



Review of Blue Cod 5 (BCO5) minimum commercial pot mesh size

Regulatory Impact Statement

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Agency Disclosure Statement: Review of Blue Cod 5 (BCO5) minimum commercial pot mesh size

This Regulatory Impact Statement (RIS) has been prepared by the Ministry for Primary Industries (MPI). It provides an analysis of options to address concerns over the sustainability of the blue cod 5 (BCO5) fishery, due to undersized fish being caught in cod pots with a minimum mesh size of 48 mm. The preferred option is to increase the regulated minimum commercial cod pot mesh size in BCO5 to 54 mm.

The information used to determine the effectiveness of an increased cod pot mesh size comes from a research trial that was commissioned by the blue cod industry from Saltwater Science Limited in 2015. The analysis relies on the results of this research which were reviewed by MPI's Southern Inshore Working Group.

The Fisheries Act 1996 (the Act) states that decisions should be based on the best available information; that decision makers should consider any uncertainty in the information; that decision makers should be cautious when information is uncertain, unreliable, or inadequate; and that the absence of, or uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of the Act.

The analysis in this RIS relies on the best available information, however, there is uncertainty in some of that information, including:

- The validity of the methodology used in the trial of different mesh sizes as it was not peer-reviewed prior to being used.
- Trials involving blue cod pots are limited in their statistical reliability due to the catchability of blue cod fluctuating naturally.
- There is limited quantitative information defining the level of undersized blue cod mortality related to exposure, handling and seabird predation. Information in regards to these factors is largely anecdotal.

The analysis considers these uncertainties and they have been taken into account during the development of the proposed recommendation.

MPI has primarily relied on feedback during pre-consultation and formal statutory consultation from all sectors and tangata whenua, to assess the impact that the proposed regulatory change may have on them.

MPI has developed the preferred option following discussions and consultation with commercial and recreational fishers, and tangata whenua. MPI considers there are no major impacts associated with the preferred option.

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June 2017

Executive Summary

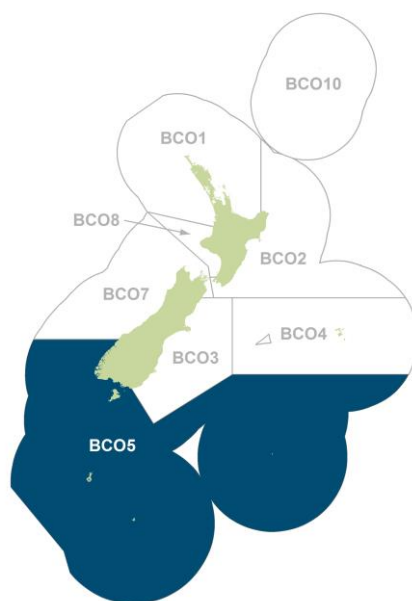


Figure 1. Quote Management Area (QMA) blue cod 5 (BCO5)

The BCO5 commercial fishery (Figure 1) is New Zealand's largest blue cod fishery, accounting for 54% of national blue cod landings between the 2011/12 and 2015/16 fishing years. In 2012, the Total Allowable Commercial Catch (TACC) of BCO5 was reduced by 309 t due to sustainability concerns. Since 2015, industry, through the Blue Cod 5 Management Group, have expressed further sustainability concerns, with an observed decrease in average landed fish size 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-commissioned trial from Saltwater Science Limited has found an increase in mesh size from 50 mm to 54 mm significantly reduces the catch proportions of undersized blue cod, while causing minimal change to legal catch proportions (Appendix 1). The project concluded that providing all commercial cod pot fishermen in BCO5 implement 54 mm pot mesh, the catch rate of undersized blue cod using a potting method will decrease, which in turn will increase recruitment and aid the productivity of the fishery.

MPI consulted¹ on whether or not to increase the minimum commercial cod pot mesh size in BCO5 to 54 mm from the current regulated minimum of 48 mm. The options that were consulted on are the same options presented in this paper. MPI's preferred option is Option 1, to increase the minimum cod pot mesh size from 48 mm to 54 mm.

MPI expects any change in regulation to be implemented during September 2017. MPI will follow up with all stakeholders and persons who have an interest in the fishery regarding the outcome of the Minister's decision in July 2017.

MPI will continue to monitor the fishery through stock assessments and catch at age sampling projects, with the next formal stock assessment scheduled for 2019.

¹ Discussion document available at: <http://www.mpi.govt.nz/news-and-resources/consultations/?closed=1&cat=8>

Status Quo

Blue cod (*Paraperis colias*) are an endemic bottom-dwelling species found throughout New Zealand waters at depths of up to 150 metres. They are an important commercial and prized recreational fish, and are considered taonga by iwi throughout New Zealand.

Blue cod are susceptible to the effects of commercial fishing and are vulnerable to localised depletion because they are relatively slow growing and are highly localised, with individuals generally moving only within a 1 km home range. This leads to multiple distinct populations within a single management area. Additionally, blue cod take bait easily and females are capable of changing sex into males when large dominant males are removed from a population. This can cause a shift in sex ratio leading to reduced spawning success.

BCO5 is the largest commercial blue cod fishery in New Zealand making up 54% of national blue cod commercial landings (fish caught and landed by commercial fishermen) between the 2011/12 and 2015/16 fishing years. The commercial catch in this area is almost exclusively taken by the target cod pot fishery, which accounted for 98% of commercial blue cod landings between the 2011/12 and 2015/16 fishing years. The BCO5 fishery operates mainly within Foveaux Strait and around Stewart Island.

In 2012, the BCO5 TACC was reviewed and reduced by 20% from 1,548 t to 1,239 t, to address sustainability concerns and a steady decline in annual commercial landings. However, licensed fish receivers and BCO5 commercial fishers have continued to raise concerns regarding a reduction in the average size of blue cod being caught and landed; a potential sign of over-exploitation in the fishery. In response a 'Blue Cod 5 Management Group' was formed by industry to develop a BCO5 resource protection plan and initiate a research investigation, designed and carried out by Saltwater Science Limited, into the use of mesh size to increase the recruitment and productivity of the fishery. The results of this investigation were reviewed and supported by MPI's Southern Inshore Working Group.

Problem definition

An observed reduction in the average blue cod size being landed by commercial cod pot fishermen in BCO5, suggests early stages of localised depletion may be occurring in commercially important areas.

Commercial cod pot fishers operating in BCO5 use a variety of mesh sizes above the current regulatory 48 mm minimum. The most 'standard' size is between 50 and 52 mm. The research investigation commissioned by industry in 2015 suggested there was a high level of undersized blue cod mortality associated with commercial pot fishing as a result of exposure during sorting of the catch and predation by mollymawk aggregations as the fish are returned to the water.

The industry research showed that an increase in pot mesh size from 52 mm to 54 mm significantly reduced the capture proportion of undersized blue cod (< 33 cm) from 11% of the total catch to 2% of the total catch (Appendix 1). Additionally, the increased mesh size of 54 mm caused minimal change to the overall capture proportion of legal sized blue cod (Appendix 1). On this basis, increasing the minimum commercial cod-pot mesh size from 48 mm to 54 mm is expected to significantly reduce the amount of undersized blue cod captured and therefore reduce the associated mortality. This in turn would promote recruitment and aid productivity of the fishery. However, in order to achieve the predicted positive increase in recruitment the results of the research suggest that 100% compliance

with the new mesh size is required. Given the large number (approximately 60, varying from year to year) of commercial cod pot fishers operating in the BCO5 area, the likelihood of achieving this by voluntary means is low.

Objectives

MPI has analysed both options against the following objectives:

- Objective 1: provide for the utilisation of the fishery while ensuring sustainability of the BCO5 stock.
- Objective 2: closely manage the stock and support sustainability initiatives by stakeholders.

Objective 1 is consistent with the purpose of the Fisheries Act 1996 (the Act); to provide for the utilisation of fisheries resources while ensuring sustainability. Utilisation in this case is defined as conserving and enhancing the BCO5 stock to enable people to provide for their economic and social well-being. Sustainability is defined as maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations and remedying any adverse effects of fishing on the aquatic environment.

Objective 2 is consistent with the management approach for a Group 1 stock set out in MPI's Draft National Fisheries Plan for Inshore Finfish (to monitor and manage these stocks closely to ensure full utilisation can continue in a sustainable way, and to support sustainability initiatives by stakeholders).

Options and impact analysis

OPTION 1 – INCREASE THE MINIMUM COD POT MESH SIZE TO 54MM IN BCO5 (PREFERRED OPTION)

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 specify a new minimum mesh size of 54 mm for the BCO5 quota management area.

Benefits

An increased mesh size is predicted to decrease the amount of commercially caught undersized blue cod, which will reduce fishing related mortality caused from handling, exposure and predation from mollymawks at the surface. A decrease in undersize mortality is predicted to increase recruitment in the fishery within two years, thereby increasing the productivity of the BCO5 stock. Legal catch proportions are predicted to remain relatively unaffected with an increased mesh size of 54 mm.

Impacts

Under option 1, commercial operators will need to re-fit cod pots with 54 mm mesh. Costs associated with re-fitting a pot are estimated to lie between \$150 and \$200 per pot based on information collected by MPI during pre-consultation. Assuming an average commercial blue cod fisher has 15 pots, the total cost to re-fit is estimated to lie between \$2250 and \$3000 per fisher.

Commercial cod potters generally re-fit their pots with new mesh every one to two years due to damage and corrosion. This means a proportion of the costs associated with the regulatory change will simply involve bringing forward normal maintenance expenditure (for those who have not already made the mesh size change).

Mesh suppliers currently provide 54 mm mesh at no additional cost and have been providing commercial blue cod pot fishers in the BCO5 area with 54 mm mesh since 01 October 2016, to support voluntary re-meshing efforts. The remaining cod pot fishers would be provided with an opportunity to re-fit their pots once a decision is announced and before it comes into force. The new mesh size is currently commercially available and fishers are generally able to re-fit their pots within a short timeframe.

While the benefits of moving to a larger mesh size (in terms of resource sustainability) will take some time to eventuate, industry and MPI assessments conclude that the regulatory change is necessary to address early signs of local depletion in commercially important areas within BCO5. The net benefit of the proposal is therefore considered to be significant for the BCO5 fishery.

Objectives

An increase in commercial blue cod pot mesh size to 54 mm meets the requirements of both objectives in that it promotes utilisation and ensures sustainability in accordance with the Act and supports sustainability initiatives of stakeholders.

OPTION 2 – RETAIN THE CURRENT MINIMUM COD POT MESH SIZE OF 48MM IN BCO5 (STATUS QUO)

Under Option 2, the current regulatory minimum commercial cod pot mesh size of 48 mm will remain unchanged.

Benefits

MPI can identify no benefits to the BCO5 fishery associated with this option, other than a temporary avoidance of cost to commercial fishers (see Option 1 for more detail on these costs).

Impacts

The predicted decrease in undersized blue cod mortality together with the predicted increase in blue cod recruitment over a two year timeframe will not be realised under this option. Additionally, it is predicted that the average landing size of blue cod will continue to decrease as the fishery continues to be impacted.

Objectives

This option enables utilisation in accordance with the Act, but it does not ensure sustainability or support sustainability initiatives of stakeholders.

Consultation

Between September and October 2016, MPI conducted extensive pre-consultation with BCO5 quota holders and Annual Catch Entitlement (ACE) fishers to discuss the proposed minimum commercial pot mesh size increase from 48 mm to 54 mm. The majority of commercial fishers and quota holders who were contacted (77%) supported the proposed mesh size increase. Those who did not support or were ambivalent about the proposal considered other measures were also required or that the change would increase fishing effort.

MPI also conducted extensive pre-consultation with tangata whenua and stakeholders through discussions at the Te Waka a Maui forum, through regulatory round updates and through discussions at FMA 3 & 5 Recreational Forum meetings. Tangata whenua and the recreational sector supported the proposed increase.

The development of a discussion document was informed by research developed by Saltwater Science Limited and commissioned by industry in 2015, and feedback from pre-consultation with tangata whenua and stakeholders. The two options presented in this RIS are the same two options consulted on. MPI deemed a voluntary option as unviable, as 23% of ACE fishers did not support an increased mesh size during pre-consultation. Therefore, the predicted positive effects of an increased mesh size would not be realised through a voluntary approach.

The discussion document² was released on 17 January 2017 and consultation closed on 15 February 2017. The document was published on MPI's external website, and persons or organisations with an interest in and/or affected by the proposal were notified of the consultation by email or letter and directed to the consultation webpage. MPI invited submitters to provide feedback on the proposed options and provide any other additional information that could be helpful to inform the review.

SUBMISSIONS RECEIVED

MPI received eight submissions. Three were from organisations and five were from individuals. The three organisations included; Southern Fresh Blue Cod and Seafoods Limited (SBCSL), BCO5 Association Incorporated and Southern Inshore Fisheries Management Company Limited (SIFMC).

SUMMARY OF SUBMISSIONS

A total of six submissions supported an increased minimum cod pot mesh size to 54 mm (Option 1).

Three submissions directly supported Option 1 with no further comment.

The BCO5 Association Incorporated supported Option 1, stating that together with voluntary quota shelving it will reduce pressure on the fishery and aid recruitment into larger size classes. Additionally, they noted voluntary re-meshing of commercial cod pots with 54 mm mesh has taken place since 01 October 2016, and therefore urged for an immediate implementation of the new 54 mm minimum to support current voluntary quota shelving efforts in promoting productivity. The association suggested the effectiveness of an increased mesh size could be effectively monitored through the existing monitoring regime.

² Discussion document available at: <http://www.mpi.govt.nz/news-and-resources/consultations/?closed=1&cat=8>

SIFMC supported Option 1, however they suggested a staged implementation approach should be timed to align with the next stock assessment in 2019. This would allow useful insight into the effectiveness of the increased mesh size in promoting the productivity in the fishery. SIFMC also noted that providing a short implementation time of the new mesh may be cost prohibitive for some fishers, especially those that may have recently re-meshed their pots.

One individual supported Option 1, but only if it was introduced with a combination of other measures including; 1) a further Total Allowable Catch (TAC) reduction, 2) the re-introduction of log books and diaries to commercial potting vessels to accurately capture spatial allocation data, and; 3) independent research programmes.

Two individuals did not state what option they supported but suggested that the focus should be on addressing the current levels of catch, or developing suitable mitigation devices to reduce undersized blue cod mortality at the sea surface.

No submissions were received that stated support for the status quo (Option 2).

Conclusions and recommendations

MPI has undertaken a review of the minimum commercial blue cod pot mesh size in BCO5 and publicly consulted on two options. Five of eight submissions received supported an increased minimum cod pot mesh size from 48 mm to 54 mm. The remaining submissions identified other areas that should be the focus to address sustainability concerns in BCO5. No submissions stated support for the status quo.

MPI supports Option 1, to increase the minimum commercial cod pot mesh size in BCO5 from 48 mm to 54 mm. This option is considered most likely to achieve both objectives by meeting the purpose of the Act and supporting sustainability initiatives of stakeholders.

Implementation plan

Following approval from the Minister, any changes would take effect in September 2017.

Stakeholders would be made aware of any changes through publication of the Decision Document and the Decision Letter on the MPI website during July 2017. Additionally, all submitters and those persons with an interest that were contacted during the consultation period will be notified by email or letter from the Minister for Primary Industries of his decision.

MPI will hold an educational session and supporting material to inform fishers of any upcoming changes. Fishers would be made aware that two months prior to the effective date would be provided to ensure all pots are re-fitted with the required mesh size before regulatory change takes effect in September 2017.

MPI deems two months as an adequate amount of time for fishers to re-mesh their pots on the basis that voluntary re-meshing efforts using the new minimum 54 mm mesh have taken place since 01 October 2016, and the material and new mesh is currently commercially available.

Monitoring, evaluation and review

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. A full scientific stock assessment for BCO5 is scheduled for 2019 where yield and stock biomass will be reviewed. If implemented, the effectiveness of the proposed 54 mm minimum cod pot mesh size will be evaluated through these projects and the scheduled stock assessment.

Appendix 1 – Research summary

In order to assess the influence of mesh size on undersized blue cod potting captures, industry commissioned a research project in 2015 from Saltwater Science Limited 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).

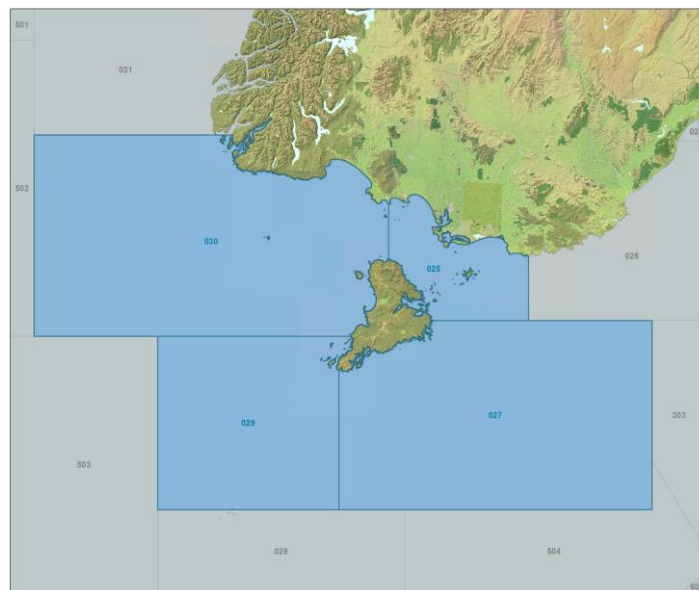


Figure2. Statistical areas 025, 027, 029 and 030 in BCO5 management area

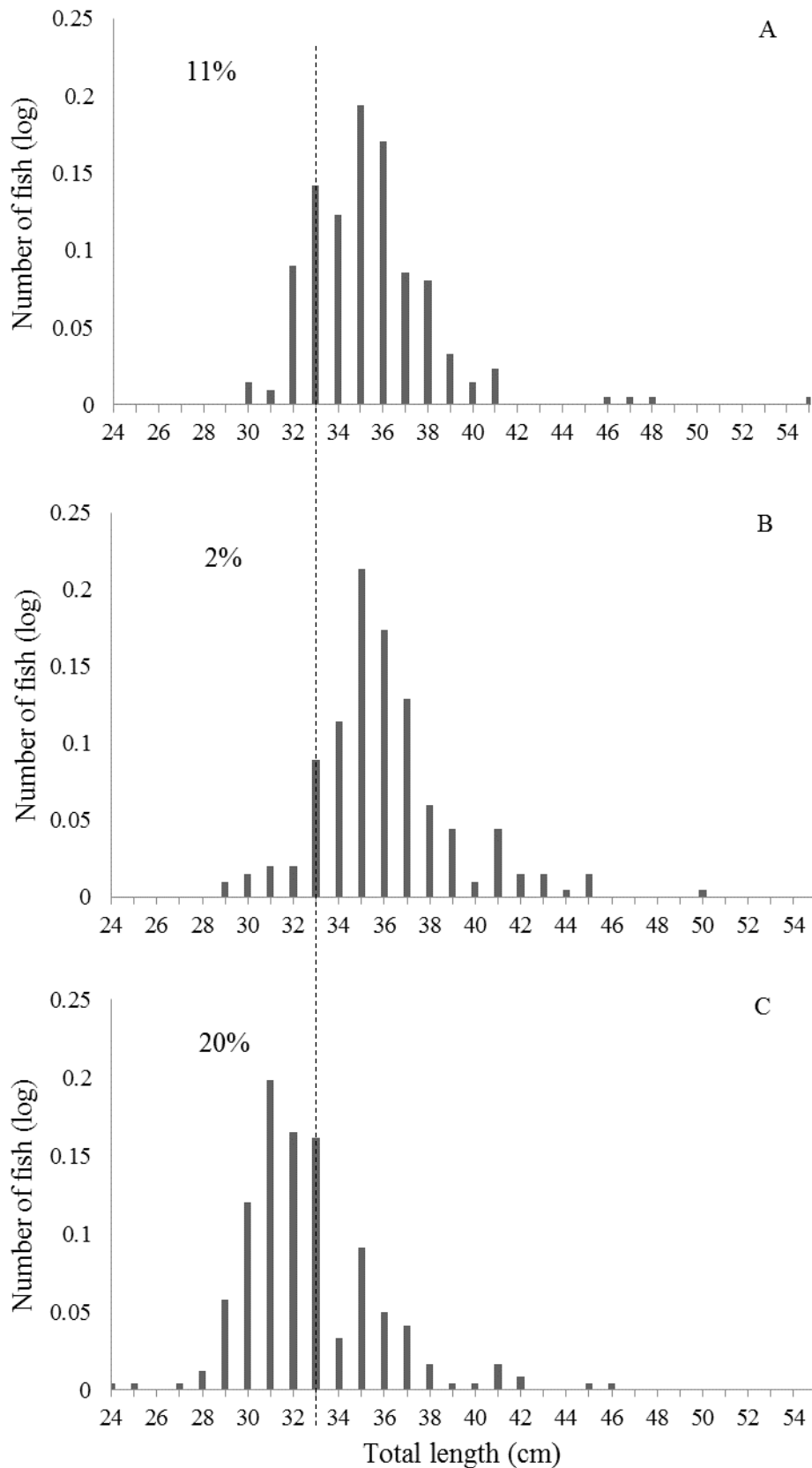


Figure 3. BCO5 length frequency plot for each test pot type. (A) Test pot 1: 50-52 mm mesh (n = 211). (B) Test pot 2: 54-56 mm mesh (n = 201). (C) Test pot 3: 38 mm mesh with 58 mm escape gaps (n = 242). Dashed line represents the legal commercial blue cod size of 33 cm

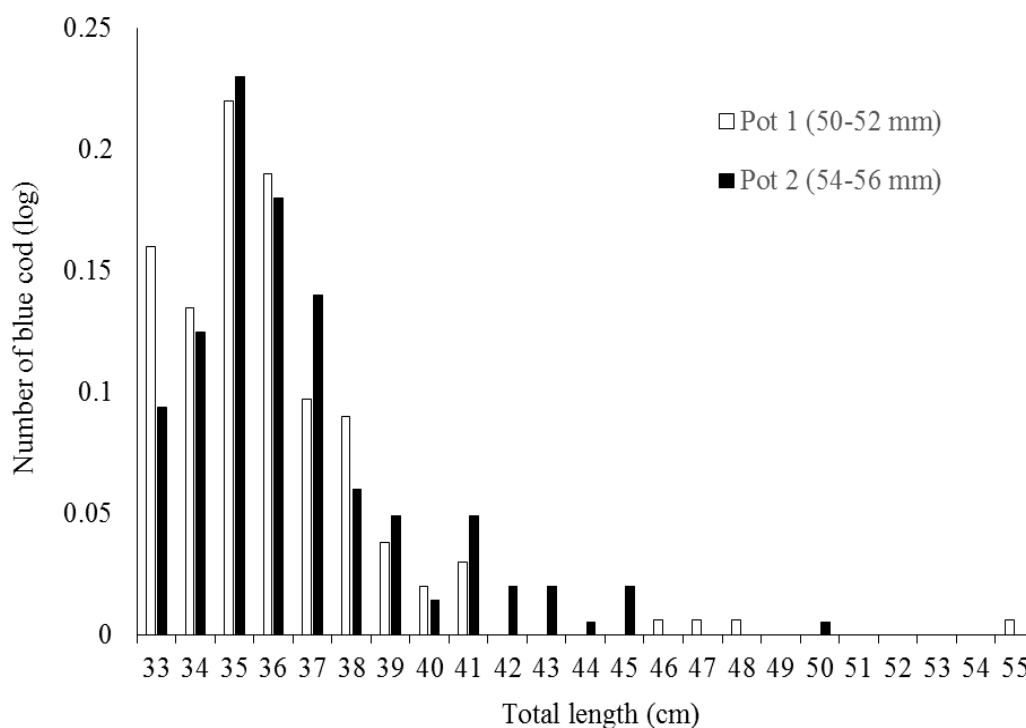


Figure 4. Length frequency distribution plot of blue cod captures in 50 mm pot mesh (n= 187) and 55 mm pot mesh (n =188)

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.