



Fisheries New Zealand

Tini a Tangaroa

Review of Sustainability Measures for Blue Cod (BCO 7) for 2022/23

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1 Stock being reviewed

Blue Cod (BCO 7) – West Coast and top of the South Island

Blue cod - *Parapercis colias*,
Rāwaru

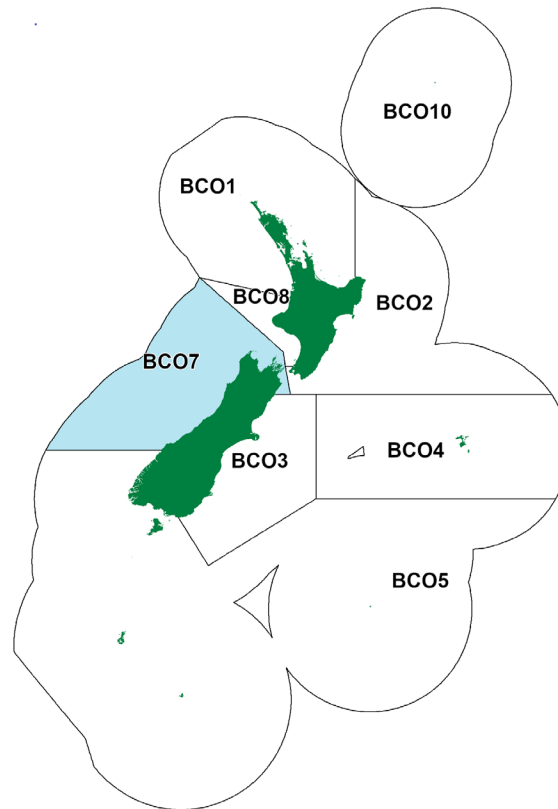


Figure 1: Quota Management Areas (QMAs) for blue cod, with BCO 7 highlighted.

2 Summary

1. Fisheries New Zealand (FNZ) is reviewing sustainability measures for blue cod in Quota Management Area BCO 7 for the 1 October 2022 fishing year (Figure 1).
2. No Total Allowable Catch (TAC) or allowances were set when BCO 7 was put into the Quota Management System (QMS) under historical legislation, which only provided for setting a Total Allowable Commercial Catch (TACC). The fishery was reviewed in 2003, however, the TAC, despite being announced by the Minister, was not set in legislation. Establishing TACs for all blue cod stocks is an objective of the National Blue Cod Strategy.
3. BCO 7 fishing mortality is estimated to be above the threshold and other indicators point to fishing pressure reducing the size and abundance of blue cod in the main fishing area of the Marlborough Sounds. This suggests a reduction in fishing pressure is appropriate.
4. FNZ is proposing options for setting a TAC, allowances (Māori customary, recreational and other sources of mortality caused by fishing), and reducing the TACC for BCO 7, as outlined in Table 1 below:

Table 1: Proposed management options (in tonnes) for BCO 7 from 1 October 2022.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Current settings	-	70.005	-	-	-
Option 1	169	63 ↓ (7.005 t)	27	64	15
Option 2	157	58 ↓ (12.005 t)	27	58	14

5. FNZ welcomes your input and views on the proposed TAC, allowances, and TACC options for BCO 7. We also seek your feedback on whether other measures, such as extending the closed season or voluntary approaches, would help recovery of the stock towards its management target.

3 About the stock

3.1 Fishery characteristics

6. BCO 7 is an important domestic shared fishery. It is the third largest recreational blue cod fishery with recreational catch estimated at approximately 63 tonnes at the time of the last National Panel Survey of Marine Recreational Fishers (NPS) in 2017–18.
7. There is limited access to small populations of blue cod on the West and East coasts. Therefore, the significant majority of recreationally caught blue cod are caught in the Marlborough Sounds, Tasman Bay and Golden Bay.
8. Fishing is predominantly by targeted commercial potting and lining by recreational fishers. The majority of the commercial catch is taken in the outermost part of the Marlborough Sounds, D’Urville Island and Cook Strait, with small amounts from Cape Campbell, Kahurangi Shoals and south of Jackson’s Bay. The commercial 10 year average catch is 63 tonnes from a TACC of 70 tonnes.
9. As a consequence, management effort is targeted across the “top of the South”, especially the Marlborough Sounds.

3.2 Biology

10. Blue cod is a bottom dwelling species endemic to New Zealand. It can be caught from a few metres depth to about 150 metres across a range of habitats including reef edges, shingle/gravel, biogenic reefs, or sandy bottoms close to rocky outcrops. It is most common south of Cook Strait.
11. Blue cod are protogynous hermaphrodites where cod born female, can transition into a male. Transition is considered to be triggered by the removal or absence of large male cod. Blue cod males grow faster and are larger than females.
12. Blue cod is categorised as a low productivity species, on account of the complex sex change behaviour which results in heavily exploited populations having few females. It is relatively long lived with a maximum age of 32 years. Generally, blue cod exhibit a constrained home range and are, therefore, susceptible to localised depletion.

3.3 Management background

13. BCO 7 entered the QMS in 1986, with a TACC set under the Fisheries Act 1983 of 136 tonnes (following quota appeals). The TACC was reduced to 95 tonnes in 1993, and further reduced to

70 tonnes in 1995.¹ No TAC or allowances were set under the 1983 Act. The TAC was reviewed in 2003 but was not formally set in legislation (published in the *New Zealand Gazette*) and, consequently, there is no TAC or allowances for Māori customary non-commercial fishing, recreational fishing or all other mortality to the stock caused by fishing.

14. For more information about the QMS go to <https://www.mpi.govt.nz/law-and-policy/legal-overviews/fisheries/quota-management-system/>.
15. In 2020, under the National Blue Cod Strategy, recreational daily limits were set in accordance with a traffic light system², and the minimum legal size in some areas was increased from 30 to 33 cm. Both recreational and commercial cod pots now must also have a minimum mesh size of 54 mm, set to allow undersize blue cod to escape. About 60% of recreational take is from the Marlborough Sounds Area which is closed to both recreational and commercial fishing from 1 September to 19 December inclusive. The majority of recreational fishing occurs from 20 December until the end of January.
16. The traffic light system also resulted in daily limits in some parts of BCO 7 being reduced. A daily limit of two blue cod applies in the area from Clarence River to Farewell Spit (Challenger East), 10 applies for the area from Farewell Spit to the Heaphy River, and from the Haast River to Awarua Point, and 15 applies to the West Coast.
17. Data from the NPS indicates almost 90% of the 63 tonnes of recreational catch is taken under the daily limit of two fish that applies from Clarence River to Farewell Spit. This indicates significant recreational effort and participation is occurring in the Marlborough Sounds and Tasman and Golden Bays.
18. The Marlborough Sounds recreational fishery has had a number of regulatory changes since 1993 (e.g. fishery closures, changes to size limits and daily bag limits) making data time series difficult to interpret during this period. Recreational management in the Marlborough Sounds has not been changed since 2015.
19. The Marlborough Sounds Area (Figure 2) is closed to both commercial and recreational fishing from 1 September until 19 December inclusive.

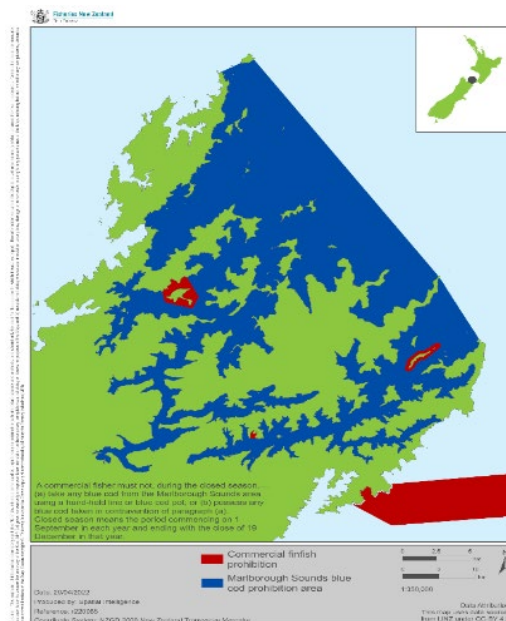


Figure 2: Map of the Marlborough Sounds Area to which a blue cod fishing closed season applies (1 September to 19 December inclusive).

¹ In 2001 5kg was added under s362.

² The traffic light system assigns a colour rating to fine scale areas in the South Island and the Chatham Islands. The rating can be changed as available information suggests stock health is improving or declining.

4 Status of the stock

20. The best available information on the status of the BCO 7 fishery is the [May 2022 Fisheries Assessment Plenary report](#) (the Plenary) along with the potting survey series and catch information. Unpublished, but reviewed, results from a potting survey undertaken in October 2021 are also included in this document.
21. Because of its low productivity, the default target recommended for blue cod under the [Harvest Strategy Standard](#) is an F_{MSY} of $F_{45\%SPR}$ ³. This is the fishing mortality corresponding to a spawning biomass of 45% B_0 ⁴. The Plenary reports the biomass status in relation to the soft and hard limits is unknown, and that the current status of BCO 7 is below the target and overfishing is likely (>60%) to be occurring.
22. Potting surveys undertaken in the Marlborough Sounds are primarily designed to monitor the recreational fishery, however, the survey also captures a large proportion of the commercial target fishery. Most commercial catch is taken from the Cook Strait, outer Sounds and D'Urville strata (Figure 3). Surveys are generally carried out every four years and provide data that can be used to assess local abundance, size, age, and sex structure of the blue cod populations, and estimate fishing mortality.

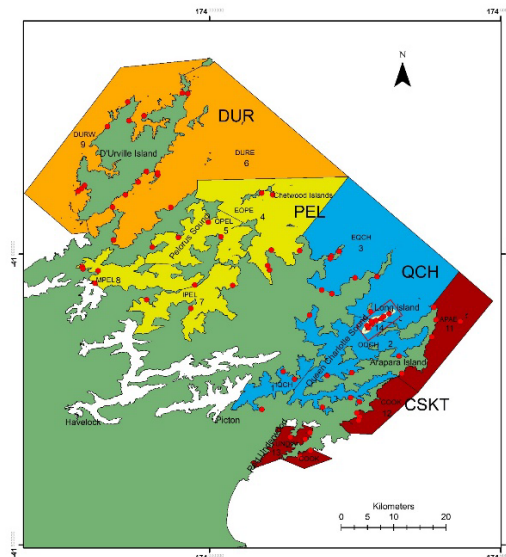


Figure 3: Map of the Marlborough Sounds survey area and 2021 surveyed random sites (n=66).

23. The surveys can also provide a measure of the response of populations to changes in fishing pressure and management initiatives such as changes to the daily limit, minimum legal size, and area closures.
24. Results from the October 2021 potting survey show the catch rate of blue cod has remained fairly stable (albeit at a low level) since 2017, increasing slightly in Queen Charlotte Sound and declining slightly in Pelorus Sound (Figures 4 and 5). The outer Sounds, D'Urville Island and Cook Strait, where commercial fishing occurs, also appear stable.

³ $F_{45\%SPR}$ or percentage spawner per recruit ratio. An SPR ratio estimate indicates the expected contribution to the spawning biomass over the lifetime of an average recruit.

⁴ B_0 is the abundance of the stock if fishing had not occurred or virgin biomass.

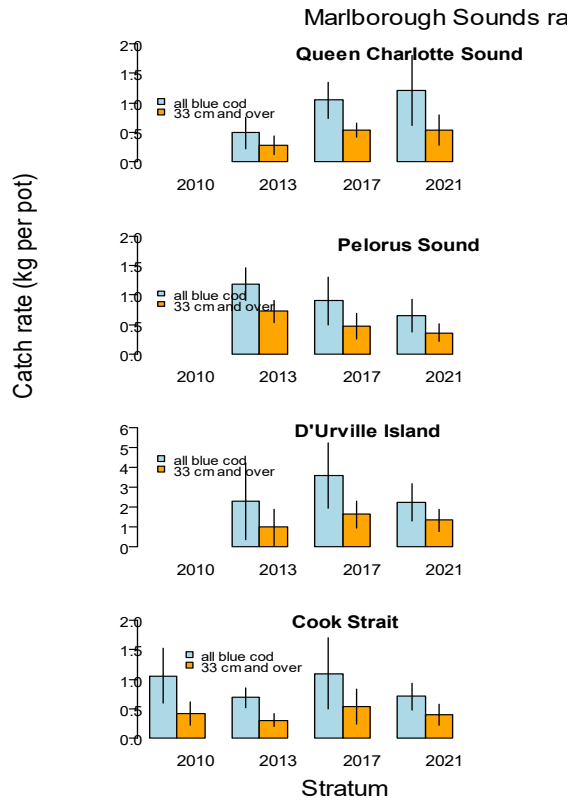


Figure 4: Marlborough Sounds random-site potting survey catch rates of all blue cod and recruited blue cod for each region by survey year. Error bars are 95% confidence intervals. There were no complete random-site surveys in QCH, PEL, and DUR in 2010.

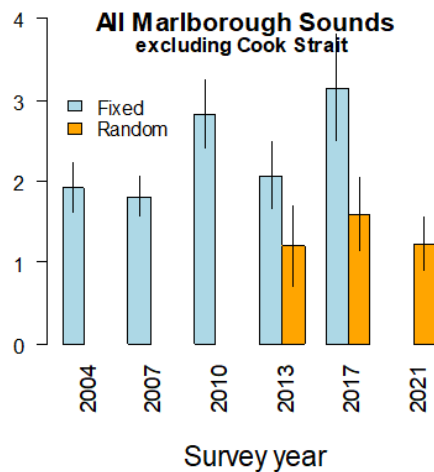


Figure 5: Marlborough Sounds fixed-site and random-site potting survey catch rates of all blue cod by survey year for the overall Marlborough Sounds from 2004 (excluding Cook Strait) when strata were consistent. Error bars are 95% confidence intervals.

25. These results were reviewed by the Inshore Science Working Group in May 2022. While the working group has accepted the biomass estimates from the survey, it concluded estimates of total mortality were likely unreliable (biased low) and consequently, Target %SPR ratios would need to be recalculated. The reviewed results of the recalculation are not available at this time (see also Section 11 Uncertainties and risks).
26. Other data indicates the fishery may be being over exploited. There is a preponderance of male fish, which because of sex transition, is generally considered to be an indicator of high fishing pressure. For the Marlborough Sounds overall, the percent male from random sites surveys in 2013 was 66%, in 2017 it was 72%, and in 2021 was 72%. A normal sex ratio is more like 50%.

27. Time series of random-site survey length frequency distributions for Marlborough Sounds overall (excluding Cook Strait) in the three random surveys from 2013 to 2021 suggest that abundance of larger male fish may be declining. Female size appears to be stable.
28. The Long Island Marine Reserve had the highest blue cod catch rates by a factor of 5-times higher than the overall Marlborough Sounds catch rates. Further, mean size in the reserve in 2021 was 36 cm compared to 30 cm for Queen Charlotte Sound, in which it resides. The sex ratio within the reserve was not able to be determined as fish were returned live. This is a strong indication that fishing pressure has reduced the size and abundance of blue cod in the Marlborough Sounds.
29. FNZ acknowledges that environmental issues, outside the ambit of the Fisheries Act, may also be impacting the abundance of blue cod in the Marlborough Sounds.

5 Catch information and current settings within the TAC

5.1 Commercial

30. From a low point in 2000–01, commercial landings of BCO 7 have risen, averaging 63 tonnes over the previous ten years (Figure 6).

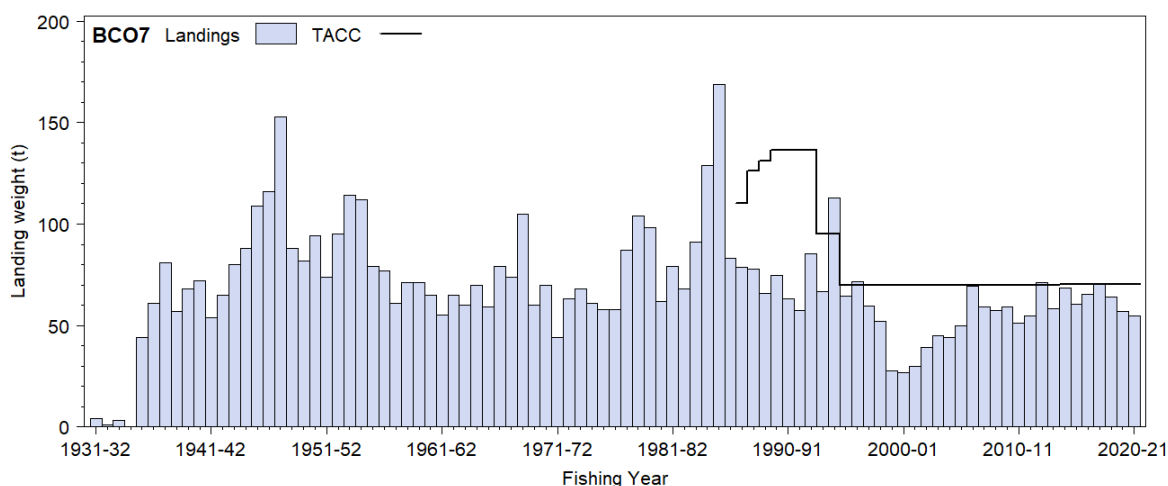


Figure 6: Annual Commercial Landings for BCO 7 (in tonnes).

31. Commercially landed blue cod in BCO 7 are mostly caught by target cod potting. The majority (60%) of commercial catch is taken from statistical area 017 (Marlborough Sounds to Cape Campbell) and the west coast of D'Urville Island. There is a small target fishery in Statistical Area 033 (the top of Fiordland) with the remainder taken as bycatch. About 8-10% of catch is taken as a bycatch of the inshore trawl fishery.

5.2 Customary Māori

32. The BCO 7 coastline south of Kahurangi point operates under the South Island Customary Fisheries Regulations 1999 which require reporting of authorisations and catch numbers. Customary Fisheries for the remainder of BCO 7 operate under Regulation 50 of the Amateur Fishing Regulations 2013 which do not require reporting of authorisations or catch details. Therefore, customary catch for BCO 7 is uncertain.
33. In previous advice to the Minister for BCO 7 in 2003, an allowance of 27 tonnes was proposed for customary fishing (following consultation at the time).
34. FNZ welcomes input from tangata whenua on levels of customary take of blue cod in this area and seeks feedback on whether 27 tonnes would sufficiently account for customary take of BCO 7.

5.3 Recreational

35. Blue cod is the third most common recreational species caught in New Zealand. The [National Panel Survey of Marine Recreational Fishers \(NPS\) conducted in 2017–18](#) estimated a total catch of 293 tonnes (nearly 600 000 fish) for the species, were taken nationally. With 21.5% of the total blue cod recreational catch, BCO 7 had the third largest recreational catch.
36. While recreational fishing occurs across the length of BCO 7 (from Awarua Point to the Clarence River), the majority occurs in the Marlborough Sounds Area. The 2017/18 NPS estimates 63 tonnes of blue cod were taken recreationally from BCO 7 and from that, 35 tonnes (56%) were caught in the Marlborough Sounds Area while 20 tonnes (31%) were taken from Golden Bay/Tasman Bay, including the Kahurangi shoals.
37. A small amount of recreational catch is also taken under section 111⁵ of the Act (around one tonne), giving an estimated total of 64 tonnes of recreational catch at that time. The 2011/12 panel survey gave an estimate of 77 tonnes for BCO 7, a drop in take of 18% between the two surveys.

Table 2: Recreational harvest estimates for BCO 7.

Year	Method	Number of fish	Total weight (t)	CV (t)
2011/12	Panel Survey	212 184	77	±17 tonnes
2017/18	Panel Survey	202 765	63	±12 tonnes

38. FNZ notes that since the NPS was undertaken (2017/18), there have been reductions in daily limits for blue cod in some areas of BCO 7, except Challenger East, and this should reduce the level of harvest in these areas. The next NPS of recreational fishing, scheduled for 2022/23, will allow an opportunity to assess new estimates of recreational harvest.
39. The amateur-fishing charter vessel business is important across the “top of the South”. Vessel reporting shows they catch approximately 7.5 tonnes of blue cod, 40% of which is caught in the Marlborough Sounds. Of this, 5.5 tonnes is retained making up 8.6% of the recreational catch. Reporting shows up to 15 vessels are involved in 1,250 trips (500 in the Marlborough sounds) operating mostly in the summer months. This catch is included within the NPS estimate of recreational catch.
40. As noted, the Marlborough Sounds has a closed season to recreational and commercial blue cod fishing from 1 September to 19 December inclusive. There is also an accumulation limit of two daily limits within BCO 7 and the minimum legal size for blue cod is 33cm.

5.4 Other sources of mortality caused by fishing

41. The allowance for other sources of mortality caused by fishing accounts for any mortality that occurs due to fishing activity that is not otherwise accounted for in the TAC. There is currently no allowance set for all other mortality caused by fishing for BCO 7.
42. Potential sources for other mortality for BCO 7 could include unreported and illegal catch, mortality associated with injury from contact (but not capture) with fishing gear, mortality associated with the accidental loss or damage of fishing gear and predation of returned fish by seabirds and barracouta, especially from recreational line fishing.
43. As noted, the main fishing methods are target commercial potting and handlines. These methods are more selective and less likely to create unknown mortality events in comparison with trawl caught fish. Nevertheless, in 2003 it was considered that, because of observed severe predation of returned undersize fish by seabirds and barracouta the recommended allowance for other mortality caused by fishing be 25% of the combined TACC, Māori customary and recreational allowances.

⁵ Section 111 of the Fisheries Act 1996 enables commercial fishers to take a recreational catch for their own consumption.

44. Since then, the minimum mesh size required for both commercial and recreational cod pots have been increased to reduce the capture of undersize cod and is considered to be having a significant positive impact in the commercial fishery where potting is the main method. In addition, widespread education under the National Blue Cod Strategy about hook size, handling and returning of undersize fish, will have mitigated some of the mortality associated with recreational fishing. Therefore, FNZ proposes to align with other BCO fisheries with 10% of the combined TACC, recreational and customary allowance is an appropriate allowance for other sources of mortality caused by fishing in BCO 7.
45. Nevertheless, there is concern and anecdotal information that suggests there remains a high level of predation of returned fish by seabirds and barracouta in the recreational lining fishery. FNZ welcomes information on the extent and nature of this issue and, any solutions that may be available.

6 Treaty of Waitangi obligations

46. Section 5 of the Fisheries Act 1996 (the Act) requires that the Act be interpreted and people making decisions under the Act to do so in a manner that is consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (the Settlement Act). The Settlement Act provides that non-commercial customary fishing rights continue to be subject to the Principles of the Treaty of Waitangi and give rise to Treaty obligations on the Crown.
47. Section 10 of the Settlement Act requires the Minister to develop policies and programmes to give effect to the use and management practices of tangata whenua. Consistent with Section 10, the Ministry has worked with Iwi to develop engagement processes that enable Iwi to work together to reach a consensus where possible and to inform the Ministry on how tangata whenua wish to exercise kaitiakitanga in respect of fish stocks in which they share rights and interests and how those rights and interests may be affected by sustainability measures proposed by the Ministry.

6.1 Input and participation of tangata whenua

48. The manner in which the Ministry provides for input and participation of Māori is not discretionary but arises as a legal obligation from section 10 of the Settlement Act⁶ and section 12 of the Fisheries Act 1996.⁷ Section 12 (b) of the Act requires that before undertaking any sustainability process the Minister shall provide for the input and participation of tangata whenua who have a non-commercial interest in the stock or an interest in the effects of fishing on the stock. In considering the views of tangata whenua, the Minister is required to have particular regard for kaitiakitanga from the perspective of tangata whenua.
49. Consistent with the agreements with Iwi under section 10 of the Settlement Act, input and participation of tangata whenua into the sustainability decision-making process is provided mainly through Iwi Fisheries Forums, which have been established for that purpose.
50. Each Iwi Fisheries Forum can develop an Iwi Fisheries Forum Plan that describes how the Iwi in the Forum exercise kaitiakitanga over the fisheries of importance to them, and their objectives for the management of their interest in fisheries. Iwi Fisheries Forums may also be used as entities to consult Iwi with an interest in fisheries (however, FNZ will also engage directly with Iwi on matters that affect their fisheries interests in their takiwa).
51. Te Waka a Māui me Ōna Toka Iwi Forum (the forum) is the South Island Iwi fisheries forum — it includes all nine tangata whenua Iwi of Te Wai Pounamu.

⁶ Section 10 of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 refers to the effect of settlement on non-commercial Māori fishing rights and interests <https://www.legislation.govt.nz/act/public/1992/0121/latest/DLM281461.html>

⁷ Section 12 of the Fisheries Act 1996 refers to consultation <https://legislation.govt.nz/act/public/1996/0088/latest/DLM395504.html>

52. At the March 2022 hui, FNZ sought the forum’s input into a potential review of BCO 7. The forum supports the review but did not comment specifically on the proposal. The National Blue Cod Strategy, which cites setting a TAC for BCO 7 as a priority, is a forum-led initiative.
53. FNZ will engage with the forum during consultation to seek input on the options outlined in this proposal. FNZ also welcomes any input and submissions on the options from tangata whenua outside of this planned engagement.

6.2 Kaitiakitanga

54. Information provided by forums, and iwi views on the management of fisheries resources and fish stocks, as set out in Iwi Fisheries Plans, are the way that tangata whenua exercise kaitiakitanga in respect of fish stocks.
55. Rāwaru (blue cod) is identified as a taonga species in the Te Waipounamu Iwi Forum Fisheries Plan, and the National Blue Cod Strategy was an initiative developed directly out of forum. The Forum Fisheries Plan contains objectives to support and provide for the interests of South Island iwi, including the following which are relevant to the options proposed in this paper:
- **Management objective 1:** To create thriving customary non-commercial fisheries that support the cultural wellbeing of South Island iwi and whanau;
 - **Management objective 3:** To develop environmentally responsible, productive, sustainable and culturally appropriate commercial fisheries that create long-term commercial benefits and economic development opportunities for South Island iwi; and
 - **Management objective 5:** to restore, maintain and enhance the mauri and wairua of fisheries throughout the South Island.
56. FNZ considers that this review contributes to all these Management objectives. Table 3 lists the customary fisheries management areas that fall within BCO 7.

Table 3: Customary fisheries management areas within BCO 7.

Location	Management Type
Whakapuaka (Delaware Bay)	Taiāpure <i>All types of fishing are permitted within a Taiāpure. The management committee can recommend regulations to manage commercial, recreational and customary fishing.</i>
Okuru Mussel Point Taperikaka Mahitahi (Bruce Bay) Manakaiaua/Hunts Beach Okarito Lagoon Te Tai Tapu (Anatori) Te Tai Tapu (Kaihoka) Te Kaio Mātaitai	Mātaitai Reserve <i>Commercial fishing is not permitted within mātaitai reserves unless bylawss state otherwise.</i>

57. FNZ considers the options proposed in this paper will impact positively on these customary fisheries management areas as they aim to generally increase the health of blue cod stocks. The proposals will not be directly impacted by the customary fisheries management areas in BCO 7. Commercial fishing is prohibited in mātaitai. There are no regulations relating to blue cod in the Whakapuaka Taiāpure, or bylaws relating to blue cod in any of the mātaitai.

58. FNZ is seeking input from tangata whenua on how the proposed options for BCO 7 may or may not provide for kaitiakitanga as exercised by tangata whenua, and how tangata whenua consider the proposal may affect their rights and interests in this stock.

7 Current and proposed settings within the TAC

7.1 Current settings

TAC: -	TACC: 70.005	Customary: -	Recreational: -	Other mortality: -
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59. Currently, there is a stand-alone TACC of 70.005 tonnes. This TACC was set under the Fisheries Act 1983 prior to the requirement for a TAC and allowances under the Fisheries Act 1996.

7.2 Option 1 (Current catch)

TAC: 169 t	TACC: 63 t (↓ 7.005 t)	Customary: 27 t	Recreational: 64 t	Other mortality: 15 t
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60. As this is the first time a TAC is to be set for this fishery, Option 1 takes into account that the fishery appears relatively stable at current catch levels and sets a TAC that is the sum of all known or estimated fishing mortality across commercial, customary and recreational sectors. It assumes that limiting commercial catch to recent catch levels (which at 63 tonnes are 10% lower than the current TACC of 70 tonnes), setting allowances within a TAC and the other measures already introduced under the National Blue Cod Strategy (increased pot mesh requirements for both recreational and commercial fishers and reduced recreational daily limits in some parts of BCO 7) will move the stock towards its target.
61. FNZ proposes to reduce the TACC by around 10% to the average annual commercial catch for the past 10 years.
62. FNZ proposes to use previous advice to the Minister (in 2003) in which 27 tonnes was proposed and consulted on to allow for Māori customary non-commercial fishing.
63. As noted, the most reliable estimate of recreational harvest comes from the 2017/18 NPS, which estimated that 63 tonnes were taken across BCO 7 between 1 October 2017 and 30 September 2018. After combining the NPS 2017/18 estimate and the 5-year average of the Section 111 landings, this equates to 64 tonnes.
64. The estimate of mortality caused by fishing takes into account that the recent increase in cod pot mesh size and fisher education are expected to improve survivorship.

7.3 Option 2

TAC: 157 t	TACC: 58 t (↓ 12.005 t)	Customary: 27 t	Recreational: 58 t	Other mortality: 14 t
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65. Option 2 recognises that the fishery is likely to be below target and that other indicators point to the fishery being under fishing pressure. It sets a TACC that is a further 10% below Option 1 and correspondingly lower allowances. By reducing fishing pressure, Option 2 is more likely to increase fishery abundance and move the fishery towards the target than Option 1.
66. Option 2 sets a TAC of 157 tonnes, sets a recreational allowance of 58 tonnes, an allowance for other sources of mortality caused by fishing of 14 tonnes, and reduces the TACC by approximately 20% (which is 10% below the average annual commercial catch for the past 10 years).

67. Under Option 2 the Māori customary non-commercial catch is the same as Option 1.
68. The rationale for establishing an allowance for all other sources of stock mortality caused by fishing is the same as used for Option 1 and would set the allowance at 14 tonnes.
69. Option 2 takes a more cautious approach to the indicators of fishing pressure and provides greater likelihood that the stock will start to rebuild towards the target. It takes into account the assessment that overfishing is likely occurring (>60%) and current catch is likely (>60%) to cause over-fishing, the contrast in abundance and size between the Long Island Marine Reserve and the rest of the Marlborough Sounds Area, the high percentage of males in the population and that the abundance of larger male cod may be declining.
70. Under Option 2, based on the 2020/21 reported port price of \$7.64/kg, the landed value to the commercial fishery could reduce by \$90, 446. However, given the average landing over the past ten years is 63 tonnes, the reduction in landed value is more likely to be in the order of \$48, 132.
71. Under the National Blue Cod Strategy recreational daily limits for blue cod have been reduced in some parts of BCO 7 since the last (2017/18) NPS estimate. The lower recreational allowance under this option takes this into account. However, should the Minister choose this option, FNZ will explore further ways to give effect to a reduction in recreational effort (see section 12 Other Matters).

8 Environmental interactions

72. The key environmental principles, which must be taken into account when considering sustainability measures for BCO 7, are as follows:
 - Associated or dependent species should be maintained above a level that ensures their long-term viability (in particular marine mammals, seabirds, fish and invertebrate bycatch).
 - Biological diversity of the aquatic environment should be maintained (in particular the benthic impacts from fishing); and
 - Habitats of particular significance for fisheries management should be protected.
 - Blue cod are very aggressive predators and are likely to be key stone species on reefy/gravel areas within the Sounds. Reducing biomass is therefore likely to impact the ecosystem.
73. Given the options proposed will either maintain or will reduce fishing effort, the level of environmental interaction will be the same or less than current. FNZ notes observer coverage is negligible for BCO 7, with observer effort prioritised to monitor protected species interactions in fisheries considered to be higher risk. This means that non-fish protected species reporting cannot be independently verified in this fishery (i.e., by FNZ on-board Observers).
74. The Minister recently announced key details of the nationwide rollout of cameras on commercial fishing vessels.⁸ Commercial blue cod potting is not being targeted by the camera rollout given that it is a selective and lower risk fishing method. However, a small portion of BCO 7 is caught as bycatch in commercial trawls, and on-board cameras will be installed and transmitting footage on inshore trawl vessels in BCO 7 by June 2024.⁹ This will improve FNZ's ability to verify bycatch of BCO 7 in trawls and to monitor any environmental interactions in occurring in those fisheries.

⁸ [Rollout of cameras on fishing vessels to begin](#). Honourable David Parker, Minister for Oceans and Fisheries.

⁹ [On-board cameras for commercial fishing vessels](#). Ministry for Primary Industries

8.1 Marine mammals

75. There have been no recorded interactions with marine mammals in this fishery, given the primary method is potting and fishers are largely in attendance with little chance of entanglement.

8.2 Seabirds

76. There have been no recorded interactions with seabirds in this fishery, given the primary method is potting, with pots usually set too deep for seabirds to enter.

8.3 Fish bycatch

77. Bycatch species sometimes taken include conger eel, octopus, sea perch, and wrasse.

8.4 Benthic impacts

78. Given the primary method is potting, benthic impacts or interactions are considered minimal. Pots are only set for an hour or so.

8.5 Habitats of particular significance for fisheries management

79. Blue cod are broadly distributed in BCO 7 and there is limited information regarding what specific areas of habitat are of particular significance to the stock. Some general habitats that could be regarded as particularly significant to BCO 7 are discussed in Table 4 below.

Table 4: Summary of information on habitats of particular significance for fisheries management for BCO 7.

Fish Stock	BCO 7
Habitat of particular significance	<p>Spawning: Spawning areas are widespread throughout much of New Zealand, including in BCO 7. Running ripe cod are found throughout the fishery, however, some consider blue cod might spawn towards the edge of the continental shelf.</p> <p>Juvenile: Information suggests they inhabit ground that is complex such as shell or rubble, or cryptic habitat with epifauna (bryozoans, sponges, etc) is important for juveniles to escape predation and improve survival. The biogenic reef at Chetwode Banks, outer Marlborough Sounds, may be a potential nursery ground.</p>
Attributes of habitat	<ul style="list-style-type: none">• Juvenile habitats are likely to provide shelter and protection from predation and harvesting, and suitable food while growth and development proceeds.• Chetwode Banks provide a complex biogenic habitat structure in low silt conditions. Patches of bryozoan fields and horse mussel bed.
Reasons for particular significance	<ul style="list-style-type: none">• Successful spawning and development through juvenile stages is critical to supporting the productivity of the stock and ensuring juveniles recruit into the fishery• Structure is important for juveniles. The Chetwode Banks provide one of the few known remaining areas of healthy bryozoan habitat in the Sounds region.
Risks/Threats	<ul style="list-style-type: none">• Changes in water temperature and water circulation could impact spawning and egg/larval development.• Land-based impacts, particularly sedimentation, on habitats with benthic structure and aquatic plants that provide juvenile habitat.• Benthic impacting activities, such as trawling and dredging, could disrupt habitat.
Existing protection measures	<ul style="list-style-type: none">• Kahurangi, Punakaiki, Waiiau Glacier Coast, Hautai, Tauparikaka, Westhaven-Te tai tapu, Tonga Island, Hororoirangi and Long Island marine reserves each has a small area of habitat that could support blue cod.

80. Top of the South Island nearshore areas –
- Rationale: known to be important habitat for juvenile fish (snapper, rig, blue cod, flatfish)
 - Protection in place: commercial fishing prohibited in specified areas:
 - Seasonal closure to trawling in Golden Bay between 1 November and 30 April (reg 5) and pair trawling prohibited in Tasman Bay between 1 October and end February (reg 8).
 - Set netting prohibition at Farewell Spit (reg 2BD).
 - Trawl, Danish, and dredge prohibited around Separation Point (reg 10) to protect bryozoan beds.
 - Trawling and surrounding nets (Danish seine) prohibited in specific harbours and estuaries (Greville Harbour, Nelson Harbour, Waimea Estuary, and Whanganui Inlet (reg 6A) to protect important fish habitats.
 - Fishing prohibitions in specified areas in Pelorus Sound and Queen Charlotte Sound (reg 2E, 7) – areas likely to include Marine Sites of Significance as specified within the Marlborough Environment Plan.
81. FNZ considers the risk of adverse effects from fishing on habitat of particular significance for BCO 7 are low, because:
- Blue cod spawning habitat is likely widespread,
 - habitat that supports juvenile development is in areas that are unlikely to be impacted by fishing in BCO 7; and,
 - existing regulatory and non-regulatory measures (voluntary) are providing indirect protection to blue cod habitat over large areas (discussed further below).
82. The greatest threats to blue cod recruitment are likely to be from climate change, particularly changes in water temperature and water circulation. Blue cod thrive in cooler waters.
83. Another threat to BCO 7 habitat is land-based impacts on spawning and juvenile habitat. FNZ has recently established a new team to work more closely with Councils to consider and mitigate land-based impacts (e.g., sedimentation, nutrient runoff) on marine habitats through coastal planning processes. Furthermore, the new National Policy Statement on Freshwater Management and the National Environmental Standards for Freshwater, which came into effect on 3 September 2020, aim to stop further degradation, show material improvements within five years, and restore waterways to health within a generation.
84. At FNZ-facilitated multi-sector workshops, participants have identified that research is required to develop a standard for both identifying and managing habitats of significance in the region. Later this year a FNZ research project and associated analysis is scheduled to identify important habitats in the top of the South Island.
85. FNZ will be starting an online consultation in mid-2022 on draft guidelines for identification of habitats of particular significance for fisheries management and the operational proposals to support its application. We would welcome your feedback. More information will be available on <https://www.mpi.govt.nz/fishing-aquaculture/> when the consultation starts.

9 Relevant plans, strategies, statements and context

86. The following plans and strategies are relevant for BCO 7.

9.1 Draft National Inshore Finfish Fisheries Plan

87. BCO 7 will also be managed under the [National Inshore Finfish Fisheries Plan](#) (the Plan) once finalised. The Plan outlines the management objectives and strategies for finfish fisheries for the next five years and was consulted on in early 2020.
88. The Plan is aimed at progressing New Zealand towards ecosystem-based fisheries management. Stocks are grouped within the Plan, with management approaches and objectives tailored accordingly for each group.
89. BCO 7 falls under Group 2, which recognises that FNZ intend to manage these stocks to provide for moderate levels of use with moderate levels of information to monitor its stock status. The monitoring and assessment regime does not provide future population (biomass) projections.

9.2 Regional Plans

90. There are four Regional Councils or Territorial Authorities that have coastline within the BCO 7 boundaries. Each has multiple plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems and habitats.
91. FNZ considers that the proposed management options presented are in keeping with the objectives of relevant regional plans, which generally relate to the maintenance of healthy and sustainable ecosystems to provide for the needs of current and future generations.
92. Regional coastal plans address the cumulative effects of activities in the coastal marine area, and the adverse impacts from land-based activities on the marine environment. The Marlborough Environment Plan (MEP) sets out provisions relating to the disturbance of the seabed in Ecologically Significant Marine Sites. The proposed MEP contains a rule stating 'Disturbance of the seabed must not occur within a Category A Ecologically Significant Marine Site'¹⁰. It prohibits dredging and bottom trawling within any Category A or B Ecologically Significant Marine Site but allows for these fishing methods to be discretionary activities within the buffer zone of these sites. On 21 February 2020, the MEP Hearing Panel announced its decisions on the MEP. These decisions are now subject to appeals to the Environment Court. Fishers are subject to the rules in the plans (for example, small scale restrictions on fishing methods), however, the large area of QMA 7 means these rules do not, in general, stop fishers taking their annual catch entitlement (ACE) from other areas within this QMA.

9.3 National Blue Cod Strategy

93. Concerns about overfishing, the biological characteristics of blue cod, and the high value of blue cod to all fishing sectors (Māori customary, commercial and recreational) led to the development of the [National Blue Cod Strategy](#). Management objectives for the fishery are set out in the strategy and prioritise research and assessment of BCO 7 and include setting a TAC and allowances for BCO 7 (as recommended in this paper).
94. Recent measures already implemented in BCO 7 as part of the strategy include introducing the traffic light system of daily limits to manage localised depletion. This has reduced recreational daily limits to 15, 10 or two, depending on the degree of depletion within an area. An increased minimum legal size of 33 cm and standardised cod pot mesh size of a minimum 54 mm for both recreational and commercial fishers have also been implemented under the strategy.

¹⁰ **Category A:** - Very sensitive: Site supports species, habitats or communities that cannot tolerate anthropogenic impacts (e.g. nutrient enrichment, sedimentation, pollution, colonisation by invasive species, anchoring, all forms of trawling and dredging)
Category B:- Sensitive: Site supports species, habitats or communities that can tolerate low level of elevated turbidity, enrichment, invasive species or pollution. Can tolerate low-level anthropogenic seabed disturbance due to the nature of the substrata, community, species and/or hydrodynamic regimes (i.e. tolerant of occasional recreational anchoring). Not tolerant of dredging and trawlin

9.4 Te Mana o te Taiao (Aotearoa New Zealand Biodiversity Strategy)

95. [Te Mana o te Taiao – the Aotearoa New Zealand Biodiversity Strategy](#) sets a strategic direction for the protection, restoration and sustainable use of biodiversity, particularly indigenous biodiversity, in Aotearoa New Zealand. The Strategy sets a number of objectives across three timeframes. The most relevant to setting sustainability measures for BCO 7 are objectives 10 and 12:

Objective 10: Ecosystems and species are protected, restored, resilient and connected from mountain tops to ocean depths.

Objective 12: Natural resources are managed sustainably.

96. The Ministry for Primary Industries (MPI) is undertaking work to support this strategy, as well as the requirement under the Fisheries Act to avoid, remedy or mitigate adverse effects on the aquatic environment. The Environmental Interactions section in this paper provides information on relevant interactions with the wider aquatic environment for this stock.

10 Deemed values

97. Deemed values are the price paid by fishers for each kilogram of unprocessed fish landed in excess of a fisher's Annual Catch Entitlement (ACE) holdings. The purpose of the deemed values regime is to provide incentives for individual fishers to acquire or maintain sufficient ACE to cover catch taken over the course of the year, while allowing flexibility in the timing of balancing, promoting efficiency, and encouraging accurate catch reporting.

98. The [Deemed Value Guidelines](#) set out the operational policy FNZ uses to inform the development of advice to the Minister on the setting of deemed values.

99. The deemed values for the BCO 7 commercial fishery were reviewed in 2021. FNZ is satisfied that these deemed value settings are consistent with the Principles of the Deemed Value Guidelines, and therefore is not proposing to adjust the BCO 7 deemed values this year.

100. The deemed value rates for BCO 7 are shown in Table 5.

Table 5: Current deemed value rates (\$/kg) for BCO 7.

Stock	Interim	Annual 100-120%	Annual 100-120%				
			120-140%	140-160%	160-180%	180-200%	>200%
BCO 7	4.05	4.50	5.40	6.30	7.20	8.10	9.00

101. FNZ welcomes feedback on these deemed value settings.

11 Uncertainties and risks

102. An understanding of the original unfished population is not available and therefore, the target and status of the fishery is uncertain.

103. The transition from fixed site potting surveys to random site surveys means that the time series of random site surveys is relatively short at three to four (depending on the stratum) surveys.

104. Frequent regulatory changes for this fishery are likely to have resulted in inconsistent fishing mortality over the lifetime of recent cohorts.

105. The Inshore Science Working Group concluded the stock status in relation to the target B_{MSY} proxy ($F_{\%SPR}$) from the 2021 potting survey might better reflect the status of the fishery if recalculated with a different method. The reviewed results of the recalculation are not yet

available but may become available during the review consultation period and may influence final advice on the options.

12 Other considerations

106. In addition to the options in the paper, FNZ also seeks your feedback on whether other measures, such as extending the closed season, rotational closures, measures to reduce recreational fishing pressure, or measures to reduce incidental mortality during fishing are needed to reduce localised overfishing of blue cod and help recovery of the stock.
107. The closed season largely covers a period where potting surveys show the presence of spawning cod. A small extension, in either or both date directions, could better cover this important period as well as reduce fishing effort. Analysis of the NPS data suggests that starting the closed season on 1 August rather than the current 1 September would reduce recreational take by around 10%. A small extension beyond 19 December would also significantly reduce recreational take.
108. It has also been suggested that it may be possible to introduce gear (such as descending devices- hand-held traps, trip hooks) to return cod, or to introduce other fishing practises that could help reduce mortality from shag or barracouta predation when undersize blue cod are returned during recreational lining.
109. FNZ seeks feedback on these matters. Any changes, for example, to the closed season would be subject to further public consultation and a further regulatory process.

13 28N rights

110. There are 1.6 tonnes of preferential allocation rights (28N rights) in BCO 7. Preferential allocation rights were granted to permit holders under section 28N of the Fisheries Act 1983 who elected to take administrative rather than compensated reductions to their catch allocations.
111. When the TACC is increased for a stock that has 28N rights associated with it, the quota shares of owners who do not have 28N rights are reduced and redistributed to the holders of 28N rights. As the options in this paper suggest reducing the TACC, 28N rights for BCO 7 are not expected to be triggered by this sustainability round. However, if the TACC for this stock is increased in future, the distribution of its 28N rights will be impacted (28N rights holders will gain the first right to the increase).

14 Questions for submitters

- Which option do you support for setting a TAC and allowances? Why?
- If you do not support any of the options listed, what alternative(s) should be considered? Why?
- Are the allowances for Māori customary, recreational and other sources of fishing mortality appropriate? Why?
- Do you think these options adequately provide for social, economic, and cultural wellbeing?
- Do you support extending the closed season for blue cod within the Marlborough sounds closed area? And, if so, for what period should the area be closed?
- Are there fishing practises or gear designs that could reduce incidental mortality of blue cod, for example, by reducing mortality from shag or barracouta predation when undersize blue cod are returned during recreational lining?

- Do you have any concerns about potential impacts of the proposed options on the aquatic environment?

112. We welcome your views on these proposals. Please provide detailed information and sources to support your views where possible.

15 How to get more information and have your say

113. FNZ invites you to make a submission on the proposals set out in this discussion document. Consultation closes at 5pm on 22 July 2022.

114. Please see FNZ's sustainability consultation webpage (<https://www.mpi.govt.nz/consultations/review-of-sustainability-measures-2022-october-round/>) for related information, a helpful submissions template, and information on how to submit your feedback. If you cannot access to the webpage or require hard copies of documents or any other information, please email FMSubmissions@mpi.govt.nz.

16 Legal basis for managing fisheries in New Zealand

115. The Fisheries Act 1996 provides the legal basis for managing fisheries in New Zealand, including the Minister's responsibilities for setting and varying sustainability measures. See the separate document *Overview of legislative requirements and other considerations* at <https://www.mpi.govt.nz/dmsdocument/51712> for more information.

17 Referenced reports

Fisheries New Zealand (2022). Fisheries Assessment Plenary, May 2022: stock assessments and stock status. Compiled by the Fisheries Science and Information Group, Fisheries New Zealand, Wellington, New Zealand. Accessible at: <https://www.mpi.govt.nz/science/fisheries-science-research/about-our-fisheries-research>

Fisheries New Zealand (2011). Operational Guidelines for New Zealand's Harvest Strategy Standard. Accessible at: <https://www.mpi.govt.nz/dmsdocument/19706-OPERATIONAL-GUIDELINES-FOR-NEW-ZEALANDS-HARVEST-STRATEGY-STANDARD>

Fisheries New Zealand (2020). Guidelines for the review of deemed value rates for stocks managed under the Quota Management System. Accessible at: <https://www.mpi.govt.nz/dmsdocument/40250/direct>

Fisheries New Zealand (2019). Draft National Inshore Finfish Fisheries Plan. Accessible at: <https://www.mpi.govt.nz/consultations/draft-national-inshore-finfish-fisheries-plan/>

New Zealand Government (2020). Te Mana o te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020. Accessible at: <https://www.doc.govt.nz/nature/biodiversity/aotearoa-new-zealand-biodiversity-strategy/>

Wynne-Jones, J.; Gray, A.; Heinemann, A.; Hill, L.; Walton, L. (2019). National Panel Survey of Marine Recreational Fishers 2017-2018. New Zealand Fisheries Assessment Report 2019/24. 104p. Accessible at: <https://www.mpi.govt.nz/dmsdocument/36792-far-201924-national-panel-survey-of-marine-recreational-fishers-201718>