACKGROUND INFORMATION

5.1 BIOLOGICAL CHARACTERISTICS OF BLUE COD

Blue cod (*Parapercis colias*) is an endemic bottom-dwelling species found throughout New Zealand waters at depths of up to 150 metres. They are an iconic commercial, recreational and customary fish throughout New Zealand, particularly in Cook Strait, the South Island and around the Chatham Islands. Southland blue cod mature between 26-28 cm total length, which corresponds to an age of 4 to 5 years. Blue cod are susceptible to the effects of commercial fishing and localised depletion due to the following characteristics:

- they are relatively slow growing and long lived, reaching a maximum recorded age of 32 years;
- they tend to be highly localised, generally moving only within a 1 km home range;
- populations appear to be in isolation from one another, with multiple distinct populations existing within a single management area;
- they take bait easily; and
- large females are able to change sex if there are no dominant large males present in their local population. This can affect annual recruitment due to a reduction in female numbers.

5.2 BCO5 COMMERCIAL FISHERY

The BCO5 fishery is the largest blue cod fishery in New Zealand making up 57% of national landings (fish caught and landed by commercial fishermen) between the 2011 and 2014 fishing years. The commercial catch in this area is almost exclusively taken by the target cod pot fishery operating within Foveaux Strait and around Stewart Island.

Historically, due to the importance of the BCO5 fishery, sustainability measures have been introduced to this area before being implemented nationally. For example, in 1994 it was estimated by industry that up to 50% of undersized blue cod (< 33 cm) caught in 38 mm meshed pots were predated on by mollymawks when returned to the sea. As a result, a

minimum 48 mm mesh size was introduced to BCO5 to decrease undersized blue cod captures. Fifteen years later in 2009, this 48 mm minimum was introduced nationally.

In 2012, the BCO5 TACC was reviewed and reduced by 20% from 1,548 t to 1,239 t to mitigate sustainability concerns. During the 2012 review, the BCO5 steering committee, later known as the BCO5MG, also suggested instigating a further increase in minimum pot mesh size to ensure stable recruitment in the fishery.

Since the 2012 review, the annual landings of BCO5 have stabilised at around 1,200 t. However, industry have expressed concern following a decline in average landed blue cod size, a potential sign of fishery overexploitation. In order to address this issue, the BCO5MG developed a local BCO5 resource protection plan in 2015 which identified several potential management changes, and initiated an investigation into the use of mesh size to increase the recruitment and productivity of the fishery.

5.3 MESH SIZE RESEARCH

Commercial cod pot fishers operating in BCO5 use a variety of mesh sizes above the regulatory 48 mm minimum. The most 'standard' size is between 50 and 52 mm. In order to clarify the influence of mesh size on undersized blue cod potting captures, industry conducted a research project in 2015 to compare the selectivity of three pots fitted with different sized mesh. Pot 1 represented standard 50-52 mm mesh, Pot 2 represented 54-56 mm mesh, and Pot 3 represented 38 mm mesh with 58 mm escapement gaps (used in BCO5 prior to 1994). This research was conducted at six separate sites in statistical areas 025, 027, 029 and 030, within the BCO5 management area (Figure 2). The four statistical areas represent the focus of BCO5 commercial catch. All three pots were set simultaneously 19 times across the four statistical areas.

Results showed that proportions of retained undersized blue cod were 11% for Pot 1 (50-52 mm mesh), 2% for Pot 2 (54-56 mm) and 20% for Pot 3 (38 mm mesh with escapement gaps) (Figure 3). Furthermore, the escapement gaps on Pot 3 enabled a substantial amount of legal sized (> 33 cm) cod to escape. It was found that the legal proportion of the catch from Pot 1 was 89% compared to 94% for Pot 2 (Figure 4). Although Pot 2 had a reduction in catch of the 33 cm and 34 cm size classes, there was no significant change to the overall catch rate of all size classes between Pot 1 and Pot 2 (Figure 4).

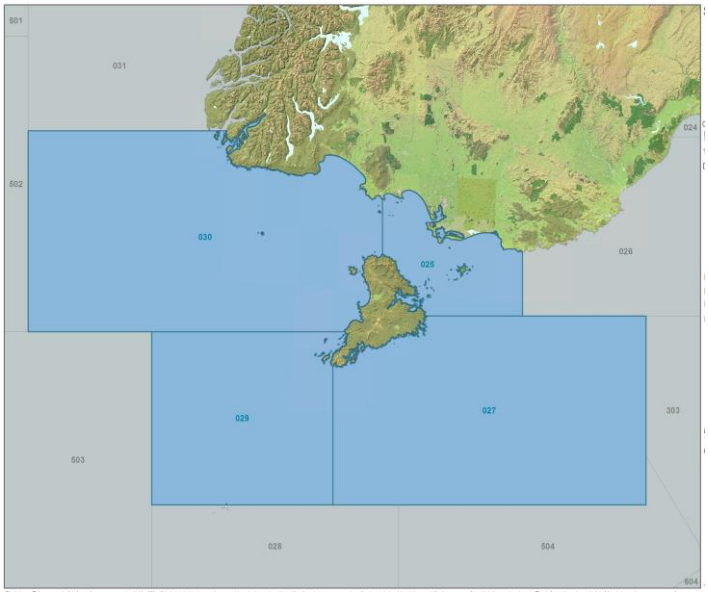

Figure 2. Statistical areas 025, 027, 029 and 030 in BCO5 management area

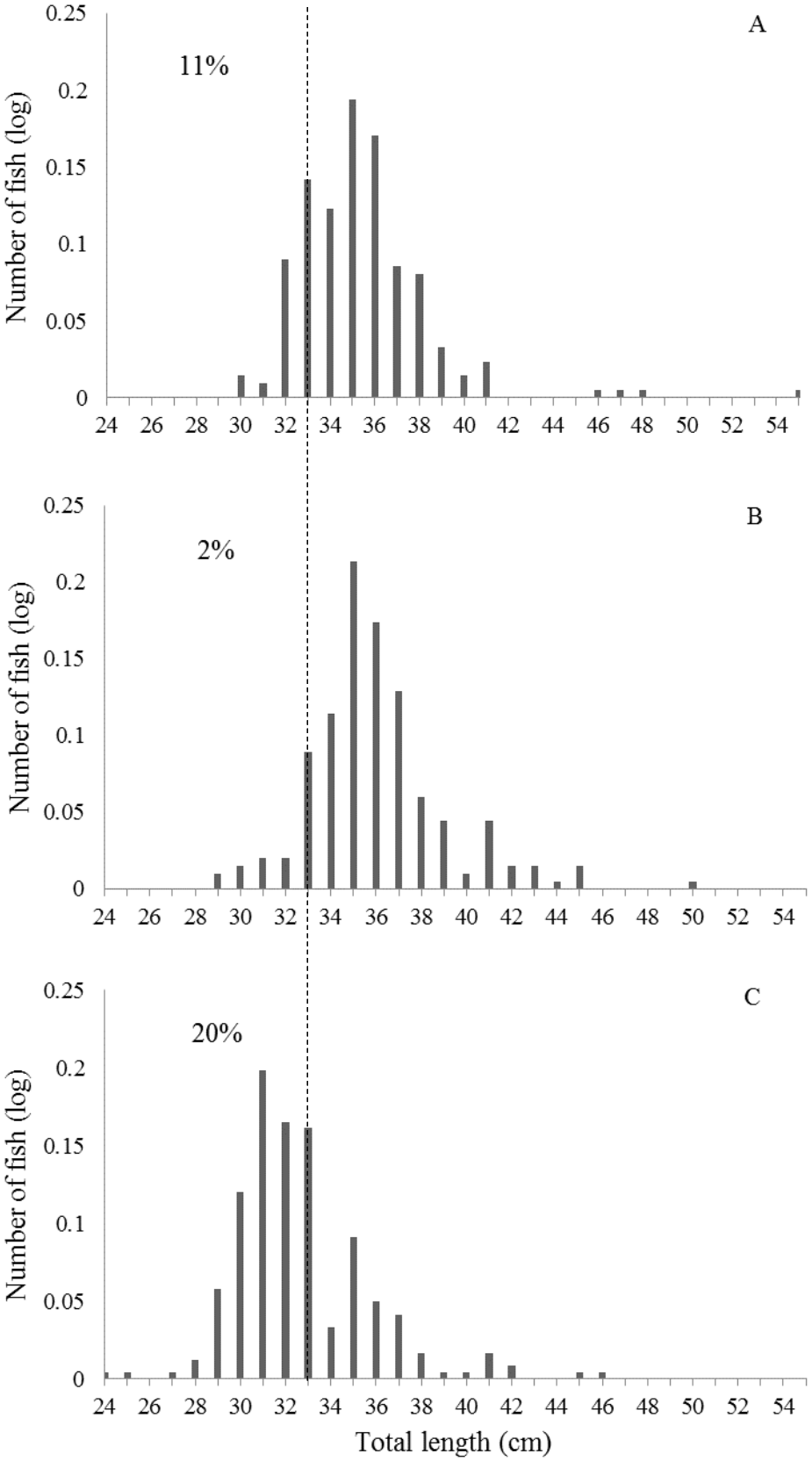

Figure 3. BCO5 length frequency plot for each test pot type. (A) Test pot 1: 50-52 mm galvanised mesh (n = 211). (B) Test pot 2: 54-56 mm stainless steel mesh (n = 201). (C) Test pot 3: 38 mm mesh with 58 mm escape gaps (n = 242). Dashed line represents the legal commercial blue cod size of 33 cm

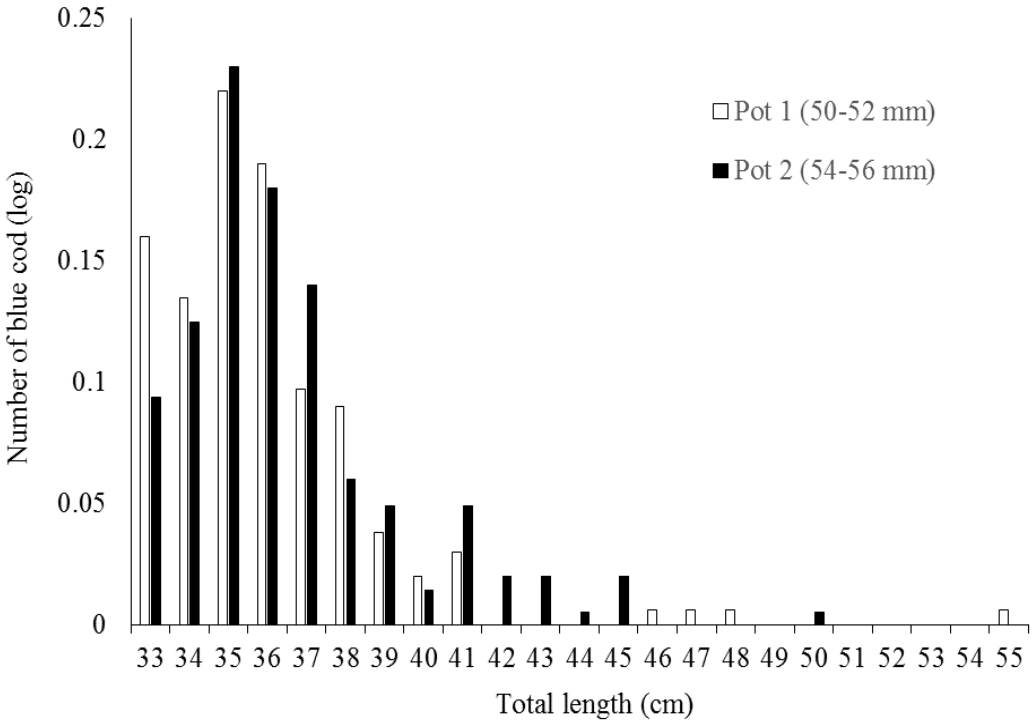

Figure 4. Length frequency distribution plot of blue cod captures in 50 mm pot mesh (n= 187) and 55 mm pot mesh (n =188)

Observations made during the research suggested a high level of mortality of undersized blue cod as a result of exposure during sorting of the catch. Furthermore, undersized blue cod returned alive are often predated on by the large mollymawk aggregations that frequently follow commercial potting vessels. Overall, survival rates of undersized blue cod retained by pots appear to be low due to the compounded effects of exposure and predation.

The research concluded that an increased mesh size of 54 mm would reduce the proportions of undersized blue cod caught, while causing no significant change to legal sized catch rates. Furthermore, a reduction in undersized fish caught would encourage increased recruitment of blue cod over the first two years of commercial cod pot fishermen implementing 54 mm mesh. The study stressed that 100% compliance of the approximate 60 commercial cod pot fishermen operating in the BCO5 area was required for the predicted positive increase in recruitment to occur.

6 PROPOSED OPTIONS

6.1 OPTION 1 – INCREASE THE MINIMUM MESH SIZE

Regulation 79A(1) of the Fisheries (Commercial Fishing) Regulations 2001 states:

> Commercial fishers must not use or have on board a fishing vessel any pot used to take blue cod unless the pot is constructed entirely of square steel mesh with inside dimensions of no less than 48 mm in width.

Under Option 1, this regulation would be amended to increase the inside mesh dimensions of a blue cod pot from 48 mm to 54 mm.

Costs

Commercial operators will need to re-fit cod pots with 54 mm mesh. Costs associated with re-fitting are estimated to lie between $150 and $200 per pot, based on information provided by commercial fishermen and a commercial mesh supplier. Assuming that the average potter has approximately 12 pots and there are approximately 60 commercial potting vessels operating in BCO5, a total cost to industry to update the minimum mesh size would lie between $108,000 and $144,000. It should be noted however, that commercial potters have to re-fit their pots every one to two years due to damage and rusting. It is estimated that the cost difference between current mesh sizes and the proposed 54 mm mesh would be minimal.

A staged strategy could be implemented to mitigate the cost. For example, commercial fishers could be given a year to change to the new minimum mesh size. This approach could help to minimise extra cost to fishers who have recently replaced their mesh. MPI welcomes input from stakeholders on the costs of changing mesh and the benefits of a staged approach.

Benefits

An increased mesh size has several major benefits including:

- Decreased capture of undersized blue cod;
- Reduced handling time in removing undersized blue cod from pots; and
- Less capture related damage and death to undersized blue cod

Overall this option would reduce the mortality of undersized blue cod, and is predicted to increase recruitment within two years, thereby increasing the productivity of the stock.

Taking into account the likely impacts, together with the information and benefits found from the research programme, Option 1 is MPI's initial preferred option.

6.2 OPTION 2 – STATUS QUO

Option 2 is the *status quo*. Option 2 would retain the current minimum legal pot mesh size of 48 mm in BCO5.

Impacts

The predicted increase in recruitment to a stable and productive level would not be realised under this option. Current catch proportions of undersized blue cod would continue and the average landed size would either remain unchanged or would continue to decrease.

Benefits

Under this option the potential costs associated with re-fitting pots with 54 mm mesh would not arise (see Option 1 for more detail on these costs).

7 OTHER MATTERS

7.1 IMPLEMENTATION, MONITORING AND REVIEW

Following consultation, MPI will develop a Decision Document for the Minister, who will make a decision on the review of the regulation. Subject to approval by Cabinet, any changes would take effect in mid-2017.

Stakeholders would be made aware of any changes through publication of the Decision Document and Decision Letter on the MPI website in April 2017. Fishers would have three months to re-fit their pots with the required mesh size before regulatory change takes effect in July 2017 (alternatively a staged strategy could be implemented).

MPI monitors and reviews the effectiveness of regulations through an annual fisheries planning process. This involves assessing performance measures across all stocks to ensure they are meeting objectives. The performance of BCO5 and the regulations applying to this fishery would be discussed with stakeholders as part of the annual fisheries planning process.

Review of catch landing returns, together with catch at age sampling projects will be carried out over 2017 and 2018. Potting surveys may also be carried out to provide mortality estimates, length frequency data and sex ratio data. A stock assessment is scheduled for 2019 where yield and stock biomass will be reviewed. If implemented, insight into the effectiveness of the proposed increase in cod pot mesh size will be determined in 2019 through information obtained from the catch at age projects and the scheduled stock assessment.

7.2 FUTURE DEVELOPMENT

MPI is currently developing a National Blue Cod Strategy document. If the proposed change is implemented in the BCO5 fishery the benefits of wider introduction will be discussed with tangata whenua and blue cod stakeholders as part of the national strategy.

8 CONCLUSION

Industry has expressed concern regarding a decreasing average fish landing size in BCO5. Industry led research, supported by BCO5MG and reviewed by SINSWG, suggests an increased pot mesh size would decrease undersize blue cod capture proportions and increase the productivity of the fishery.

MPI's initial assessment is that the benefits of this change outweigh any associated costs. Therefore MPI's view is that the regulation should be amended to increase the minimum cod pot mesh size in BCO5 from 48 mm to 54 mm.

MPI is seeking stakeholder and tangata whenua feedback on this initial assessment.