Fisheries New Zealand
Tini a Tangaroa

Review of Sustainability Measures for the 2022 October round

Fisheries New Zealand Decision Paper

ISBN No: 978-1-99-103988-0 (online)

September 2022

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Contents

1 Introduction

1. This paper seeks your decisions in relation to the October 2022 Sustainability Review. You are asked to make decisions on sustainability measures and allowances for a selected number of fish stocks.

2. The measures you are asked to consider for these stocks are:

   Catch limits and allowances

   - setting or varying the Total Allowable Catch (TAC);
   - setting or varying allowances for Māori customary and recreational fishing, and allowances for other sources of mortality to stocks from fishing; and
   - setting or varying the Total Allowable Commercial Catch (TACC).

   Deemed values

   - Adjusting deemed value settings or regimes for stocks where needed.

3. Your decisions on catch limits, allowances and deemed values for these fish stocks will take effect on 1 October 2022.

4. The fish stocks proposed for changes as part of the October 2022 Sustainability Review are listed below in Table 1 and Table 2.

Table 1: Summary of stocks reviewed for catch limits, allowances and deemed values as part of the 1 October 2022 sustainability round.

Deepwater stocks	Inshore stocks
• **Hoki** (HOK 1) – All New Zealand, excluding Kermadec • **Gemfish** (SKI 3 & SKI 7) – Entire South Island, Chatham Rise, West Coast off Taranaki and Wellington • **Scampi** (SCI 1) – East Coast of Northland/Auckland, Bay of Plenty	• **Tarakihi** (TAR 2, TAR 3 and the eastern portions of TAR 1 & TAR 7 – All of East Coast from Northland down to Otago) • **Rough skate** (RSK 8) **and smooth skates** (SSK 8) – West Coast of Northland, Auckland, Taranaki, Wellington • **Blue warehou** (WAR 2 & WAR 8) – Taranaki, Wellington, East Cape, Hawke's Bay • **FMA 7 mixed trawl stocks** (SNA 7, GUR 7 & SPO 7) - West Coast & top of South Island • **Blue cod** (BCO 7) – West Coast & top of South Island • **Red gurnard** (GUR 3) – East Coast South Island, Southland, Sub-Antarctic, Chatham Rise • **Rig** (SPO 3) – East Coast South Island, Southland, Sub-Antarctic, Chatham Rise • **Attached bladder kelp** (KBB 3 G & KBB 4G) – East Coast South Island and Chatham Islands

Table 2: Summary of stocks with a standalone deemed value review as part of the 1 October 2022 sustainability round.

Inshore stocks
• **Kingfish** (KIN 3, KIN 7 & KIN 8 – East and South Coasts South Island, West Coast and top of the South Island, West Coast North Island) • **Snapper** (SNA 2) – East Cape, Hawke's Bay, Wellington • **Trevally** (TRE 1) - East Coast of Northland/Auckland, Bay of Plenty

5. Fisheries New Zealand (FNZ) has already provided you with our final advice on proposed changes to tarakihi stocks in a separate document (refer: B22:0425: *October 2022 East Coast Tarakihi Stock Sustainability Measures Review*). This document provides you with FNZ's final advice on all other proposals for fish stocks in the October 2022 sustainability round.

6. FNZ has consulted on your behalf on all proposals with representatives of people who have an interest in the stocks or the effects of fishing on the aquatic environment in the areas concerned, including Māori, environmental, commercial, and recreational interests.

7. We have provided for input and participation of tangata whenua on these decisions, primarily through Iwi Fisheries Forums, which have been set up for this purpose. We have identified species and areas over which these groups have expressed kaitiakitanga[1], to which you must have particular regard when making these decisions.

8. Input and participation and submissions have been summarised where relevant for each stock. However, should you wish to view full submissions on the October 2022 sustainability round proposals, these have been provided separately to your office (titled: "*Public Submissions Received for the 2022 October Sustainability Round").*

2 Overview of powers and obligations under the Fisheries Act 1996

2.1 Decisions Ministers may make in relation to sustainability reviews

9. Provisions of the Fisheries Act 1996 (the Act) allow you as Minister for Oceans and Fisheries to:

Part 3: Sustainability measures

- Set and vary sustainability measures such as the TAC.

Part 4: Quota Management System

- Set and vary the TACC within the limits of the TAC having allowed for Māori customary and recreational fishing and all other mortality to the stock caused by fishing.

- Set deemed value rates to provide an incentive for fishers not to exceed the available annual catch entitlement (ACE).

10. In making decisions on those matters there are several things you are required to do and take into account, these are outlined below:

2.2 Overarching requirements

11. Section 5: You must act in a manner consistent with New Zealand's International obligations relating to fishing, and the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

12. Section 8: The purpose of the Act is to provide for the utilisation of fisheries resources while ensuring sustainability.

- "Ensuring sustainability" is defined as: "maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment".

[1] The Act defines Kaitiakitanga to mean "the exercise of guardianship; and, in relation to any fisheries resources, includes the ethic of stewardship based on the nature of the resources, as exercised by the appropriate tangata whenua in accordance with tikanga Māori", where tikanga Māori refers to Māori customary values and practices.

- "Utilisation" of fisheries resources is defined as "conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural wellbeing."

13. The Supreme Court has stated that the purpose statement incorporates "the two competing social policies reflected in the Act" and that "both policies are to be accommodated as far as is practicable in the administration of fisheries under the quota management system. In the attribution of due weight to each policy that given to utilisation must not be such as to jeopardise sustainability".[2]

14. Section 9: you must take into account the following environmental principles:
    (a) associated or dependent species should be maintained above a level that ensures their long-term viability
    (b) biological diversity of the aquatic environment should be maintained
    (c) habitat of particular significance for fisheries management should be protected.

15. Section 10: you must take into account the following information principles:
    (a) decisions should be based on the best available information
    (b) decision makers should consider any uncertainty in the information available in any case
    (c) decision makers should be cautious when information is uncertain, unreliable, or inadequate
    (d) the absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.

16. Sections 12, 21 and 75A require you to consult before making decisions on sustainability measures, the TACC, and deemed values rates, respectively.

2.3 The Hauraki Gulf Marine Park Act 2000

17. Section 11 of the Fisheries Act (discussed below) requires you to have regard to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 (HGMPA) when setting or varying a TAC that includes the area of the Hauraki Gulf as defined in that Act. Section 13 of the HGMPA requires that you have particular regard to sections 7 and 8 of the HGMPA when setting or varying TACCs and deemed values.

18. Section 7 of the HGMPA recognises the national significance of the Hauraki Gulf and section 8 sets out objectives for management of the Gulf (see Table 3). The HGMPA is discussed in stock chapters of decision documents where this is relevant.

Table 3: Outline of the relevant sections of the Hauraki Gulf Marine Park Act 2000

Section 7: Recognition of national significance of Hauraki Gulf	Section 8: Management of Hauraki Gulf
(1) The interrelationship between the Hauraki Gulf, its islands, and catchments and the ability of that interrelationship to sustain the life-supporting capacity of the environment of the Hauraki Gulf and its islands are matters of national significance. (2) The life-supporting capacity of the environment of the Gulf and its islands includes the capacity—	To recognise the national significance of the Hauraki Gulf, its islands, and catchments, the objectives of the management of the Hauraki Gulf, its islands, and catchments are— (a) the protection and, where appropriate, the enhancement of the life-supporting capacity of the environment of the Hauraki Gulf, its islands, and catchments: (b) the protection and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments:

[2] Recreational Fishing Council Inc v Sanford Limited and Ors [2009] NZSC 54 at [39].

(a) to provide for— (i)the historic, traditional, cultural, and spiritual relationship of the tangata whenua of the Gulf with the Gulf and its islands; and (ii)the social, economic, recreational, and cultural well-being of people and communities: (b) to use the resources of the Gulf by the people and communities of the Gulf and New Zealand for economic activities and recreation: (c) to maintain the soil, air, water, and ecosystems of the Gulf.	(c) the protection and, where appropriate, the enhancement of those natural, historic, and physical resources (including kaimoana) of the Hauraki Gulf, its islands, and catchments with which tangata whenua have an historic, traditional, cultural, and spiritual relationship: (d) the protection of the cultural and historic associations of people and communities in and around the Hauraki Gulf with its natural, historic, and physical resources: (e) the maintenance and, where appropriate, the enhancement of the contribution of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments to the social and economic well-being of the people and communities of the Hauraki Gulf and New Zealand: (f) the maintenance and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments, which contribute to the recreation and enjoyment of the Hauraki Gulf for the people and communities of the Hauraki Gulf and New Zealand.

2.4 Statutory Considerations

19. Table 4 provides an overview of your central statutory considerations for varying TACs and TACCs under the Act. Where relevant, stock-specific details relating to these considerations are set out in the stock or multi-stock chapters within this paper.

Table 4: Information on your key requirements when making decisions under the Act.

Decisions you may make	Requirements – things you must do when making decisions
Part 3 Sustainability Measures	
Section 11 You may set or vary sustainability measures for any stock S11(3) Sustainability measures may relate to (but are not limited to): • Catch limits • Size, sex or biological state • Areas • Fishing methods • Fishing seasons	(1) you must take into account: (a) effects of fishing on any stock and aquatic environment; and (b) existing controls under this Act that apply to the stock or area concerned; and (c) the natural variability of the stock concerned. (2) you shall have regard to: (a) any regional policy statement, regional plan or proposed regional plan under the Resource Management Act 1991; and (b) any management strategy or plan under the Conservation Act 1987; and (c) sections 7-8 of the Hauraki Gulf Marine Park Act 2000; and (ca) regulations made under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012; and (d) a planning document lodged with you by a customary marine title group under s 91 of the Marine and Coastal Area (Takutai Moana) Act 2011 – that apply to the coastal marine area and are considered by you to be relevant. (2A) you must take into account: (a) any conservation or fisheries services; and (b) any relevant fisheries plan approved under section 11A; and (c) any decisions not to require conservation or fisheries services.
Section 11A You may approve or revoke fisheries plans	Fisheries plans may include: (a-c) fisheries management objectives, strategies to achieve them, and performance criteria to measure achievement; (d) conservation or fisheries services; or (e) contingency strategies to deal with foreseeable variations in circumstances. To date national fisheries plans have been approved only for deepwater and highly migratory species, the Foveaux Strait oyster fishery, PAU 3 (A & B) and PAU 4 (Chatham Islands).

Decisions you may make	Requirements – things you must do when making decisions
Section 12 Before making decisions, you must consult	(a) you shall consult with such persons or organisations as the Minister considers are representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned, including Māori, environmental, commercial, and recreational interests; and (b) you shall provide for the input and participation of tangata whenua that have: (i) a non-commercial interest in the stock concerned; or (ii) an interest in the effects of fishing on the aquatic environment in the area concerned— and have particular regard to kaitiakitanga. (2) you shall provide the reasons for your decisions to the people consulted.
Section 13 You shall set and may vary, a TAC for stocks in the Quota Management System (QMS)	(2) you shall set (and may vary – s(4)) a TAC that: (a) maintains the stock at or above a level that can produce the maximum sustainable yield (*MSY*), having regard to the interdependence of stocks; or (b) enables the level of any stock below a level that can produce *MSY* to be altered: (i) in a way and at a rate that will restore the stock to a level that can produce *MSY* having regard to the interdependence of stocks; and (ii) within a period appropriate to the stock, having regard to the biological characteristics of the stock and environmental conditions affecting it, or (c) enables the level of any stock above that which can produce *MSY* to be altered in a way and at a rate to move the stock toward or above that which can produce *MSY* having regard to the interdependence of stocks. (2A) If you consider that the stock level to produce *MSY* is not able to be estimated reliably using best available information, you must: (a) not use this as a reason to postpone or fail to set a TAC; and (b) have regard to the interdependence of stocks, biological characteristics of the stock and any environmental conditions affecting the stock; and (c) set a TAC (i) using the best available information; and (ii) that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above a level that can produce *MSY*. (3) In considering the way and rate at which a stock is moved toward or above a level that can produce *MSY* you shall have regard to such social, cultural and economic factors as you consider relevant. (4) You may, by notice in the *Gazette*, vary any total allowable catch set for any quota management stock under this section. When considering any variation, you are to have regard to the matters specified in subsections (2), (2A) (if applicable), and (3).
Part 4 Quota Management System	
Section 20 You must set and may vary TACC for quota management stocks, unless a TAC has not been set for the stock	**Section 21** (1) you shall have regard to the TAC and shall allow for (a)(i) Māori customary interests; and (a)(ii) Recreational interests; and (b) all other mortality to the stock caused by fishing. (2-3) you shall consult representatives of classes of people that have an interest and give reasons for your decision (4) When allowing for Māori customary interests you must take into account (a) any mātaitai reserve in the Quota Management Area (QMA) declared under s186: (b) any area closure or method restrictions/prohibitions imposed under s186A. (5) When allowing for recreational interests you shall take into account any regulations that prohibit or restrict fishing under s311.

Decisions you may make	Requirements – things you must do when making decisions
Section 75 You must set and may vary interim and annual deemed value rates for each quota management stock	(2) In setting an interim deemed value rate or an annual deemed value rate (a) you must take into account the need to provide incentive for fishers to acquire or maintain sufficient ACE (b) you may have regard to: (i) the desirability of fishers landing catch for which they do not have ACE (ii) the market value of the ACE for the stock (iii) the market value of the stock (iv) the economic benefits obtained by (parties involved in commercial fishing, processing, sale) (v) the extent to which catch has exceeded/is likely to exceed TACC for the stock in any year (vi) any other matters you consider relevant. (3) Annual deemed values must be greater than interim deemed values (4) Different deemed values may be set for different levels of excess catch (5) Different deemed values may be set for the Chatham Islands (6) When setting deemed value rates, you must not: (a) have regard to the personal circumstances of any individual or class of person (b) set separate deemed values in individual cases.

2.5 Judicial Guidance

2.5.1 2021 High Court judgment for East Coast Tarakihi

20. In December 2019, Forest and Bird New Zealand filed proceedings seeking judicial review of the then Minister of Fisheries 2019 decision on catch limit settings for East Coast tarakihi. Their arguments included that the catch limit reductions were not sufficient to allow the stock to rebuild in a "period appropriate to the stock."

21. The judgment[3] was received on 16 June 2021, with the following key findings:

- **first cause of action: period appropriate to the stock** – the Minister erred by not making an assessment of the period appropriate for rebuilding a stock, as required by s 13(2)(b)(ii), before applying social, cultural and economic factors to determine the way and rate of rebuild;
- **second cause of action: probability of achievement** – the Minister was required to identify a probability level at the time of setting the TAC. Her Honour found (by a fine margin) that a probability level of 50 percent was adequately identified in the 2019 decision;
- **third cause of action: failure to consider Harvest Strategy Standard (HSS) guidance –** the Harvest Strategy Standard and associated Operational Guidelines advice on probability for achieving a rebuild is a mandatory relevant consideration, which the Minister failed to have regard to; and
- **fourth cause of action: irrelevant consideration –** the Minister erred by taking into account an Industry Rebuild Plan in setting the TAC, and that, as inferred by her Honour, the Minister had regard to the plan in determining the period appropriate to the stock, as well as the way and rate of rebuild. Doing so had the effect of applying social, cultural and economic factors to the Minister's determination of the period appropriate to the stock. Steps taken by the industry which have the effect of speeding up a rebuild can be considered when determining the way and rate (refer s

[3] *Royal Forest and Bird Protection Society of New Zealand Incorporated v Minister of Fisheries [2021] NZHC 1427 [16 June 2021]*

13(2)(b)(i)), but not when determining the period approach to the stock.

22. Along with East Coast tarakihi, this decision has wider implications for what matters you must, and must not, consider when deciding to set or vary a stock's TAC. More specifically the judgment has provided direction on the application of s 13(2)(b) which pertains to any stock whose current level is below that which can produce Maximum Sustainable Yield.[4]

    The implications of this judgment for your decisions on East Coast tarakihi have been outlined within FNZ's separate 2022 advice document to you on East Coast tarakihi. Outside of East Coast tarakihi, the western sub-stock of hoki (HOK 1) is the only stock in this round which has been assessed as being at a level below that which can produce Maximum Sustainable Yield. FNZ has ensured that our advice and recommendations to you on HOK 1 are also consistent with the Court's judgment and causes of actions as outline above.

2.5.2 Allocation decisions under section 21

23. Relevant judicial findings provide useful guidance in terms of your allocation decisions under section 21 of the Act.

24. In a case relating to Kahawai the Supreme Court said that the wording of the Act sets out a particular order of decisions – after allowing for Māori customary non-commercial fishing interest, recreational fishing interests, and all other sources of fishing-related mortality, the remainder constitutes the TACC.[5] On their ordinary meaning the words "allow for" require you both to take into account those interests, and to make provision for them in the calculation of the total allowable commercial catch.[6] That does not, however, mandate any particular outcome.[7]

25. Importantly, the Act does not confer priority for any interest over the other[8] and does not limit the relative weight which you may give to the interests of competing sectors.[9] It leaves that judgement to you.

26. The Courts have also provided guidance as to the nature of the allowances to be provided. Where there are competing demands exceeding an available resource it could perhaps be said you can "allow for" use by dispensing a lesser allotment than complete satisfaction, creating not a full priority but some degree of shared pain.[10] The requirement to "allow for" the recreational interest can be construed as meaning to "allow for in whole or part".[11] The Supreme Court stated that the Act envisages that the allowance for recreational interest, as well as Māori customary fishing interests and the TACC, will be a reasonable one in all the circumstances.[12]

27. Section 21 is concerned with allocation of a limited resource and that what is allowed for non-commercial fishing interests will impact on the total allowable commercial catch.[13] The consideration of the wellbeing factor (as expressed in section 8 of the Act) requires a balance of competing interests, especially in the case of a shared fishery.[14]

[4] Refer to section 3.1 for an explanation of Maximum Sustainable Yield.
[5] *New Zealand Recreational Fishing Council Inc v Sanford Limited and Ors* (Supreme Court, SC 40/2008, 29 May 2009), para 53.
[6] *Ibid*, para 55.
[7] *Sanford Limited and Ors v New Zealand Recreational Fishing Council Inc and Anor* (Court of Appeal, CA 163/07, 11 June 2008), para 57.
[8] *New Zealand Recreational Fishing Council Inc v Sanford Limited and Ors* (Supreme Court, SC 40/2008, 29 May 2009), para 65.
[9] *Sanford Limited and Ors v New Zealand Recreational Fishing Council Inc and Anor* (Court of Appeal, CA 163/07, 11 June 2008), para 61.
[10] *Roach v Minister of Fisheries* (HC, Wellington CP715/91, 12/10/92, McGechan J). p 16
[11] *New Zealand Federation of Commercial Fishermen (Inc) & Ors v Minister of Fisheries & Ors* (HC, Wellington CP237/95, 24/4/97), p 150.
[12] *New Zealand Recreational Fishing Council Inc v Sanford Limited and Ors* (Supreme Court, SC 40/2008, 29 May 2009), para 65.
[13] Ibid, para 53
[14] *Sanford Limited and Ors v New Zealand Recreational Fishing Council Inc and Anor* (Court of Appeal, CA 163/07, 11 June 2008), para 61.

28. In terms of recreational interests, the Supreme Court stated that "Although what the Minister allows for, is an estimate of what recreational interests will catch, it is an estimate of a catch which the Minister is able to control. The Minister is, for example, able to impose bag and fish length limits. The allowance accordingly represents what the Minister considers recreational interests should be able to catch but also all that they will be able to catch. The Act envisages that the relevant powers will be exercised as necessary to achieve that goal".[15]

29. No implied obligation to attain proportionality between commercial and recreational catch arises from the legislation. The imprecise [estimation] of the recreational catch precludes strict proportionality.[16] Further, in the Snapper 1 case the Court of Appeal said:

> *"We can see no reason why either as his primary purpose or as a consequence of some other purpose the Minister should not be able to vary the ratio between commercial and recreational interests."*[17]

> *"If over time a greater recreational demand arises it would be strange if the Minister was precluded by some proportional rule from giving some extra allowance to cover it, subject always to his obligation to carefully weigh all the competing demands on the TAC before deciding how much should be allocated to each interest group."*[18]

30. The High Court earlier said in that case:

> *"It is not outside or against the purposes of the Act to allow a preference to non-commercials to the disadvantage in fact of commercials and their valued ITQ rights, even to the extent of the industry's worst case of a decision designed solely to give recreationalists greater satisfaction. Both are within the Act."*[19]

31. The Courts have also emphasised the importance of decisions undertaken for sustainability purposes not being undermined by increased fishing by one or other of the fishing sectors. In the Snapper 1 case the High Court said:

> *"When Parliament empowered the Minister to reduce the TACC for conservation purposes—not to improve recreational catch rate—it expected the Minister to take any concurrent steps necessary to minimise sabotage by recreational fishing. . . The significant point is that both law and common sense dictate that a Minister should not reduce the TACC for conservation reasons unless able to take, and taking, reasonable steps to avoid the reduction being rendered futile through increased recreational fishing."*[20]

32. While this statement relates to reduction of the TACC, the principle equally applies in situations where measures are enacted to rebuild a fishery. Litigation relating to management decisions for kahawai involved this very issue, where the failure to agree to a reduction in the daily bag limit was found to be unlawful.[21]

33. In respect of quota granted to iwi under the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 and the Māori Fisheries Act 1989, in the Snapper 1 case the Court of Appeal said:

> *"Under the settlement Māori became holders of quota along with all other holders. Their rights were in our view no more and no less than those of non-Māori quota holders."*[22]

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[15] *New Zealand Recreational Fishing Council Inc v Sanford Limited and Ors* (Supreme Court, SC 40/2008, 29 May 2009), para 56.
[16] *New Zealand Federation of Commercial Fishermen (Inc) & Ors v Minister of Fisheries & Ors* (HC, Wellington CP237/95, 24/4/97, McGechan J) p 18
[17] *New Zealand Fishing Industry Association (Inc) and Ors v Minister of Fisheries and Ors* (Court of Appeal, CA82/97, 22/7/97) at p 17-18
[18] Ibid, p 18.
[19] *New Zealand Federation of Commercial Fishermen (Inc) & Ors v Minister of Fisheries & Ors* (HC, Wellington CP237/95, 24/4/97, McGechan J) at p 89.
[20] *New Zealand Federation of Commercial Fishermen (Inc) & Ors v Minister of Fisheries & Ors* (HC, Wellington CP237/95, 24/4/97, McGechan J) p 102.
[21] *New Zealand Recreational Fishing Council Inc & Anor v Minister of Fisheries* (HC, Auckland CIV 2005-404-4495, 21 March 2007, Harrison J). at paras 110-126.
[22] *New Zealand Fishing Industry Association (Inc) and Ors v Minister of Fisheries and Ors* (Court of Appeal, CA82/97, 22/7/97) at p 20.

"Under s5 of the 1996 Act the Minister in making future decisions is obliged to act in a manner consistent with the Settlement Act. The idea that the settlement is any the less just, honourable and durable should Māori quota be reduced, is unpersuasive. An asset which Māori obtained under the settlement had within it the capacity for diminution. If that capacity is lawfully realised, there cannot be any complaint on the basis that the settlement has been broken or have not proved durable. Something which was liable to happen under the settlement has happened. A reduction in TACC, which is otherwise lawful, cannot be viewed as a decision by the Minister inconsistent with the Settlement Act."[23]

34. While the Court of Appeal was dealing with a TAC/TACC reduction for sustainability purposes, the same principle would apply in terms of an adjustment of the ratio of the TAC allocated to commercial and non-commercial fishing interests.

3 Relevant Standards, Guidelines and Strategies

3.1 Maximum Sustainable Yield

35. As noted above in Table 4, section 13 of the Act requires you to set a stock's TAC at a level that maintains the stock at or above a level that can produce the Maximum Sustainable Yield (*MSY*).

36. The *MSY* of a stock is the largest long-term average catch or yield that can be taken without impairing the stock's renewability through natural growth and reproduction (under prevailing ecological and environmental conditions). There are a number of factors that contribute to the determination of a stock's *MSY*, including how fast the species grows, when and how they reproduce, and the pattern of harvesting in the fishery. Typically, *MSY* for a fish stock is also variable over time, because of changes in productivity and environmental factors.

37. In general, scientific working groups will estimate *MSY*-compatible reference points for stocks based on best available information, and management working groups will set fishery or stock targets that consider these estimates as an input.

38. In the context of this review there are a number of stocks for which *MSY* is not able to be estimated due to a lack of available scientific information. In addition to their interdependence, biological characteristics, and environmental conditions, proposals for changes in catch limits have been based on best available information (which is often an assessment of trends in catch) and are considered to be not inconsistent with the objective of maintaining the stock at or above levels that can produce *MSY* as provided for by s 13(2A) of the Act.

3.2 Overview of the Harvest Strategy Standard

39. The Harvest Strategy Standard (HSS) is a policy statement of best practice in relation to the setting of fishery and stock targets and limits for fish stocks in New Zealand's Quota Management System (QMS). It is intended to provide guidance as to how fisheries law will be applied in practice, by establishing a consistent and transparent framework for decision-making to achieve the objective of providing for utilisation of New Zealand's QMS species while ensuring sustainability.

40. It is important to note that a minimum requirement for satisfying the HSS is that fishery or stock targets will be set at the level of *MSY*-compatible reference points (however, they may also exceed this minimum requirement).

41. The HSS outlines FNZ's approach to relevant sections of the Act and, as such, forms a core input to FNZ's advice to you on the management of fisheries, particularly the setting of TACs under section 13.

[23] *Ibid*, at p 21.

42. The High Court has held that the HSS is a mandatory relevant consideration that you must have regard to when setting a TAC under section 13 of the Act. In addition, the Court concluded that the HSS is the "best available information" in terms of section 10(a) of the Act in relation to acceptable probability levels for rebuilding stocks (as well as for other matters relevant to the interpretation of s 13).

43. The HSS assists us to decide when a review of sustainability and related settings for a stock may be warranted, by establishing reference points and guidance for the fisheries management responses when stocks are at those reference points. The HSS establishes default targets and limits as a minimum standard (Table 5):

Table 5: Guidelines on default targets as set out in the Harvest Strategy Standard.

Reference point	Default	Management response
Management target	*Differs depending on productivity of the stock* 40% unfished biomass (B_0) is the default target for low productivity stocks	Stock permitted to fluctuate around this management target. TAC/TACC changes will be employed to keep the stock around the target (with at least a 50% probability of being at the target).
Soft limit	½ B_{MSY}[24] or 20% B_0, whichever is higher	A formal time constrained rebuilding plan will be implemented if this limit is reached.
Hard limit	¼ B_{MSY} or 10% B_0, whichever is higher	The limit below which fisheries will be considered for closure.
Rebuild strategy		Stocks that have fallen below the soft limit should be rebuilt back to at least the target level in a time frame between T_{min} and 2 * T_{min} with an acceptable probability. Stocks will be considered to have been fully rebuilt when it can be demonstrated that there is at least 70% probability that the target has been achieved and there is at least 50% probability that the stock is above the soft limit[25]. T_{min} is the number of years to rebuild a stock to the target, in the absence of fishing.

44. FNZ is in the process of reviewing the HSS, which will also consider any relevant findings of the Court of Appeal judgment on East Coast Tarakihi when it is delivered.

3.3 Deemed Value Guidelines

45. Within various chapters of this decision document, you are asked to make decisions in relation to setting deemed values for fish stocks. Where relevant, we have provided our advice on settings in line with your requirements for setting deemed values under section 75 of the Act, and in line with our Deemed Value Guidelines (2020) which set out the operational policy, including a set of principles to be applied when setting deemed value rates.[26] Notably, these guidelines serve only as a guide and do not preclude you from taking into account relevant information on a case-by-case basis.

46. We have provided further information on our Deemed Value Guidelines, in addition to legal context around deemed value settings, within the first chapter following this introduction.

[24] B_{MSY} is the biomass that enables a fish stock to deliver the maximum sustainable yield.

[25] A stock that has a probability of 70% of having achieved the target must have more than a 50% probability of being above the soft limit. Fisheries New Zealand notes this was an error and that the 50% should have been a higher number, such as 80% or 90%.

[26] The Deemed Value Guidelines are a statement of how MPI will use the criteria in the statute to develop its advice to you on deemed value rates. The Guidelines are not in themselves binding.

3.4 Relevant Strategies and Plans

47. There are many strategies and plans which are relevant to setting sustainability measures for fish stocks. Strategies and plans relevant to this round include:
    - Iwi Fisheries Forum Plans
    - National Fisheries Plan for Deepwater and Middle-depths Fisheries (2019)
    - National Fisheries Plan for Highly Migratory Species (2019)
    - Draft National Inshore Finfish Fisheries Plan[27]
    - Regional plans (local environmental and coastal plans)
    - National Blue Cod Strategy (2019)
    - National Plan of Action for Seabirds – NPOA Seabirds (2020)
    - National Plan of Action for sharks – NPOA sharks (2013)
    - Hector's and Māui dolphins Threat Management Plan (TMP)
    - Kaikōura Marine Strategy (2014).

48. In our advice to you on different fish stocks we have highlighted which strategies and plans are important to consider for those stocks and their proposed sustainability measures.

49. Te Mana o te Taiao (the Aotearoa New Zealand Biodiversity Strategy) is also broadly relevant to the proposed changes for all stocks in this round.[28] Te Mana o te Taiao sets a strategic direction for the protection, restoration and sustainable use of biodiversity, particularly indigenous biodiversity in New Zealand. The strategy sets a number of objectives and goals across three timeframes. The most relevant to setting sustainability measures for fish stocks are Objectives 10 and 12:

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

    Relevant goals within Objective 10 include:
    - **10.1.1** Prioritised research is improving baseline information and knowledge of species and ecosystems.
    - **10.4.1** Significant progress has been made in identifying, mapping and protecting coastal ecosystems and identifying and mapping marine ecosystems of high biodiversity value
    - **10.5.1** A framework has been established to promote ecosystem-based management, protect and enhance the health of marine and coastal ecosystems, and manage them within clear environmental limits.
    - **10.6.1** A protection standard for coastal and marine ecosystems established and implementation underway.

    Objective 12: Natural resources are managed sustainably.

    Relevant goals within Objective 12 include:
    - **12.1.1** Environmental limits for the sustainable use of resources from marine ecosystems have been agreed on and are being implemented.
    - **12.1.2** Marine fisheries are being managed within sustainable limits using an ecosystem-based approach.
    - **12.1.3** Marine fisheries resources are abundant, resilient and managed sustainably to preserve ecosystem integrity.
    - **12.2.1** The number of fishing-related deaths of protected marine species is decreasing towards zero for all species.

[27] The Plan has not been approved yet and may still be subject to change. Therefore, under section 11(2A), you are not required to take it into account.

[28] Te Mana o te Taiao is not a mandatory consideration under section 11 of the Act. However, the strategy is intended to guide in maintaining biodiversity, consistent with the purpose of the Act and the environmental principle under section 9(b) that biological diversity of the aquatic environment should be maintained.

- **12.2.2** The direct effects of fishing do not threaten protected marine species populations or their recovery.
- **12.2.3** The mortality of non-target species from marine fisheries has been reduced to zero.

50. FNZ is working with the Department of Conservation and other agencies on implementation plans for the strategy. As part of those plans, we will identify areas of focus for FNZ in delivering Government biodiversity objectives including progression to a more integrated ecosystem-based approach to managing fisheries. In that context, this advice contains information on biodiversity impacts, ecosystem function and habitat protection associated with adjustments to catch limits, consistent with your legislative obligations and the intent of Te Mana o te Taiao.

4 Input and participation of tangata whenua

51. Section 10 of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (the Settlement Act) requires you to develop policies and programmes to give effect to the use and management practices of tangata whenua.

52. 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.

4.1 Input and participation in the October 2022 Sustainability Round

53. As noted above in Table 4, section 12 (1)(b) of the Fisheries Act requires that before undertaking any sustainability process you 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, you are required to have particular regard for Kaitiakitanga.

54. 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.

55. 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.[29]

56. For input and participation into this sustainability round, Iwi Fisheries Forums were invited to have input into the selection of stocks for review and to provide feedback on the various proposals to set or vary sustainability measures. The main pathway used by Forums to provide feedback on proposals was through scheduled hui attended by FNZ representatives.

57. Hui for some Forums were postponed or cancelled and were unable to be held within the sustainability round timeframe for seeking feedback. This resulted in limitations on participation for some Forums. Where this occurred, FNZ sought feedback on the proposals via email correspondence with representatives of the Forums.

58. The individual stock chapters in this decision document provide specific information about input and participation of tangata whenua and kaitiakitanga in relation to those stocks, including what feedback (if any) was provided by Forums on those proposals.

[29] However, FNZ also engages directly with Iwi (outside of Forums) on matters that affect their fisheries interests in their takiwa and consults with any affected Mandated Iwi Organisations and Iwi Governance Entities where needed.

5 Public consultation

5.1 East coast tarakihi

59. Public consultation on East Coast tarakihi was run separately to other stocks within this sustainability round. Consultation on East Coast tarakihi commenced on 7 June 2022 and closed on 12 July 2022.[30]

60. FNZ received a total of 25 submissions on East Coast tarakihi. A detailed breakdown of these submissions and an outline of the consultation process has been provided to you within our final advice document for East Coast tarakihi.

5.2 All other stocks

61. Public consultation on the 2022 October sustainability round commenced on 13 June 2022 and closed at 5.00 pm on 22 July 2022.[31]

62. A total of 58 submissions were received from the following interest groups.[32]
    - Commercial fishing - 11
    - Recreational fishing - 25
    - Conservation/Environmental - 1
    - Tangata whenua and iwi representatives – 17
    - Other (science related groups and/or unspecified interests) – 4.

63. The stock proposals which received the highest number of submissions were:
    - Blue cod (BCO 7) – 27
    - FMA 7 mixed trawl stocks (SNA 7, GUR 7 & SPO 7) – 24
    - Gemfish (SKI 3 & 7) – 24.

64. Many submissions and responses were received from stakeholders on behalf of large representative bodies and organisations:
    - Te Ohu Kaimoana, the Iwi Collective Partnership and a number of other iwi groups and tangata whenua responded in relation to Māori commercial and customary interests.
    - Several quota owner and commercial representative groups submitted, including Fisheries Inshore New Zealand Ltd (FINZ), Southern Inshore Fisheries (SIF), Deepwater Group Ltd (DWG) and Sealord Ltd.
    - Several large recreational representative groups submitted, including LegaSea, NZ Sport Fishing Council (NZSFC), NZ Recreational Fishing Council (NZRFC) and Fish Mainland.
    - The eNGO Environmental and Conservation Organisations of NZ (ECO) put in a submission on all stocks.

[30] FNZ continued to accept and consider all submissions received after the deadline until 5.00 pm on 15 July 2022. Extensions were also provided for submitters upon request and within reason.

[31] FNZ continued to accept and consider all submissions received after the deadline until 5.00 pm on 25 July 2022. Extensions were also provided for submitters upon request and within reason.

[32] Main interest group was derived by how submitters identified themselves, but some submitters may fit within multiple categories (for example, there are tangata whenua and iwi representatives who also represent commercial fishers and quota holders).

6 General themes

6.1 Ecosystem based fisheries management and habitats of particular significance for fisheries management

65. Submissions from across various interests' groups emphasised the need for ecosystem-based fisheries management (EBFM) to be clearly reflected in our approach to managing fisheries. FNZ understands this need and has tried to provide clear links between the reviews of interdependent stocks so that decisions on their management settings are better informed and take the wider ecosystem into account using information we have available.

66. Understanding the interaction between fisheries, habitats, and the wider environment complements the priorities within the Oceans and Fisheries portfolio and will support fisheries managers when developing management advice.

67. One of the recommendations of the Prime Minister's Chief Science Advisor's report titled *The Future of Commercial Fishing in Aotearoa New Zealand* (March 2021) was to create a framework for prioritisation and protection of habitats of particular significance for fisheries management[33] and a guidance document for their definition and identification.

68. FNZ is currently undertaking consultation on guidance for defining, identifying and managing habitats of particular significance for fisheries management (ends mid-November 2022) and for how FNZ takes into account that these habitats should be protected when preparing fisheries management advice. Our guidance and supporting information will be living documents, evolving alongside our growing understanding of species-habitat relationships and their sensitivity to impacts.

69. In relation to our advice to you on fish stocks within this sustainability round, we have provided relevant information on potential habitats of particular significance for fisheries management for each stock under review.

70. FNZ is not asking for your decisions in relation to protection or mitigation measures for any habitats of particular significance within this round. FNZ has provided more detail as to what is known about habitats of particular significance in the final advice for each stock so that this can be taken into consideration within your decisions on their management settings. In cases where habitats of significance to fisheries management are identified to be at risk, FNZ will initiate separate processes for mitigating and addressing those risks which may result in future decisions being warranted.

6.2 Observers and camera coverage on inshore vessels

71. Several submissions raised concerns around current levels of observer and camera coverage on inshore commercial vessels, noting that the absence of observers or cameras undermines the management and monitoring regime in place. Forest and Bird, ECO and LegaSea (and its associates) reiterated their support for wider camera coverage across the inshore commercial fishing fleet.

72. You recently announced key details of the nationwide rollout of cameras on commercial fishing vessels, which will include up to 300 inshore fishing vessels being fitted with cameras by the end of 2024, including:

    - Set net vessels (8 metres or larger), surface longline, and bottom longline vessels.

[33] Section 9(c) of the Fisheries Act 1996 requires that all persons exercising or performing functions, duties, or powers under the Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account that habitats of particular significance for fisheries management should be protected.

- Trawlers of 32 metres or less, except those targeting scampi, and danish and purse seine vessels.

73. The implications of this on-board camera rollout will vary among different fish stocks based on which areas and fishing methods have been prioritised, and when they are planned to be fitted with cameras. However, it is expected that overall the camera rollout will enhance FNZ's management and monitoring regime by providing better verified information to underpin our advice and to enable more confident management decisions for inshore fisheries in future.

6.3 Public concerns about the impacts of trawling fisheries

74. Recently there has been considerable attention from stakeholders and the public on the effects of trawling on our fisheries and benthic environment. Submissions on this sustainability round from Forest and Bird NZ, ECO, LegaSea and some individual submitters emphasised their concerns over the impacts of trawling in relation to some of the fish stocks under review.

75. FNZ notes that bottom trawling is closely monitored as part of our management regime. FNZ recognises the need to ensure the marine environment is adequately managed to mitigate fishing impacts, which includes ensuring that the effects of bottom trawling are managed to an acceptable level. FNZ has implemented, and will continue to implement, management controls that help to ensure any adverse effects from bottom trawling on the aquatic environment are avoided, remedied and mitigated.

76. Within the context of this sustainability review, in each individual stock chapter FNZ has outlined what is known about the impacts of bottom trawling and other fishing methods as it relates to the stock(s) under review. Where relevant, we have also responded to submitters' specific concerns about trawling and provided our analysis for you to consider.

6.4 Preferential allocation (section 28N) rights

77. 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. 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.[34]

78. Te Ohu Kaimoana and other Iwi representatives (Ngai Tahu, Te Arawa Fisheries, and the Iwi Collective Partnership) oppose the application of 28N rights, deeming them to be inconsistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 because they have the effect of reducing the proportion of settlement quota shares. As a consequence, these entities do not support TACC increases where there are 28N rights held until there is a wider resolution to this matter.

79. In situations where decisions have been made to increase a TACC to which 28N rights apply, Te Ohu Kaimoana, as a matter of principle, has stated that it is obliged to legally challenge the decision. Legal challenges have the effect of delaying the implementation of any TACC increase, thereby preventing increased utilisation of a stock.[35]

80. Of the stocks in this round, three have associated 28N rights – TAR 2 (tarakihi), BCO 7 (blue cod), and WAR 2 (blue warehou). More details of these rights can be found in the individual chapters for those stocks.

[34] This is done in accordance with formulas set out in Section 23 of the Act.

[35] There are currently proceedings before the Court concerning 28N rights for PAU 5B, SKI 2 and SNA 8.

81. FNZ notes that none of the proposals for the above stocks are for increases to the TACCs, which means their 28N rights would not be immediately triggered by proposed changes in this round. However, as Te Ohu Kaimoana have noted in their submission on these stocks, there are potential future implications in that 28N rights will be impacted if the stocks recover and then have their TACCs increased.[36]

82. Notwithstanding their automatic consequence for quota holders, the presence of 28N rights is not in itself a reason for not setting a TAC and TACC in accordance with (and as required by) the Act.

[36] Some Iwi representatives view this as 'loading the trigger' for 28N rights impacts, as all quota owners (including Iwi quota owners) face a reduction in ACE (annual catch entitlement) when a TACC is reduced. But when the fishery recovers, the legislation provides that 28N rights holders gain the first right to the increase.

Review of Deemed Value Rates for Selected Stocks for the October 2022/23 Fishing Year

1 The deemed values regime

83. The Quota Management System (QMS) is the backbone of New Zealand's fisheries management regime and includes a total of 642 fish stocks representing 98 species or species groups. Balancing catch against catching rights is key to ensuring the integrity of the QMS.

84. On the first day of each fishing year[37], all quota owners are allocated annual catch entitlement (ACE), based on their share of quota and the current TACC. ACE may be freely traded between fishers to balance against catch. Under the catch balancing regime, deemed values are charges that commercial fishers must pay for every unprocessed kilogram of QMS fish landed in excess of their ACE holdings ($/kg).

85. Section 75 of the Fisheries Act 1996 (the Act) requires you to set interim and annual deemed value rates for each stock within the QMS. Incentivising fishers to align their ACE with their total catch is the core purpose of the deemed values regime.

86. The deemed value regime consists of a set of rates that apply under different circumstances:
    - **Interim deemed value rates** are invoiced each month for every kilogram of unprocessed fish landed in excess of ACE. If the fisher subsequently sources ACE to cover their catch, the interim deemed value payments are remitted. The 2020 Deemed Value Guidelines (the Guidelines)[38], which FNZ uses when developing its advice to you, recommends that interim deemed value rates be set at 90% of the annual rate.
    - **Annual deemed value rates** are invoiced at the end of the fishing year on all catch in excess of ACE. If the fisher has not sourced ACE by the end of the fishing year, the difference between the interim and annual deemed value rates is invoiced for all catch in excess of ACE.
    - **Differential deemed value rates** (also known as ramping) are the progressively-increased annual deemed value rates that apply to some stocks as the percentage by which a fisher's catch in excess of ACE also increases. The standard approach, which is set out in the Deemed Value Guidelines, is to increase the annual rate in 20% increments, up to a maximum of 200% of the annual deemed value rate. However, more or less stringent schedules may be applied depending on the specific circumstances of the stock.[39] Differential rates provide fishers with a stronger incentive to remain within their ACE holding and reflect the increasingly detrimental impact of higher levels of over-catch on sustainability and the long-term value of the resource.

87. The effectiveness of the incentive to balance catch against ACE is dependent on individual fishers' compliance with landing and reporting requirements, their responses to the incentives provided, and the impact of other incentives such as those created by market conditions.

88. The operation of the deemed value framework is described within the supplemental information, provided at the end of this chapter.

[37] Depending on the stock, fishing years commence 1 October, 1 April, and 1 February
[38] The Guidelines are available at https://www.mpi.govt.nz/dmsdocument/40250-Deemed-value-guidelines
[39] For vulnerable or rebuilding stocks, or those taken with a high degree of selectivity, a more stringent differential schedule may be appropriate. Likewise, less stringent differential schedules may be more appropriate for low value, low TACC stocks where targeted fishing does not occur.

2 Legal context

89. Section 75(1) of the Act requires you to set interim and annual deemed value rates for all stocks managed under the QMS.

90. When setting deemed value rates, section 75(2)(a) requires you to take into account the need to provide an incentive for every commercial fisher to acquire or maintain sufficient ACE that is not less than the fisher's total catch of each stock taken.

91. Each of the stock-specific sections within this paper set out how FNZ's recommendations are consistent with your mandatory statutory consideration under section 75(2)(a). This approach is also taken in subsequent individual stock chapters where changes to deemed value rates are recommended.

92. Section 75(2)(b) allows you, when setting deemed value rates, to have regard to:
    - The desirability of commercial fishers landing catch for which they do not have ACE;
    - The market value of the stock's ACE;[40]
    - The market value of the stock;[41]
    - The economic benefits obtained by the most efficient fisher, licensed fish receiver, retailer or any other person from the taking, processing or sale of the fish or any other fish commonly taken in association with the fish;
    - The extent to which the catch of that stock has exceeded or is likely to exceed the TACC for the stock in any year; and
    - Any other matters you consider relevant.

93. Section 75(3) requires you to set an annual deemed value rate for each stock that is greater than the interim deemed value rate set for that stock. All interim deemed value rates are currently set at 90% of the lowest annual deemed value rate.

94. Section 75(4) allows you to set different annual deemed value rates in respect of the same stock which apply to different levels of catch in excess of annual catch entitlement.

95. Further, under section 75(6), when setting either interim or annual deemed value rates, you must not:
    - Have regard to the personal circumstances of any individual or class of person liable to pay the deemed value of any fish, aquatic life, or seaweed; or
    - Set separate deemed value rates in individual cases.

96. Before setting any interim or annual deemed value rate, section 75A of the Act requires you to consult, if practicable, persons or organisations that you consider represent classes of persons who have an interest in the stocks concerned, including Māori, recreational, commercial, and environmental interests.

97. Section 5 of the Act also requires all decision makers to exercise powers consistent with the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (Settlement Act). Section 10 of the Settlement Act requires the Minister to consult with tangata whenua about and develop policies to help recognise use and management practices of Māori in the exercise of non-commercial fishing rights.

[40] As a measure of the market value of a stock's ACE, FNZ uses an annual ACE price value that is calculated by FishServe using information supplied as part of registering ACE transfers.
[41] As a measure of a stock's market value, FNZ uses port prices. These are calculated annually via a survey that collects information on the average price paid by licenced fish receivers to independent fishers from whom they receive fish.

3 Setting deemed value rates

98. All options for deemed value rate adjustments recommended within this paper were informed by the statutory criteria and the Guidelines. The Guidelines are an operational policy statement used by FNZ to guide the development of advice to you on the setting of deemed value rates[42].

99. The 2020 iteration of the Guidelines were developed by the Deemed Values Working Group in 2019 and supersede the previous (2012) version.

4 Identifying stocks for deemed value rate review

100. Stocks for deemed value rate review were identified primarily through the Catch Balancing Review Process, which was developed during 2019 by the Deemed Values Working Group.

101. The purpose of the Catch Balancing Review Process is to identify those stocks where catch balancing issues are of concern and provide options for management responses. The appropriate management actions are determined based on the potential causes of over-catch (if relevant), economic changes in the fishery and stock-specific considerations.

102. The Commercial Catch Balancing Forum, comprising industry representatives, Te Ohu Kaimoana and FNZ officials, met in December 2021 as part of the Review Process. The Forum discussed the stocks that had been identified as having catch balancing issues and provided information and input into decision making on what the appropriate management response may be.

103. Five stocks were identified for deemed value rate review for the fishing year starting 1 October 2022. The stocks prioritised for review and the accompanying rationale are provided in Table 1.

104. Table 2 sets out supporting information that informed the development of recommendations for the prioritised stocks.

Table 1: Rationale for stocks prioritised for review.

Species	Stock	Rationale for review
Kingfish	KIN 3	- The ongoing increase in abundance of kingfish in South Island waters means the current deemed value rates may not create appropriate incentives to land catch.
	KIN 7	- Existing deemed value rates well above port price and may not create appropriate incentives to land catch.
	KIN 8	
Snapper	SNA 2	- No sustainability concerns with this stock. - Align deemed value rates with those of the adjacent SNA 8 stock.
Trevally	TRE 1	- Port price has more than doubled in the last five years. - Deemed value rates have remained unchanged in that time.

[42] The Guidelines were reviewed by MPI Legal for consistency with section 75.

Table 2: Supporting information for stocks prioritised for review.

Stock	2020/21 TACC (t)	% ACE caught 2020/21[43]	Average ACE price $/kg[44]	Interim DV $/kg	Annual DV $/kg	2022/23 Port Price $/kg[45]
KIN 3	11	128%	$3.28	4.00	4.45	5.68
KIN 7	44	62%[46]	$3.90	4.00	4.45	1.73
KIN 8	80	123%	$9.37	4.00	4.45	2.20
SNA 2	315	101%	$3.97	5.40	6.00	5.37
TRE 1	1,507	100%	$0.54	1.13	1.25	1.58

105. The review of the management settings for the other 20 stocks in the October 2022 sustainability round provided the opportunity for a review of the deemed value rates applicable to those stocks. Feedback from tangata whenua and stakeholders on the deemed value rates of those stocks, and FNZ's final advice can be found in the relevant stock chapters.

5 Treaty of Waitangi Obligations

5.1 Input and participation of tangata whenua

106. Consultation with Māori is required under section 75A of the 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. The same Forums are also used for input into deemed values decision making.

107. Information on the stocks FNZ had initially identified for deemed value rate review was made available for Iwi Fisheries Forum hui that were held between April and July 2022. The information consisted of a one-page summary outlining the proposals. For forums that didn't hold hui within that timeframe, material was provided to forum members via email.

108. No specific feedback was received on the deemed value proposals from any of the hui or from forum members to whom material was emailed.

6 Consultation

109. FNZ sought feedback on the proposed deemed value rate adjustments during the formal consultation process between 14 June and 22 July 2022.

110. Five submissions were received relating to the proposed deemed value rate adjustments. These were from:

- Fisheries Inshore New Zealand
- New Zealand Sport Fishing Council Ltd, Legasea, New Zealand Angling & Casting Association, New Zealand Underwater Association (joint recreational submitters)
- Nino Basile
- Southern Inshore Fisheries Management Co. Ltd[47]

[43] 2020/21 landings are compared to available ACE, rather than the TACC. Available ACE exceeds the TACC for most stocks as the Fisheries Act 1996 provides for up to 10% of ACE to be carried forward to the next fishing year.

[44] Average price paid per kg of ACE transferred (exc. GST) during the 2020/21 fishing year (as reported by FishServe). Excludes transfers considered unrepresentative of true ACE price.

[45] This is the port price calculated during 2021/22 for use during the 2022/23 financial year

[46] In its submission, the Southern Inshore Fisheries Management Co. Ltd commented that they considered the relatively low level of KIN 7 catch in 2020/21 was caused by a delay in vessels moving from the West Coast South Island hoki fishery to the jack mackerel fishery in the South Taranaki Bight area. It was not related to abundance of the stock.

[47] Southern Inshore Fisheries Management Co. Ltd's response on deemed value rates for kingfish stocks was supported by Deepwater Group Ltd.

- Te Ohu Kaimoana[48]

111. Submitters' and respondents' comments on the proposed deemed value rate settings for specific stocks are addressed in the analysis of each species or stock. Comments on the deemed values regime itself, or feedback that was applicable across all stocks is summarised below.

6.1 Submissions on the deemed values regime, or applicable across all stocks

6.1.1 Deemed value rates should constrain fishing to the level of the TACC

112. The joint recreational submission considers that the deemed values regime is a failure as it has consistently failed to constrain commercial catch of many stocks to the TACC.

FNZ's response

113. The joint recreational submitter's suggestion is inconsistent with the purpose of the deemed values regime, which is to provide an incentive for every commercial fisher to acquire or maintain sufficient ACE that is not less than the fisher's total catch of each stock taken. It is not to constrain fishing so that commercial catches do not exceed the TACC.

6.1.2 Development of regional deemed values

114. In its submission, the Southern Inshore Fisheries Management Co. Ltd (Southern Inshore) proposes working with FNZ to review the deemed values regime and include the development of a schedule of regional deemed values.

FNZ's response

115. Southern Inshore is a member of the Commercial Catch Balancing Forum. Discussions on reviewing broader aspects of the deemed values framework is something that could be considered by the Forum. The next meeting is planned for the end of 2022.

6.1.3 Operation of ACE market

116. Southern Inshore also comments that obtaining ACE can be problematic when companies choose not to make it available to fishers who require ACE. They also consider that philosophically, no deemed values should be paid when a TACC has not been exceeded.

FNZ's response

117. FNZ does not have a role in operation of the ACE market. Additionally, the Fisheries Act 1996 does not provide for any deemed values invoice to be withdrawn if a TACC has not been exceeded.

6.1.4 Role of FNZ

118. Nino Basile considers that FNZ's role is not to use deemed values as an income stream for the consolidated fund but to set the TACC correctly for quota holders.

FNZ's response

119. FNZ reiterates that the purpose of the deemed values regime is to provide an incentive for every commercial fisher to acquire or maintain sufficient ACE that is not less than the fisher's total catch of each stock taken.

6.1.5 Deemed values invoiced vs deemed values paid

120. The joint recreational submitters asked a question regarding the proportion of deemed values invoiced that are actually paid. They are concerned that a significant portion of deemed value

[48] Te Ohu Kaimoana's response on deemed value rates was supported by Ngā Hapū o Ngāti Porou Management Trusts and their overall response to the sustainability round was endorsed by Maruehi Fisheries Ltd, Ngaruahine Fisheries Ltd, Raukawa Asset Holding Co Ltd, Tama Asset Holding Co Ltd, Taranaki Iwi Fisheries Ltd, Te Atiawa (Taranaki) Holdings Ltd, Te Paataka o Tangaroa Ltd and Whanganui Iwi Fisheries Ltd.

invoices are not being paid, adding weight to their claim that the deemed values regime is a failure.

FNZ's response

121. The information available indicates that since 2001/02, approximately 0.3% of the total of deemed values invoiced over that period remains outstanding. This figure does not include a sum of just under $900,000 that was imposed as part of a court order and remains outstanding.

7 Deemed value rate adjustments

122. As noted under the legal context section of this chapter, section 75(2)(b) of the Act lists the matters that you may have regard to when setting interim or annual deemed value rates. FNZ refers to these as 'permissible statutory considerations' in this advice paper and in the individual stock chapters.

123. While each of the permissible statutory considerations in section 75(2)(b) are considered by FNZ, not each is viewed as being directly relevant to the recommendations provided for specific stocks. Rather than providing a stock-specific analysis of the relevance of each permissible statutory consideration, a summary is provided in Table 3. This indicates which consideration FNZ considers to be directly relevant to the recommendations provided. Each of the stock-specific sections below sets out why the specific permissible statutory consideration(s) is/are considered relevant.

124. This approach is also taken in subsequent individual stock chapters where changes to deemed value rates are recommended.

Table 3: Summary of permissible statutory considerations FNZ considers to be directly relevant to stock-specific recommendations.

Permissible statutory consideration	KIN 3	KIN 7	KIN 8	SNA 2	TRE 7
Desirability of commercial fishers landing catch for which they do not have ACE (75(2)(b)(i))	✓	✓	✓	-	-
Market value of the ACE for the stock (75(2)(b)(ii))	-	-	-	-	-
Market value of the stock (75(2)(b)(iii))	-	✓	✓	-	✓
The economic benefits obtained by the most efficient fisher, licensed fish receiver, retailer or any other person from the taking, processing or sale of the fish or any other fish commonly taken in association with the fish	-	-	-	-	-
Extent to which catch of that stock has exceeded or is likely to exceed TACC for that stock in any year 75(2)(b)(v)	-	-	-	✓	-
Any other matters you consider relevant 75(2)(b)(vi)	-	-	-	✓	-

7.1 Kingfish / haku (KIN 3) – East and South Coasts South Island

7.1.1 Stock information

125. Most kingfish (*Seriola lalandi*) in KIN 3 is taken by set net vessels targeting species such as school shark and rig. Although kingfish stocks are listed on Schedule 6 of the Act[49], these provisions exclude set net fishers. In the last two completed fishing years the quantity taken as non-target catch by inshore trawl and Danish seine vessels has also increased.

126. The TACC for KIN 3 was increased from 6 to 11 tonnes for the 2020/21 fishing year in recognition of kingfish becoming more common around the South Island in recent years. In the 2020 Decision Document, FNZ noted that catch had increased over the last decade despite effort by the coast set net fleet decreasing over the same time period. Additionally, no noticeable changes in areas fished or operational practices had been identified that may have contributed to the increase in catch.

[49] Schedule 6 sets out stocks that may be returned to the sea and other waters in accordance with stated requirements

7.1.2 Consultation

127. The deemed value rates for KIN 3 were last reviewed in 2019, when the basic annual rate was decreased from $8.90/kg to $4.45/kg, (the standard differential schedule continued to apply).

128. To create appropriate incentives for fishers to land all kingfish that is taken, FNZ proposed that the deemed value rates for this stock be decreased, with the basic annual deemed value rate decreasing by $1.15/kg from $4.45/kg to $3.30/kg. FNZ also proposed replacing the standard differential schedule with a single differential rate that would apply to catch more than 150% of ACE holdings.

129. Four submissions were received directly commenting on the proposed deemed value rates for KIN 3.

130. The proposal is supported by Southern Inshore and Fisheries Inshore New Zealand. Southern Inshore considers that there are no sustainability concerns for this stock and proposes a further review of the TACC for KIN 3. They note the ongoing range expansion of kingfish and the bycatch issues this is causing for trawl and setnet fishers.

131. Te Ohu Kaimoana also supports the proposal. They concur with FNZ's view that differential deemed value rates are less appropriate for stocks where there are no sustainability concerns and where target fishing does not occur. They also consider that a TACC review for this stock is appropriate.

132. The joint recreational submitters oppose the proposal. They consider the fundamental drivers of dumping, discarding and overcatch must be addressed. They view the proposal for all three kingfish stocks as reducing compliance costs at the expense of the resource and to the detriment of recreational, Māori customary and environmental interests.

7.1.3 Analysis of submissions

133. FNZ concurs with many of the points raised by Southern Inshore and Te Ohu Kaimoana but notes that no decisions have been made regarding a future review of the TAC/TACC for this stock (or any kingfish stock).

134. FNZ notes the joint recreational submitters' wider concerns that the deemed value regime is not working. As noted earlier in this paper, however, the purpose of the deemed values regime is not to constrain fishing so that commercial catches do not exceed the TACC. Rationale for the recommended decrease to the deemed value rates for KIN 3 is to create appropriate incentives for fishers to land all kingfish that is taken and cannot be returned to the sea. It addresses the joint recreational submitters' concerns regarding discarding.

135. FNZ also considers that the recommended deemed value rates for KIN 3 will continue to provide incentives for fishers to release live kingfish wherever possible. The ongoing range expansion means, however, that catch will likely continue to be in excess of available ACE until the current TACC is reviewed.

7.1.4 Recommendation

136. FNZ recommends you decrease the annual deemed value rate for KIN 3 by $1.15, from $4.45/kg to $3.30/kg. Additionally, FNZ recommends that you replace the standard differential schedule with a single differential rate that would apply to catch more than 150% of ACE holdings.

137. Although the recommendation is to decrease deemed value rates, the existing incentive for fishers to balance their catch with ACE would be retained. The recommended deemed value rates are such that there remains no incentive for fishers to take kingfish in KIN 3 in excess of ACE holdings. This is consistent with your mandatory consideration under section 75(2)(a) of the Act.

138. The changes are recommended as they would increase incentives for fishers to accurately report catch. As noted above, the ability to return live kingfish to the sea does not apply to set

net fishers. Currently, most kingfish in KIN 3 is taken by set netting. The inability to return live kingfish (set net fishers only), combined with what remains a relatively high basic annual deemed value rate of $4.45/kg, may not create appropriate incentives for fishers to land all kingfish that is taken. Additionally, the low TACC means that differential deemed value rates can apply to relatively low volumes of catch, which may further reduce the incentives to land kingfish.

139. FNZ considers that recognising fishers may land catch for which they are unable to acquire ACE is something that you may have regard to under section 75(2)(b)(i) (desirability of fishers landing catch for which they do not have ACE).

140. In increasing the incentive to report catch of this non-target stock, for which abundance is increasing, FNZ acknowledges that some fishers may land catch for which they are unable to acquire ACE. FNZ considers that while this is not desirable, increasing incentives to report catch is a pragmatic management measure for this stock.

141. The recommended deemed value rates for KIN 3 are shown in Table 4.

Table 4: Current and recommended deemed value rates ($/kg) for KIN 3.

Stock	Option	Interim	Annual 100-120%	Differential rates ($/kg) for excess catch (% of ACE)				
				120-140%	140-160%	160-180%	180-200%	>200%
KIN 3	Current	4.00	4.45	5.34	6.23	7.12	8.01	8.90
	Recommended		**Annual 100-150%**	**>150%**				
		3.04	3.30	4.00				

7.2 Kingfish / haku (KIN 7 and KIN 8) – West Coast North and South Islands, top of the South Island

7.2.1 Stock information

142. In KIN 7 the majority of kingfish is taken as non-target catch by deepwater trawl vessels targeting species such as jack mackerel and barracouta. In KIN 8, the deepwater trawl fleet has taken around half the catch during the last five years (primarily targeting jack mackerel) with the remainder taken by the inshore fleet (primarily trawl vessels targeting trevally).

143. The TACCs for KIN 7 and KIN 8 were increased from 15 and 45 tonnes respectively, to 44 and 80 tonnes respectively, for the 2020/21 fishing year. TACCs were reviewed in response to research indicating that biomass had increased considerably since a low point in 2005/06 and has remained relatively stable since 2015/16.

144. Catch has exceeded available ACE for KIN 7 for 9 of the last 11 completed fishing years. For KIN 8, catch has exceeded available ACE for all of the last 11 completed fishing years.

7.2.2 Consultation

145. Kingfish stocks were introduced into the QMS in 2003 with a basic annual deemed value rate of $8.90/kg for all stocks. While the basic annual deemed value rate for KIN 7 and KIN 8 was lowered to $4.45/kg (in 2020 for KIN 7 and in 2021 for KIN 8), this rate remains well above the current port price for both stocks ($1.73/kg for KIN 7 and $2.20 for KIN 8). This means that for fishers who take the majority of the catch of kingfish in KIN 7 and KIN 8, any kingfish they are unable to balance with ACE incurs financial costs.

146. FNZ proposed that the deemed value rates for KIN 7 and KIN 8 be decreased by $1.15/kg from $4.45/kg to $3.30/kg. FNZ also proposed replacing the standard differential deemed value rate schedule with a special differential rate schedule; a rate of $4.00/kg would apply to catch more than 150% of ACE holdings but less than 200%, and a rate of $5.00/kg would apply to all catch more than 200% of ACE holdings.

147. Four submissions were received directly commenting on the deemed value rates of KIN 7 and KIN 8.

148. Southern Inshore agrees that the deemed value rates for KIN 7 need to be decreased. They also support a further review of the TACCs for KIN 7 and KIN 8. Fisheries Inshore New Zealand endorse the Southern Inshore submission on KIN 7.

149. Fisheries Inshore New Zealand supports the proposal to decrease the deemed value rates for KIN 8 and notes that Southern Inshore holds the KIN 7 mandate. Their view is that the proposal will reduce the unnecessary high costs incurred by fishers whilst maintaining a strong incentive to return live fish to the sea. They also express a preference for reviewing the TAC/TACC for both stocks, noting there are no sustainability concerns.

150. Te Ohu Kaimoana supports the proposal for the KIN 7 and KIN 8 stocks, including removal of differential rates. They also consider that the TACC for KIN 8 is unnecessarily restrictive and that there are fundamental issues with the management settings in KIN 7 and KIN 8. Their overall preference to address these issues is to review the TACCs, particularly for KIN 8.

151. Te Ohu Kaimoana considers that as the current and proposed deemed value rates are well below the ACE price for both stocks, this could act as a disincentive for fishers to balance catch with ACE. They also point out that as the current and proposed deemed value rates are above port price, this could act as a disincentive for fishers to land catch.

152. The joint recreational submitters oppose the proposal. Many of the points they raise apply to all three kingfish stocks for which deemed value rate reviews were proposed (refer to the analysis of KIN 3 above). Regarding KIN 7 and KIN 8, however, they consider that bycatch of kingfish is not inevitable and can be largely avoided by selecting different fishing grounds.

153. They also note that deemed value rates need to provide sufficient incentive for fishers on factory vessels to return catch to the water alive while not providing an incentive for fishers on inshore vessels to target kingfish.

154. The joint recreational submitters remain concerned that FNZ has not instituted any measures to monitor release mortality of trawl-caught kingfish.

7.2.3 Analysis of submissions

155. FNZ reiterates the point made in the analysis of KIN 3 that no decisions have been made regarding a future review of the TAC/TACC for any kingfish stock.

156. FNZ concurs with the points made by Te Ohu Kaimoana and the joint recreational submitters on the need for deemed value rates to strike an appropriate balance. Deemed value rates need to provide incentives for fishers to return live fish to the sea but not providing incentives for them to retain catch for which they may not be able to acquire ACE.

157. We consider that the recommended deemed value rate settings will provide that balance. The recommended basic annual deemed value rate of $3.30/kg will remain above the current port price for both stocks ($1.73/kg for KIN 7 and $2.20 for KIN 8).[50] This provides the incentive to return live fish to the seas wherever possible. The basic annual deemed value rate, together with the recommended differential deemed rate schedule, which includes a rate of $5.00/kg for all catch more than double ACE holdings, will not encourage fishers to retain catch that could otherwise be released.

158. Te Ohu Kaimoana notes that ACE prices for both stocks were well above port price. FNZ acknowledges this but notes that for these stocks, ACE prices are more likely to reflect constraining TACCs and deemed value rates rather than port price.

[50] These are port prices that were calculated in 2021/22 for use during the 2022/23 cost recovery process

159. Regarding measures to monitor the release of trawl-caught fish, FNZ notes that the fishing industry began a programme of tagging live kingfish released from commercial factory vessels in 2020. To date, three tagged fish have been recaptured, all by recreational anglers.

160. For the jack mackerel trawl fleet, which catches the majority of kingfish in KIN 7 and KIN 8, FNZ considers there is limited scope to select different fishing grounds. Part of the reason for this is the ongoing range expansion of kingfish (this is also relevant in the context of KIN 3). This has resulted in kingfish becoming more abundant around the South Island. Fishers targeting jack mackerel off the West Coast of the South Island now encounter kingfish more frequently than they used to, which has reduced the scope to shift effort to this area to avoid catching kingfish.

161. FNZ will continue to monitor all kingfish stocks and will review management settings if there is evidence that deemed value rates are not resulting in the correct incentives for fishers to release live fish wherever possible and balance catch with ACE.

7.2.4 Recommendation

162. FNZ recommends you decrease the annual deemed value rate for KIN 7 and KIN 8 by $1.15, from $4.45/kg to $3.30/kg. Additionally, FNZ recommends that you replace the standard differential schedule with a special differential rate schedule; a rate of $4.00/kg would apply to catch more than 150% of ACE holdings but less than 200%, and a rate of $5.00/kg would apply to all catch more than 200% of ACE holdings.

163. Although the recommendation is to decrease deemed value rates, the existing incentive for fishers to balance their catch with ACE would be retained. The recommended deemed value rates are such that there remains little incentive for fishers to take kingfish in KIN 7 and KIN 8 in excess of ACE holdings. This is consistent with your mandatory consideration under section 75(2)(a) of the Act.

164. FNZ considers that recognising fishers may land catch for which they are unable to acquire ACE is something that you may have regard to under section 75(2)(b)(i) (desirability of fishers landing catch for which they do not have ACE).

165. As with KIN 3, by increasing the incentive to report catch of these non-target stocks, for which abundance has increased in recent years, FNZ acknowledges that some fishers may land catch for which they are unable to acquire ACE. FNZ considers that while this is not desirable, increasing incentives to report catch is a pragmatic management measure for these stocks.

166. FNZ also considers that the market value (port price) price of both stocks is something you may have regard to under 75(2)(b)(ii). The recommended basic annual deemed value rate of $3.30 remains well above the current port prices ($1.73/kg for KIN 7 and $2.20 for KIN 8). Continuing to set annual deemed value rates above the port price will retain the ongoing incentives for fishers to release live kingfish wherever possible as there is no financial incentive to retain fish that could be released. The recommended differential deemed value rates further strengthen these incentives.

167. The recommended deemed value rates for KIN 7 and KIN 8 are shown in Table 5.

Table 5: Current and recommended deemed value rates ($/kg) for KIN 7 and KIN 8.

Stocks	Option	Interim	Annual 100-120%	Differential rates ($/kg) for excess catch (% of ACE)				
				120-140%	140-160%	160-180%	180-200%	>200%
KIN 7 & KIN 8	Current	4.00	4.45	5.34	6.23	7.12	8.01	8.90
	Recommended		Annual 100-150%	150-200%	>200%			
		3.04	3.30	4.00	5.00			

7.3 Snapper / tāmure (SNA 2) – East Coast North Island

7.3.1 Stock information

168. Catch of snapper in SNA 2 is dominated by non-target catch taken by trawl vessels targeting tarakihi and gurnard. There is some target trawl fishing, but targeted effort has decreased in recent years from over 30% of catch in 2015/16 to less than 5% for the current (2021/22) fishing year.

169. Within SNA 2, there are thought to be two sub-stocks (north and south) with the Mahia Peninsula treated as the boundary between the two. The northern sub-stock is thought to be part of the Bay of Plenty (SNA 1) sub-stock, although the relationship between the two sub-stocks is unclear.

170. Recent research indicates that abundance of snapper throughout SNA 2 (i.e. both sub-stocks) has increased over the last 5-6 years. The TACC for SNA 2 has not been reviewed since 2002 and catch has exceeded available ACE for the last five completed fishing years.

7.3.2 Consultation

171. FNZ proposed reducing the deemed value rates for SNA 2 to align them with the adjacent SNA 8 stock. The basic annual deemed value rate would decrease by $1.52/kg, from $6.00/kg to $4.48/kg. Additionally, the existing differential deemed value rate schedule would be replaced with the standard differential deemed value rate schedule.

172. Four submissions were received directly commenting on the deemed value rates of SNA 2.

173. Fisheries Inshore New Zealand supports the proposal to decrease the deemed value rates for SNA 2. They also express frustration regarding the delays in reviewing other management settings for this stock.

174. Te Ohu Kaimoana also supports the proposal and a review of the TAC/TACC for SNA 2.

175. Nino Basile does not support the proposal but does not elaborate further. He also states that he considers the port prices used in the discussion paper are incorrect and should be reviewed.

176. The joint recreational submission does not support the proposal. They suggest that the proposal is part of a plan by FNZ and corporate fishing interests to lock in lower deemed value rates prior to the onboard camera rollout. They further suggest that the outcome of the camera rollout will be small-scale owner operators selling out to corporates, as they won't be able to continue in business while it will be affordable for corporate fishers to continue because they are also wholesalers and retailers.

7.3.3 Analysis of submissions

177. FNZ acknowledges Te Ohu Kaimoana's and Fisheries Inshore New Zealand's point regarding reviewing the TAC/TACC for SNA 2. As noted in the discussion paper, research on SNA 2 is ongoing and is due to be presented at the November 2022 plenary.

178. FNZ can confirm that there is no plan to 'lock in lower deemed value rates prior to the onboard camera rollout' as suggested by the joint recreational submission. We are satisfied that the recommended deemed value rates will provide the appropriate incentive for all fishers to remain within their ACE holding.

179. The port prices referred to by Nino Basile are calculated annually by FNZ using standard methodology.

7.3.4 Recommendation

180. FNZ recommends that you agree to decrease the annual deemed value rate for SNA 2 by $1.52/kg, taking it from $6.00/kg to $4.48/kg and to implement a standard differential schedule. The recommended decrease would align the deemed value rates for SNA 2 with those of the adjacent SNA 8 stock.

181. Although the recommendation is to decrease deemed value rates, the existing incentive for fishers to balance their catch with ACE would remain. The recommended deemed value rates are such that there remains little incentive for fishers to take snapper in SNA 2 in excess of ACE holdings. This is consistent with your mandatory consideration under section 75(2)(a) of the Act.

182. FNZ considers that the five-year trend of catch exceeding available ACE for this stock is something that you may have regard to under to section 75(2)(b)(v). As noted above, the proportion of snapper in SNA 2 that is taken as a target species has decreased in recent years, most likely in response to the increase in abundance of the species in this area. In the absence of a TAC review, this trend is likely to continue.

183. While continuing to provide an incentive for fishers to remain within their ACE holdings, the recommended decrease in deemed value rates also takes the positive stock size information into consideration.

184. FNZ also considers that aligning the deemed value rates for SNA 2 with those of the adjacent SNA 8 stock is something you may have regard to under section 75(2)(b)(vi) (any other matters you consider relevant). Aligning deemed value rates between adjacent stocks provides appropriate incentives for fishers who fish across the stock boundaries to report accurately.

185. The recommended deemed value rates for SNA 2 are as shown in Table 6.

Table 6: Current and recommended deemed value rates ($/kg) for SNA 2.

Stock	Option	Interim	Annual 100-110%	Differential rates ($/kg) for excess catch (% of ACE)							
				110-120%	120-130%	130-140%	140-150%	150-160%	160-170%	170-180%	>180%
SNA 2	Current	5.40	6.00	6.75	7.50	8.25	9.00	9.75	10.50	11.25	12.00

	Interim	Annual 100-120%	120-140%	140-160%	160-180%	180-200%	200%
Recommended	4.03	4.48	5.38	6.27	7.17	8.06	8.96

7.4 Trevally / araara (TRE 1) – North Coast North Island

7.4.1 Stock information

186. The majority of trevally in TRE 1 is taken by inshore trawlers. Most trawl-caught trevally is taken as target species, with smaller quantities taken as non-target catch by vessels targeting snapper, john dory or tarahiki. The other main fishing method is the target purse seine fishery, which took around one third of the catch during the last five completed fishing years.

187. The TACC for TRE 1 has not been reviewed since the stock came into the QMS in 1986. The TRE 1 stock is believed to contain two biological stocks: east Northland to the Hauraki Gulf, and Bay of Plenty. Research has been undertaken recently on the Bay of Plenty stock, which is thought to be part of the same biological stock as trevally in TRE 2. The research indicates that biomass of the Bay of Plenty stock has increased since the mid-1980s and is likely to be above the management target of 40% unfished biomass (B_0).

188. Catch has exceeded available ACE once since 2010/11.

7.4.2 Consultation

189. In acknowledgement of the port price for TRE 1 having roughly doubled in the last five years, FNZ proposed that all deemed value rates for TRE 1 were increased by $0.25/kg.

190. Three submissions were received that directly commented on the deemed value rates for TRE 1.

191. Fisheries Inshore New Zealand does not support the proposal. They feel it is unjustified on the basis that there is no evidence that current catch is not being covered by ACE, nor it is evident that catches are exceeding the TACC and presenting a sustainability risk.

192. Fisheries Inshore New Zealand also notes that the recent port price increase has seen the relationship between port price / ACE price / deemed values restored to that seen during the 2010/11 to 2014/15 period.

193. Te Ohu Kaimoana does not support the proposal. They acknowledge that while the port price has increased, current deemed value rates should be maintained as there are no sustainability concerns for TRE 1.

194. The joint recreational submission agreed with the proposal to increase the deemed value rates for TRE 1. They note that the port price and export price have both increased. Together with Te Ohu Kaimoana, they also support a review of other management settings for this stock, noting the TAC/TACC has not been reviewed since QMS introduction in 1986.

7.4.3 Analysis of submissions

195. Regarding Te Ohu Kaimoana's and Fisheries Inshore New Zealand's points, FNZ notes that sustainability concerns and catch exceeding ACE are not the only triggers for reviewing of deemed value rates; changes in the economic characteristics is another criteria used to determine the stocks entering the deemed value rate review process. In the case of TRE 1, the increase in port price was sufficient to trigger a review of deemed value rates.

196. As with SNA 2, research on the status of this stock is ongoing and is scheduled for delivery in late 2022. Any decisions on reviewing management settings will be made after that.

7.4.4 Recommendation

197. FNZ recommends that all deemed value rates for TRE 1 are increased by $0.25/kg. The basic annual rate would increase from $1.25/kg to $1.50/kg. The recommendation is based on the port price for this stock having roughly doubled during the last five years.

198. The recommended increase in deemed value rates, as shown in Table 7, will continue to provide incentives for fishers to remain within their ACE holdings. This is consistent with your mandatory statutory consideration under section 75(2)(a) of the Act.

199. FNZ considers that the recent increase in port price is something that you may have regard to under section 75(2)(b)(iii) (market value of the stock). The recommended increase in deemed value rates reflects the increase in market value for TRE 1.

Table 7: Current and recommended deemed value rates ($/kg) for TRE 1.

Stock	Option	Interim	Annual 100-120%	Differential rates ($/kg) for excess catch (% of ACE)		
				120-140%	140-160%	>160%
TRE 1	Current	1.13	1.25	2.00	3.00	5.00
	Recommended	1.35	1.50	2.25	3.25	5.25

8 Decisions

200. FNZ recommends that you approve changes to the deemed value rates for selected stocks as outlined in Table 8 below.

201. FNZ considers all recommended deemed value rates are consistent with your statutory obligations and powers under section 75(2)(a) and 75(2)(b) of the Act.

Table 8: Current and recommended deemed value rates ($/kg) for selected stocks.

		Current				Recommended			
Species	Stock	Interim $/kg	Annual $/kg	Annual at maximum excess $/kg	Differential	Interim $/kg	Annual $/kg	Annual at maximum excess $/kg	Differential
Kingfish	KIN 3	4.00	4.45	8.90	Standard	3.04	3.30	4.00	Special
	KIN 7	4.00	4.45	8.90	Standard	3.04	3.30	5.00	Special
	KIN 8	4.00	4.45	8.90	Standard	3.04	3.30	5.00	Special
Snapper	SNA 2	5.40	6.00	12.00	Special	4.03	4.48	8.96	Standard
Trevally	TRE 1	1.13	1.25	5.00	Special	1.35	1.50	5.25	Special

a) **Agree** to change the deemed value rates for kingfish (KIN 3) as outlined in the Table above.

Agreed / Not Agreed

b) **Agree** to change the deemed value rates for kingfish (KIN 7) as outlined in the Table above.

Agreed / Not Agreed

c) **Agree** to change the deemed value rates for kingfish (KIN 8) as outlined in the Table above.

Agreed / Not Agreed

d) **Agree** to change the deemed value rates for snapper (SNA 2) as outlined in the Table above.

Agreed / Not Agreed

e) **Agree** to change the deemed value rates for trevally (TRE 1) as outlined in the Table above.

Agreed / Not Agreed

Hon David Parker
Minister for Fisheries and Oceans

7 / 9 / 2022

Deemed values supplemental information

The deemed value framework

The Quota Management System (QMS) is the backbone of the New Zealand fisheries management regime and includes a total of 642 fish stocks representing 98 species or species groups. The system for balancing catch against catching rights is known as the catch balancing regime and is key to ensuring the integrity of the QMS. The deemed value system is one component of the catch balancing regime, which overall provides considerable flexibility for fishers.

The deemed value system is a civil as opposed to a criminal regime (over-fishing does not result in prosecution). With some exceptions, ACE is not required before fishing commences, instead fishers are provided flexibility to balance their catch against ACE during the course of the fishing year by a system of financial incentives.

Effective deemed value rates contribute to both sustainability and utilisation objectives under the Act. Section 8 of the Act states that the purpose of the Act is to provide for the utilisation of fisheries resources while ensuring sustainability. Sustainability objectives are achieved because appropriate deemed value rates encourage fishers to balance catch with ACE and, in doing so, encourage harvesting to remain within the level of available ACE[51]. Harvesting above available ACE has the effect of undermining the sustainability of the fishery. The deemed value framework also provides flexibility for commercial operators to manage unexpected amounts of catch by providing a means to balance unintended catches in excess of ACE.

On the first day of the fishing year, all quota owners are allocated ACE based on their quota share and the current TACC. Under the catch balancing regime, fishers are required to balance their catch with ACE, or pay a deemed value on every kilogram of fish landed in excess of ACE. Fishers self-report their catch of quota species on a monthly basis. ACE may be freely traded during the course of the fishing year, but the value of ACE may change during the year depending upon its availability. Often the fisher is not a quota holder and holds only ACE.

In order to provide the right balance of financial incentives, the deemed value system does not create a standard deemed value rate, but a set of rates that apply under different circumstances. The base rate is the annual deemed value that is charged at the end of the fishing year on catch in excess of available ACE. Interim deemed value rates are charged each month to commercial fishers for every kilogram of fish landed in excess of ACE holdings. Annual deemed value rates must be set higher than the interim rate. If the fisher sources enough ACE to cover his or her catch, the interim rates paid are remitted. If the fisher does not source enough ACE by the end of the fishing year, the difference between the interim and annual deemed value rates is charged for all catch in excess of ACE.

In general, if set too low, deemed value rates will not provide sufficient incentive for fishers to acquire ACE, and will lead to individuals continuing to fish and pay deemed values. In turn this may lead to catches in excess of available ACE which may have negative implications for sustainability and the long-term value of the resource. Likewise, if set too high, deemed value rates may discourage landing and accurate reporting, (i.e. behaviours such as illegal dumping and/or misreporting) which can compromise effective fisheries management.

Previous abuse of the regime suggests that, beyond a certain level of flexibility, incentives need to become more onerous to prevent individuals avoiding the need to balance their catch against ACE. If required, there is provision in legislation to set over-fishing thresholds, which, if breached, result in automatic exclusion from the fishery.

The Deemed Value Guidelines recommends that interim deemed value should be set at 90% of the annual rate. This is to incentivise fishers to cover deemed value invoices promptly, rather than delay balancing.

For most stocks, progressively increased (differential) annual deemed value rates are set. Differential deemed value rates (also known as 'ramping') result in an escalated schedule of rates as the percentage by which catch exceeds the fisher's ACE increases. The standard approach increases in 20% increments up to a maximum of 200% of the annual deemed value (see Table 8). Differential

[51] For most fishstocks, the ability to carry forward some ACE from one fishing year to the next means that the sum of available ACE is greater than the TACC.

rates reflect the increasingly detrimental impact on sustainability of higher levels of over-catch, by providing stronger incentives to avoid over-catch. The setting of differential deemed value rates is permitted under section 75(4) of the Act.

Table 8: Standard differential deemed value rate schedule recommended for most stocks

Catch in excess of ACE holdings	Differential deemed value rate (as a percentage of the annual deemed value rate)
0-20%	100%
>20%	120%
>40%	140%
>60%	160%
>80%	180%
>100%	200%

For vulnerable or rebuilding fish stocks, or stocks that are taken almost entirely as a target species, a more stringent non-standard differential or 'special' annual deemed value schedule (e.g. applying from 5% or 10% over-catch) may be more appropriate than the standard schedule. Alternatively, less stringent differential schedules may also be applied to low value, low TACC stocks where targeted fishing does not occur.

The deemed value rate changes recommended in this decision document are aimed at ensuring catch does not exceed the available ACE, regardless of the level at which the TACC is set, by encouraging balancing of landings with ACE while avoiding creating incentives to discard and misreport catch.

Hoki (HOK 1) – all New Zealand (excluding the Kermadec QMA)

Hoki - *Macruronus novaezelandiae*

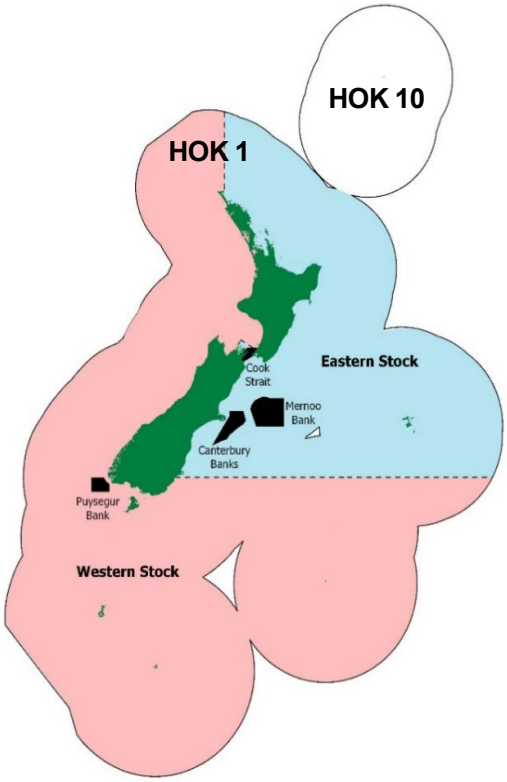


Figure 1: Quota Management Areas (QMAs) for hoki, with HOK 1 highlighted and divided into eastern (blue) and western (pink) stocks. The black polygons represent the four hoki management areas.

Table 1: Summary of options proposed for HOK 1 from 1 October 2022. Figures are all in tonnes.

Option	TAC	TACC	Non-regulatory catch split arrangement		Allowances		
			Western stock limit	Eastern stock limit	Customary Māori	Recreational	All other mortality caused by fishing
Option 1 *(Status quo)*	111,140	110,000	45,000	65,000	20	20	1,100
Option 2	106,090 ↓ (5,050)	105,000 ↓ (5,000)	40,000 ↓ (5,000)	65,000	20	20	1,050 ↓ (50)

In total 17 submissions were received on the proposed options.

1 Why are we proposing a review?

202. HOK 1 is managed to a target biomass range of 35-50% of the unfished mature biomass (B_0). Stock status is assessed annually as two separate but interlinked stocks, eastern and western, with a separate catch limit set for each stock through a non-regulatory catch split arrangement.

203. The current HOK 1 TAC is 111,140 tonnes, which includes a 110,000 tonne TACC that is split into 65,000 tonnes for the eastern and 45,000 tonnes for the western stock. There are also customary Māori and recreational allowances of 20 tonnes each and 1,100 tonnes for all other mortality caused by fishing (equivalent to 1% of the TACC).

204. Consistent with previous hoki stock assessments, the 2022 stock assessment assumed two separate stocks (Figure 1) as morphometric[52] and ageing studies have found size and shape differences between the two main dispersed areas (Chatham Rise and the Sub-Antarctic) suggesting the eastern and western are separate stocks. The biomass of the eastern stock was estimated to be above the management target range at 51% B_0 (unfished biomass, or the biomass that would occur in the absence of fishing). The biomass of the western stock was estimated to be below the management target range at 28% B_0.

205. Five-year projections, assuming catch at the current catch limits, estimate that the biomass for the eastern stock will increase further above the upper bound of the management target range (i.e. above 50% B_0) over the next two years, but then decrease towards the upper bound of this range over the following three years. However, even though the western stock biomass is predicted to increase over the five-year projection, it is not predicted to reach the lower bound of the management target range (i.e. 35% B_0) over the next five years (Figure 4).

206. On this basis, FNZ proposed a review of hoki's management settings and in addition to maintaining the status quo consulted on an option to decrease catch limits to levels that would bring the western stock biomass to management target within five years. These options would continue to maintain the stock at or above a level that can produce the maximum sustainable yield (section 13 2(a) the Act).

1.1 About the stock

1.1.1 Fishery characteristics

Harvest Strategy

207. A stock assessment for HOK 1 is conducted every year (with the exception of 2020). The TAC and TACC for HOK 1 are set based upon the status of the stock and informed through the use of the hoki harvest strategy, as set out in the National Deepwater Plan for hoki (Part 1B) and described in Table 2 below.

208. The management target range (see Table 2 below) is based on a Management Strategy Evaluation that aimed to identify a target range that would ensure the decision maker was able to respond and maintain the stock above the deterministic estimate of B_{MSY}[53] as well as meet objectives for catch rates and fish size.

Table 2: Hoki reference points and the associated management response from the National Deepwater Plan for hoki.

Harvest strategy components	Management response
Management target range of 35 – 50% B_0	Stock permitted to fluctuate within this management target to an acceptable level
Soft limit of 20% B_0	A formal time constrained rebuilding plan should be implemented if this limit is reached
Hard limit of 10% B_0	The limit below which fisheries should be considered for closure
Rebuild strategy	Catch limit set so that fishery will deliver half the rate of rebuild that would occur in the absence of fishing

209. A number of non-regulatory measures are in place for hoki, including an east-west catch split arrangement and Hoki Operational Procedures.

[52] Measurements of size and shape.

[53] B_{MSY} is the biomass that enables a fish stock to deliver the maximum sustainable yield. A deterministic B_{MSY} for hoki was calculated in 2019 to be 27% B_0.

East West catch split arrangement

210. The HOK 1 TACC is divided between the eastern and western stocks each year via a non-regulatory catch split arrangement that has been agreed between FNZ and quota holders. Each catch limit is varied in response to the current estimate of stock status, and projected impacts of catch levels on each stock. The catch split was first implemented in 2001 and is formally administered through FishServe.[54] The east and west catch split arrangement reflects the assessment and management approach of HOK 1 as two sub-stocks.

211. The 'western' stock comprises the west coast of the North and South Islands and the area south of New Zealand including Puysegur Bank, Stewart-Snares shelf and the Sub-Antarctic. The 'eastern' stock comprises the area of the east coast of the South Island, Mernoo Bank, Chatham Rise, Cook Strait and the east coast of the North Island up to North Cape (Figure 1).

212. Fishers report east-west catch information directly to FishServe and FNZ has access to this information. Adherence to the catch split arrangement is also monitored using electronic reporting and geospatial position reporting. FNZ reports on landings of hoki in the eastern and western stocks annually in the Deepwater Annual Review Report.

Voluntary Shelving of Annual Catch Entitlement

213. In response to concerns regarding declining catch rates in the western stock, hoki quota owners introduced voluntary shelving of Annual Catch Entitlement (ACE). ACE shelving is a formal agreement among quota owners in a stock to forgo harvesting a specified proportion of the TACC by each transferring an agreed proportion of their ACE to a separate account.

214. For the 2018/19 fishing year 20,000 tonnes (plus any carry forward of ACE[55] for the western stock) was shelved. This resulted in approximately 30,000 tonnes of ACE being transferred to a holding account that was not available for balancing catch against in the 2018/19 fishing year. There was no industry shelving of ACE in the 2019/20 fishing year. For the 2020/21 fishing year quota owners shelved 20,000 tonnes of HOK 1 ACE - 10,000 tonnes from each of the eastern and western stocks. For the current fishing year (2021/22) quota owners shelved 10,000 tonnes of HOK 1 ACE from the eastern stock.

215. In a letter received on 23 August 2022 Deepwater Group Ltd (DWG) outlined a proposal for shelving of HOK1 ACE for the 2022/23 fishing year. This would involve shelving 5,000 tonnes of ACE from each of the eastern and western stocks. This creates an effective catch limit of 40,000 tonnes for the western and 60,000 tonnes for the eastern stocks, plus any uncaught ACE carried forward according to either the eastern or western stocks from 2021/22 fishing year. Whilst this was proposed as a potential 'Option 3' by DWG this could be achieved through maintaining the *status quo* (Option 1) in addition to this shelving.

Hoki Operational Procedures

216. Hoki Operational Procedures are administered by the DWG, which represents 93% of HOK 1 quota owners. These procedures define the Hoki Management Areas and Hoki Seasonal Spawn Areas discussed below.

Hoki Management Areas (HMAs)

217. HMAs are intended to reduce fishing pressure on fish smaller than 55 cm within four areas where there is a relatively high abundance of small hoki. HMAs are in place for the Narrows Basin in the Cook Strait, Canterbury Banks, Mernoo Bank and Puysegur (Figure 1). Within

[54] FishServe is the trading name of a privately owned company called Commercial Fisheries Services (CFS). CFS is a wholly owned subsidiary of Seafood New Zealand. FishServe provides administrative services to the New Zealand commercial fishing industry to support the Fisheries Act 1996.

[55] 10% of uncaught ACE may be carried forward to the next fishing year, provided the TACC isn't reduced.

HMAs, vessels larger than 28 m have voluntarily agreed not to target hoki and FNZ monitors and reports on adherence to this annually in the Deepwater Annual Review Report.

Hoki Seasonal Spawn Areas (HSSAs)

218. HSSAs were added to the Operational Procedures in 2018/19 to reduce fishing pressure on spawning fish (Figure 2). They consist of short-term (week-long) closures to hoki targeting by all vessels in the main spawning areas:

- West Coast of the South Island within 25 nautical miles of the coast from 18 to 24 July (note that vessels larger than 46 metres are already permanently excluded from this area by regulation)
- West Coast outside of 25 nautical miles from the coast - shallower than 800 metres, between Kahurangi Point in the north and the boundary between FMAs 5 and 7 in the south from 25 July to 31 July
- the entire Cook Strait fishery from 1 to 7 August
- designated areas in the Pegasus Canyon from 1 to 7 September.

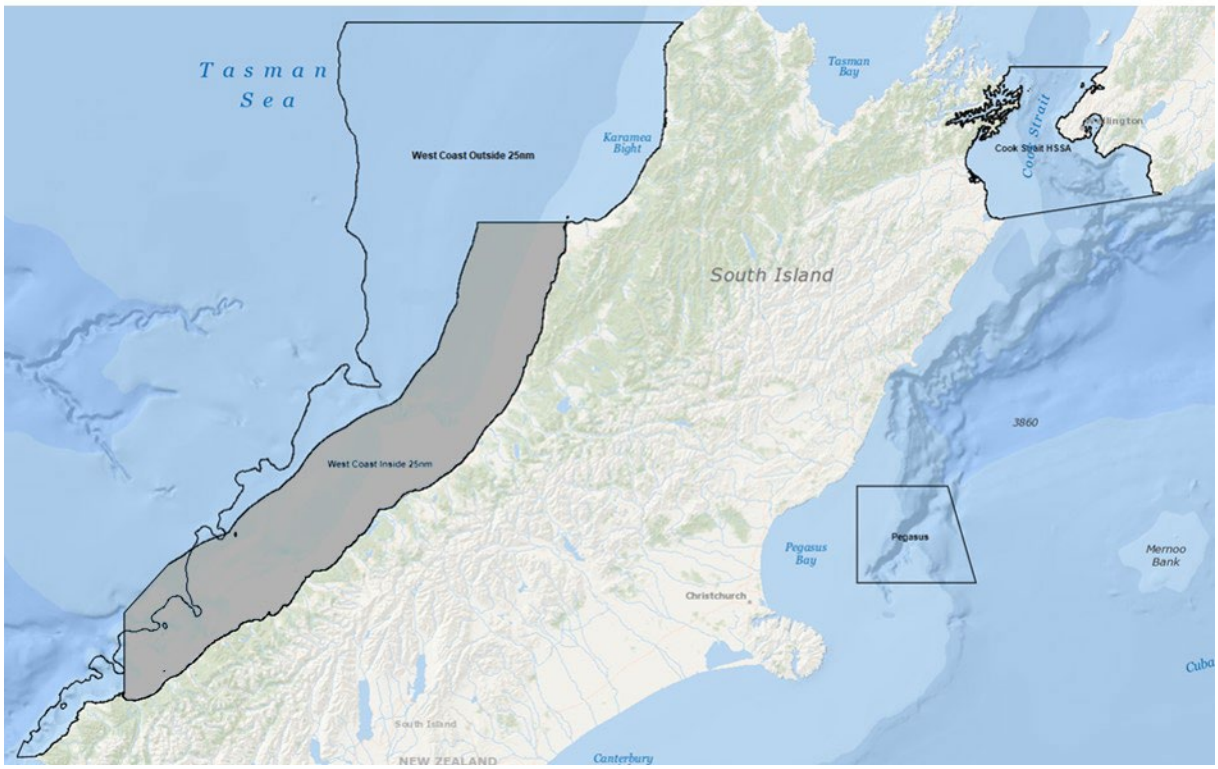


Figure 2: Seasonal Spawn Areas for hoki. The West coast inside the line has been shaded to help distinguish it from West coast outside 25 nm.

1.1.2 Biology

219. Hoki are widely distributed throughout New Zealand waters from depths of 10 m to over 900 m, with the greatest abundance between 200-600 m. The largest hoki are generally found deeper than 400 m whereas juveniles are more abundant in shallower water.

220. Hoki spawn from late June to mid-September, primarily on the west coast of the South Island (Hokitika Canyon) and in the Cook Strait[56]. Spawning has also been found to occur in the

[56] Murdoch, R C; Guo, R; McCrone, A (1990). Distribution of hoki (Macruronus novaezelandiae) eggs and larvae in relation to hydrography in eastern Cook Strait, September 1987. New Zealand Journal of Marine and Freshwater Research, 24: 533–543.

Puysegur area and in Pegasus Canyon.

221. The main grounds for hoki aged 2–4 years are along the Chatham Rise, in depths of 200 to 600 m. The older fish disperse to deeper water and are widely distributed in both the Sub-Antarctic and Chatham Rise[57].

222. Hoki grow to a maximum size of 130 cm and maximum age of 20-25 years. Hoki are estimated to reach maturity between 3–5 years of age, however, there is some variation between areas and sex. The age of the commercial catch also varies among areas, however, most fish caught are estimated to be between 3-12 years old.

223. Morphometric and ageing studies have found consistent differences between adult hoki taken from the two main dispersed areas (Chatham Rise and the Sub-Antarctic) indicating that there could be two sub-populations (stocks) of hoki[58]. No genetic differences between these stocks have been found to date, but work is ongoing to confirm whether any genetic differences are present. Work is planned as part of the 2023 HOK1 stock assessment to develop a single stock model in addition to the two stock model. .

224. Hoki primarily predate on lantern fish, other midwater fishes, squid and decapods[59]. Fish and squid make up a higher proportion of the diet of larger hoki (over 80 cm) compared to the diet of smaller hoki[60]. Hoki are important prey to several species, particularly hake but also stargazers, smooth skates, several deep-water shark species and ling[61].

1.1.3 Management background

225. Hoki was introduced to the QMS on 1 October 1986. Since its introduction to the QMS, the TAC for HOK 1 has been regularly reviewed and adjusted based on information from frequent stock assessments. The TAC was last reviewed for 1 October 2021 when the TAC was reduced from 116,190 tonnes to 111,140 tonnes.

1.2 Status of the stock

226. Hoki in HOK 1 are managed to a target range of 35-50% of mature unfished biomass. The stock assessment for hoki was subject to extensive revision between 2019 and 2022. This followed a review of input data and model assumptions completed between 2018 and 2020[62,63]. The ways in which the 2022 assessment model differed from the previous assessment can be found in the May 2022 Fisheries Assessment Plenary report (The Plenary).

227. Three recruitment periods were considered by the Deepwater Working Group and it agreed that the recent (2009-2018) period should be used as this period is most likely to represent the current level of recruitment. Other alternatives presented were a low recruitment (1995-2001) period and a long (1975-2018) period.

[57] Livingston, M E; Bull, B; Stevens, D W (2002). Migration patterns during the life-cycle of hoki (Macruronus novaezelandiae): an analysis of trawl survey data in New Zealand waters 1991–2002. Final Research Report for Ministry of Fisheries Research Project HOK2000/01 Objective 6. (Unpublished report held by Fisheries New Zealand, Wellington).
[58] Livingston, M E; Schofield, K A (1996). Annual changes in the abundance of hoki and other species on the Chatham Rise, Jan 1992–Jan 1995 and the Southern Plateau, Dec 1991–Dec 1993. New Zealand Fisheries Assessment Research Document 1996/14. 35 p. (Unpublished report held by NIWA library, Wellington).
[59] Stevens, D W; Hurst, R J; Bagley, N W (2011). Feeding habits of New Zealand fishes: a literature review and summary of research trawl database records 1960 to 2000. New Zealand Aquatic Environment and Biodiversity Report, No. 85.
[60] Connell, A M; Dunn, M R; Forman, J (2010). Diet and dietary variation of New Zealand hoki Macruronus novaezelandiae. New Zealand Journal of Marine and Freshwater Research, 44: 289–308.
[61] Dunn, M; Horn, P; Connell, A; Stevens, D; Forman, J; Pinkerton, M; Griggs, L; Notman, P; Wood, B (2009). Ecosystem-scale trophic relationships: diet composition and guild structure of middle-depth fish on the Chatham Rise. Final Research Report for Ministry of Fisheries Research Project ZBD2004-02, Objectives 1–5.
[62] Dunn, M R; Langley, A (2018). A review of the hoki stock assessment in 2018. New Zealand Fisheries Assessment Report 2018/42.
[63] Langley, A D (2020). Review of the 2019 hoki stock assessment. New Zealand Fisheries Assessment Report 2020/28.

228. Figure 4 presents five-year biomass projections based on the base model from the 2022 stock assessment (2022A) assuming recent levels of recruitment (from years 2009-2018), with this recruitment period agreed to be used by the Deepwater Working Group and so it represents the best available information, and also long-term recruitment (1975 – 2020) for comparison.

229. The two spawning areas (west coast of the South Island and Cook Strait) are assessed as separate stock units. The west coast of the North Island and South Island and the area south of New Zealand including Puysegur, Stewart-Snares shelf, and the Sub-Antarctic has been taken as one stock unit (the 'western stock'). The area of the East Coast of the South Island, Mernoo Bank, Chatham Rise, Cook Strait, and the area up to North Cape has been taken as the other stock unit (the 'eastern stock'). The two stocks are assumed to mix as juveniles on the Chatham Rise.

1.2.1 Western stock

230. For the western stock, the 2022 stock assessment estimated the stock status to be at 28% B_0 (Figure 3). The Plenary agreed the stock is 'unlikely' (<40% probability) to be at or above the lower bound of the target range (i.e. 35% B_0).

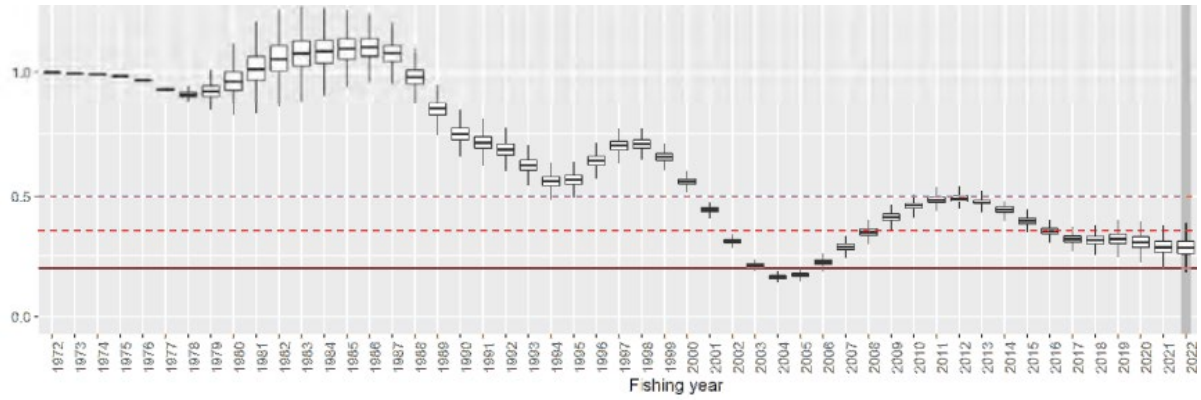


Figure 3: Projected spawning biomass (as proportion of B_0) from the 2022 hoki stock assessment base model (2022A) under recent (2009–2018) recruitment for western stock from 1972-2022. The horizontal dashed red lines represent the target management range of 35–50% B_0. The horizontal red solid line shows 20% B_0.

231. Five-year projections using estimates of recent recruitment and the current catch limits predict that the biomass of this stock will increase towards the management target range, but not reach the lower bound of this range (35% B_0) in five years. With a reduction of 5,000 tonnes for the western stock catch limit the stock is predicted to increase to the lower bound of this range within five years (Figure 4). Five-year projections have been presented as the further forward in time the projections go the more uncertainty there is in the biomass projections.

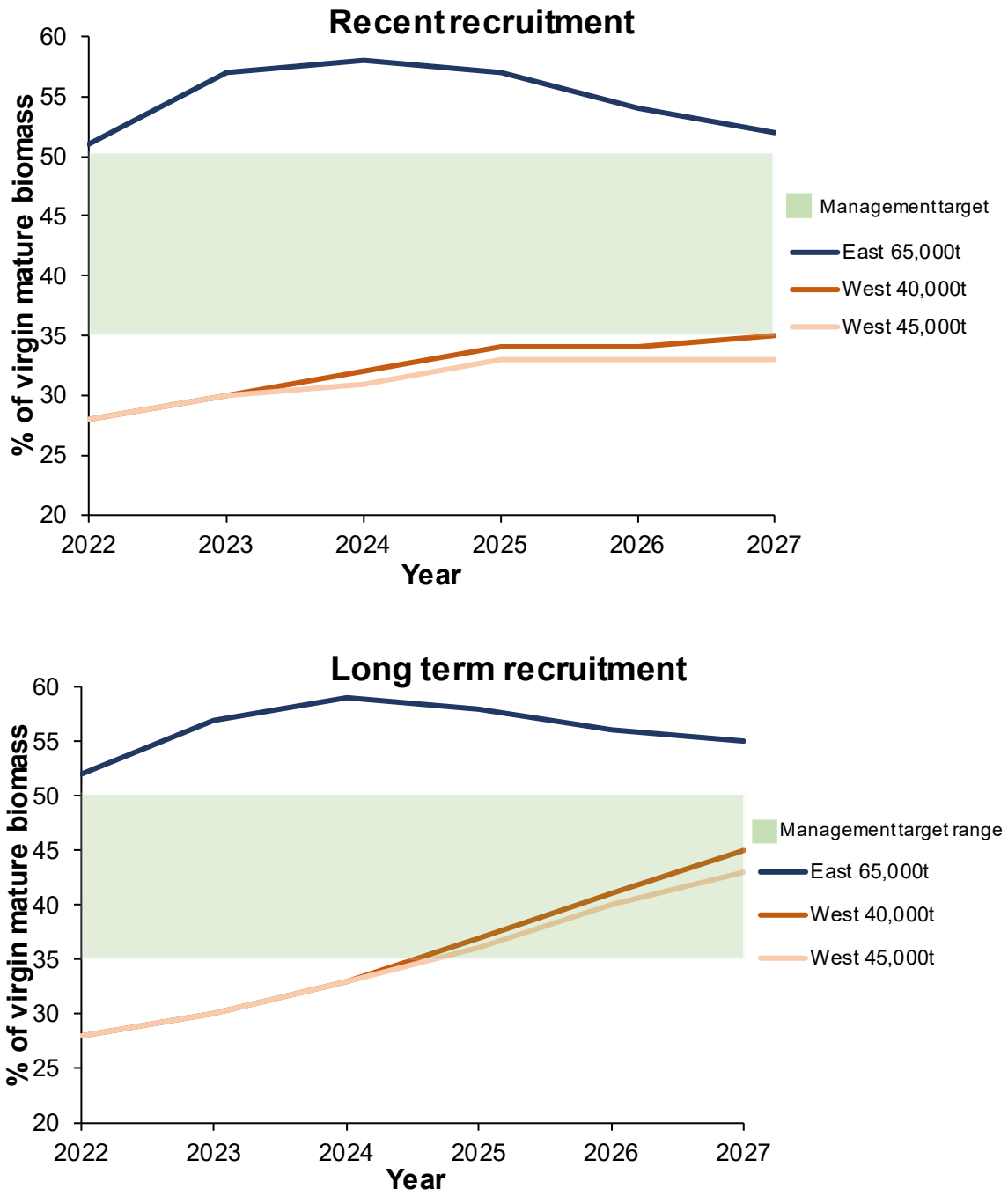


Figure 4: The eastern and western stock five-year biomass projections under different catch limit scenarios in relation to the management target range using the 2022 stock assessment base model (2022A) and recent recruitment (2009-2018) – top panel, with this representing the best available information, and long-term recruitment (1975-2020) – bottom panel, for comparison.

1.2.2 Eastern stock

232. For the eastern stock, the 2022 stock assessment estimated stock status to be at 51% B_0 (Figure 5). The Plenary agreed the stock is 'very likely' (> 90% probability) to be at or above the lower bound of the management target range (35% B_0) and that it is 'about as likely as not' (40–60% probability) to be above the upper bound of the management target range (50% B_0).

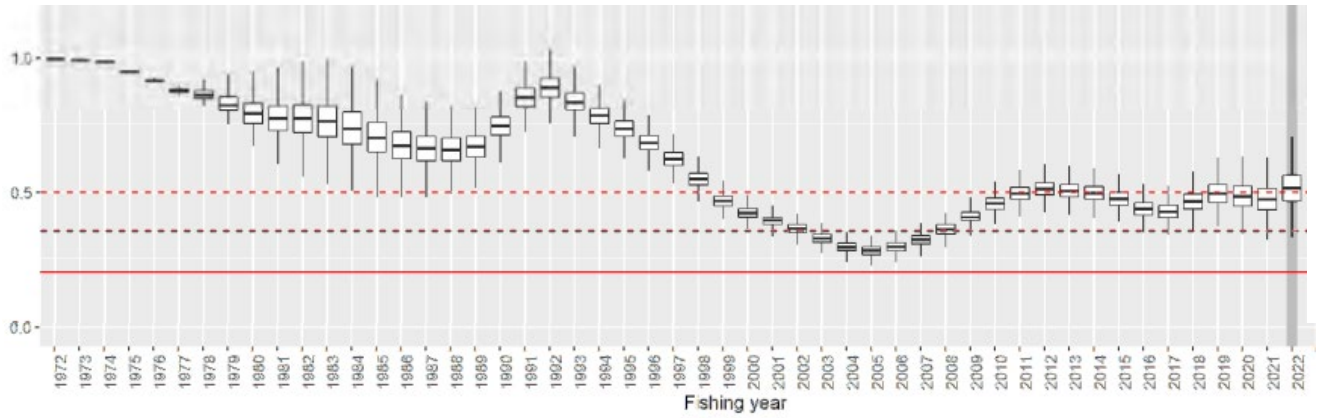


Figure 5: Projected spawning biomass (as proportion of B_0) from the 2022 hoki stock assessment base model (2022A) under recent (2009–2018) recruitment for eastern stock from 1972-2022. The horizontal dashed red lines represent the target management range of 35–50% B_0. The horizontal red solid line shows 20% B_0.

233. Five-year projections using estimates of recent recruitment and the current catch limits predict that the biomass will increase further above the upper bound of the management target range (50% B_0) for two years, but then decrease towards the upper bound of this range over the following three years (Figure 4).

234. As the estimate of recent recruitment (2009-2018) is most likely to represent the current level of recruitment, five-year biomass projections using the estimate of recent recruitment have been used when discussing the options proposed in this paper. This represents a precautionary approach using the best available information as five-year biomass projections using estimates of long-term recruitment (1975-2020) result in greater increases in biomass for the western stock over the five-year period (Figure 4).

2 Catch information and current settings within the TAC

2.1 Commercial

235. Hoki is caught using a combination of mid-water (gear designed not to come into prolonged contact with the seabed) and bottom trawling fishing methods. The largest fishery for HOK 1 is the West Coast South Island spawning fishery, which operates seasonally from May-September. In 2020/21 35,100 tonnes of hoki was caught in the West Coast South Island fishery, which represents 35% of overall HOK 1 catch and 79% of the total western stock catch. The Sub-Antarctic is the second most important western stock fishery (9,100 tonnes in 2020/21).

236. Catch from the eastern stock is primarily taken on the Chatham Rise and on the east coast of the South Island with 38,800 tonnes taken in 2020/21. This represents 38% of HOK 1 catch and 69% of the total eastern stock catch. A smaller amount of hoki is taken in spawning fisheries in the Cook Strait and off the east coast of the South Island.

237. The TACC has been under-caught by more than 10,000 tonnes in HOK 1 from 2015/16 to 2018/19 and in 2020/21 (Figure 6). This is the result of the shelving arrangements implemented by the fishing industry and in part reflects operational decisions to not take the full catch limit and divert effort to other fisheries (e.g. squid) when hoki catch rates are low or squid prices are high.

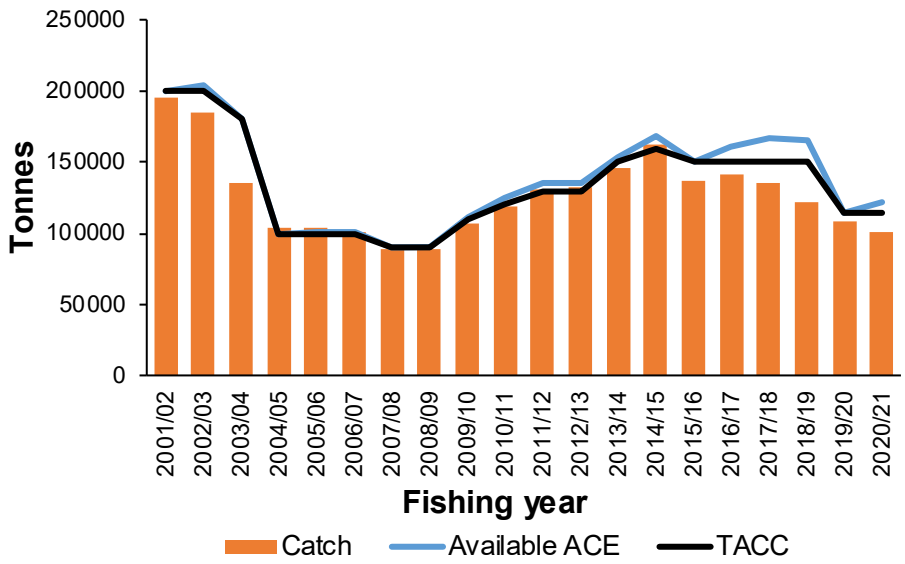


Figure 6: HOK 1 catch (in tonnes), TACC and available ACE in 2001/02 – 2020/21.

2.2 Customary Māori

238. The current annual customary Māori allowance for HOK 1 is set at 20 tonnes. Over the past 15 fishing years the total reported customary catch of hoki in HOK 1 has been 20 kg, which was caught between January and March 2008. There has been no further reported customary catch of hoki since then. However, there is no compulsory requirement to report the amount of customary catch for each species to FNZ for customary fishing harvests authorised under the Fisheries (Amateur Fishing) Regulations 2013, so there is the potential for a greater customary catch of hoki than is reported here. Despite this FNZ considers the current annual customary Māori allowance for HOK 1 of 20 tonnes to adequately account for customary catch of hoki.

2.3 Recreational

239. The current annual recreational allowance for HOK 1 is set at 20 tonnes. The most recent National Panel Survey of Marine Recreational Fishers (NPS) in 2017/18 did not list hoki as a separate species for reporting catch data, most likely due to the low level of recreational catch. There is no information to suggest there is anything more than a nominal recreational catch of hoki in HOK 1.

2.4 All other mortality caused by fishing

240. There is an allocation of 1,100 tonnes for all other mortality caused by fishing under the *status quo*, which is equivalent to 1% of the TACC. FNZ proposes to maintain the allocation for other sources of mortality at this level for the options proposed. The allowance accounts for the likelihood that previous large catches within this fishery have resulted in burst bags, loss of catch, and some mortality.

3 Treaty of Waitangi Obligations

3.1 Input and participation of tangata whenua

241. 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.

242. Particular regard must be given to kaitiakitanga when making sustainability decisions.

243. The HOK 1 fish stock (Figure 1) includes the rohe of: Te Hiku o Te Ika (far North), Mid North (Northland), Ngaa Hapuu o Te Uru o Tainui (Waikato), Te Puaha ki Manuka to Waipingao (Waikato to Taranaki), Mai i Ngā Kuri a Whārei ki Tihirau (Bay of Plenty), Ngāti Porou (East Cape), Mai Paritu tae atu ki Turakirae (East coast - Paritu to Turakirae), Te Tai Hauāuru (Taranaki/ Whanganui/ Manawatu/ Horowhenua/ Kapiti), Rangitaane (North Island), Te Tau Ihu (North of the South Island), Te Waka a Māui me Ōna Toka (South Island and Stewart Island), Hauraki and Chatham Islands.

244. The list of stocks being considered for inclusion in the October 2022 sustainability round and a summary document outlining the current status of HOK 1 have been provided to recent hui of Iwi Fisheries Forums around the country.

245. Hui for forums were held by Te Hiku o Te Ika on 30 June, Mid North on 1 July, Ngaa Hapuu o Te Uru o Tainui on 14 June, Mai i Ngā Kuri a Whārei ki Tihirau on 4 July and the Te Waka a Māui me Ōna Toka on 12 July. FNZ presented one page summaries on relevant stocks proposed for the October 2022 sustainability round for the respective hui. For the forums which did not hold hui within the timeframe for feedback, FNZ provided material to forum members by email to ask for input.

246. The only specific feedback on HOK 1 was from Mai i nga Kuri a Wharei ki Tihirau who noted their main approach was to favour sustainability and indicated some support for decreasing catch limits to ensure sustainability e.g. a hoki decrease.

3.2 Kaitiakitanga

247. Hoki is identified as a taonga species by the following Iwi fisheries forums: Chatham Islands Fisheries Forum @ 44°, Mai i Nga Kuri a Wharei ki Tihirau, Te Tai Hauāuru, Te Hiku o Te Ika and Te Waka a Māui me Ōna Toka. All fish and shellfish species are listed as taonga by the Ngaa Hapuu o Te Uru o Tainui Forum.

248. There are no customary fisheries management tools such as mātaitai, taiāpure or section 186A or 186B temporary closures relevant to the proposals in this document.

4 Environmental and Sustainability Considerations

4.1 Environmental principles (section 9 of the Act)

249. The key environmental principles, which must be taken into account when considering sustainability measures for HOK 1 are as follows:

a) Associated or dependent species should be maintained above a level that ensures their long-term viability (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).

b) Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and

c) Habitats of particular significance for fisheries management should be protected.

250. None of the options propose increases to the HOK 1 TAC or TACC. Therefore, the frequency or scale of environmental interactions is predicted to either decrease or remain the same in line with current fishing effort in HOK 1.

251. It is important to note in some cases FNZ has made some assumptions about environmental interactions based on fisher reported data that may not have been independently verified (for example, by an on-board FNZ Observer). Average observer coverage for HOK 1 in the past 5

fishing years has been 28.11% based on event level data[64], or 30.8% based on the number of observed tows specifically targeting hoki.

252. You recently announced key details of the nationwide rollout of cameras on commercial fishing vessels. Deepwater vessels that account for most catch of hoki are not being targeted by this camera rollout since there is already a high level of monitoring on those vessels. However, on-board cameras will be installed and transmitting footage on a range of smaller vessels (some of which catch hoki) by November 2024. This rollout will improve FNZ's ability to monitor any environmental interactions in occurring in those smaller fisheries that catch hoki.

4.1.1 Marine mammals

253. Fur seals are sometimes caught in hoki target tows, with the majority of captures occurring in the West Coast South Island and Cook Strait fisheries. During the 2015/16 - 2019/20 fishing years, an annual average of 32 fur seals were reported by observers as caught by hoki targeted tows.

254. The Department of Conservation classify the New Zealand fur seal population as 'Not Threatened – least concern'. The total fur seal population in New Zealand was estimated to be over 200,000 animals in the last survey in 2001. The fur seal population is considered to be increasing in abundance by the Department of Conservation.

255. To minimise the risk of marine mammal captures, industry has developed Marine Mammal Operational Procedures (MMOP) for all trawlers greater than 28 m in length. The MMOP describe a range of procedures that a vessel and crew should follow to reduce the risk of marine mammal captures. FNZ monitors and audits vessel performance against the MMOP via the Observer Programme.

4.1.2 Seabirds

256. To estimate total seabird captures in a fishery, statistical methods can be used to extrapolate from observed fishing to unobserved fishing. The values presented in this section estimate the captures that occurred on all fishing effort (both observed and unobserved). These models have been completed using data up to the 2019/20 fishing year by researchers contracted by FNZ.

257. Seabirds are caught during hoki targeted trawling. Between the 2015/16 - 2019/20 fishing years an estimated average of 282 birds were caught by hoki targeted tows annually.

258. The 2020 seabird risk assessment estimates that hoki fishing poses more than 10% of the risk from commercial fisheries for three species identified as being in a high or very high risk category: Salvin's albatross (hoki fishing contributes 16% of risk), Southern Buller's albatross (hoki fishing contributes 31% of risk), and Westland petrel (hoki fishing contributes 11% of risk).

259. In 2020 the National Plan of Action (NPOA) for Seabirds, which sets out the New Zealand government's commitment to reducing fishing-related captures and associated mortality of seabirds was approved. The NPOA Seabirds' (2020) vision is that New Zealanders work towards zero fishing-related seabird mortalities.

260. There are regulations in place that require seabird mitigation to be used on trawl vessels. In addition, industry have developed non-regulatory vessel-specific plans that set out practices that vessels should implement to reduce the risk of seabird interactions. Examples of these mitigation measures include bird bafflers, tori lines, managing fish waste discharge and

[64] This coverage was calculated based on fishing events in which the fish stock was recorded as caught and an observer was on board. This metric does not reflect the overall level of monitoring in the fishery.

effective clearing of nets between tows. FNZ has processes in place to audit performance against these seabird mitigation measures.

4.1.3 Fish bycatch

261. The statistically modelled bycatch of the combined multi-species trawl effort for hoki, hake and ling based on observer reported data from 2002/03-2016/17 (the most recent analysis), found that these three target species accounted for 91% of the catch. The remaining catch was primarily silver warehou (3.9%), javelinfish (1.9%), rattails (1.6%) and spiny dogfish (1.4%)[65].

262. The majority of the species most commonly caught as bycatch during hoki targeted tows, as outlined above, are in the QMS and there are currently no known sustainability concerns for these species.

4.1.4 Benthic impacts

263. Trawling for hoki can interact with the seabed and the associated benthic environment. The nature and extent of those impacts depends on a range of factors such as seafloor type (e.g., mud/sand/rock), gear type, types of organisms and habitats encountered, and oceanographic characteristics. Contact of the trawl gear with the seabed can lead to bycatch of benthic organisms including corals, sponges and sea anemones and impacts on the benthic habitat.

264. The impact of hoki target tows on the benthic environment (the trawl footprint) is mitigated by the spatial concentration of the fishery where vessels typically trawl along previously trawled tow lines. The trawl footprint for all hoki target effort is mapped and monitored annually. In 2018/19, 0.6% of the New Zealand Exclusive Economic Zone (EEZ) and 1.8% of the fishable area (shallower than 1,600 metres and open to bottom trawling) of the EEZ was contacted by trawl fishing for hoki (Baird and Mules 2021)[66]. This annual footprint for hoki is lower than the previous five fishing years (Figure 7).

265. FNZ monitors the trawl footprint of this fishery annually and the cumulative fishable area contacted by trawl fishing for hoki between 1989/90-2018/19 was 4.1% of the NZ EEZ.

[65] Anderson, O F; Edwards, C T T; Ballara, S (2019). Non-target fish and invertebrate catch and discards in New Zealand hoki, hake, ling, silver warehou, and white warehou trawl fisheries from 1990–91 to 2016–17. New Zealand Aquatic Environment and Biodiversity Report, No. 220.
[66] Baird, S.J.; Mules, R. (2021). Extent of bottom contact by commercial trawling and dredging in New Zealand waters, 1989–90 to 2018–19. New Zealand Aquatic Environment and Biodiversity Report, No. 260. 157 p.

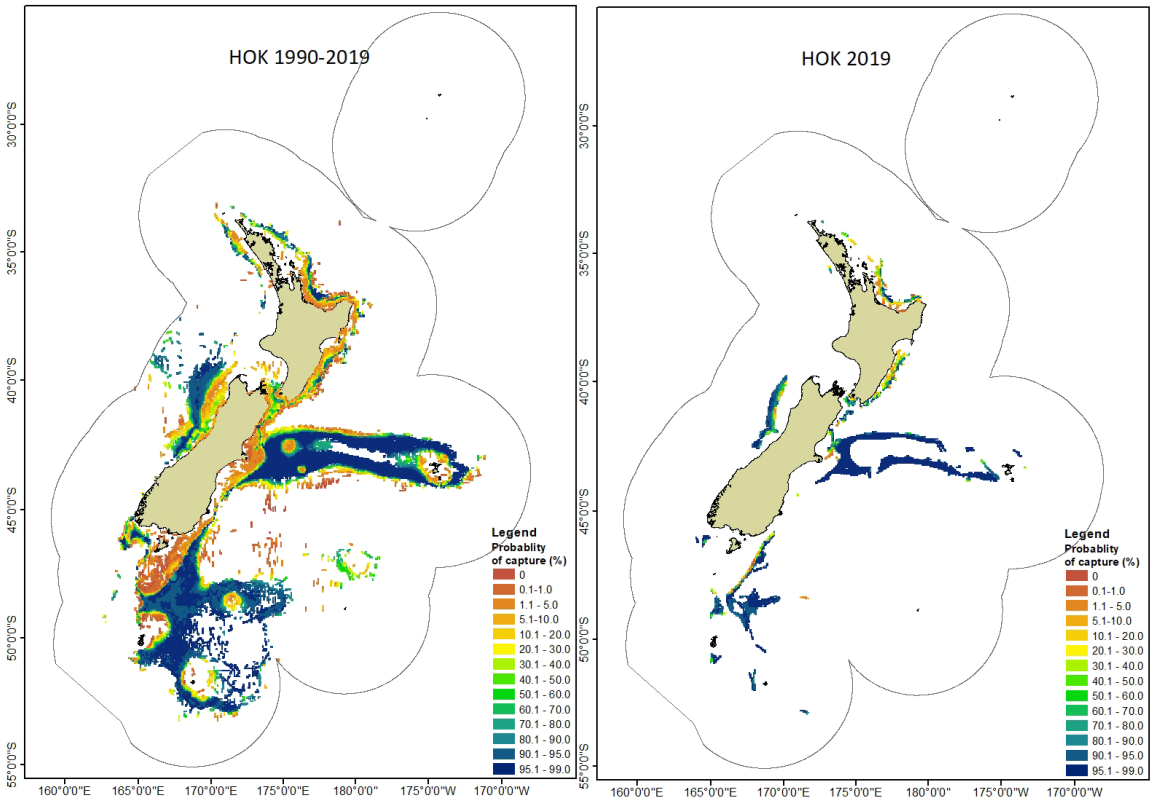


Figure 7: Distribution of the 1990–2019 (left) and the 2019 trawl footprints (right) for hoki, displayed by 25-km² contacted cell, relative to the probability of capture for that species.

266. Management measures to address the effects of trawl activity have focused on avoiding benthic impacts. Around 30% of New Zealand's fisheries waters are closed to trawling. These closures are primarily seamount closures and Benthic Protection Areas (BPAs) which were implemented to avoid adverse effects of fishing on the benthic environment (Figure 8). HOK 1 contains all of the seamount closures and BPAs in New Zealand waters excluding the BPA surrounding the Kermadec region.

4.1.5 Habitats of particular significance for fisheries management

267. There are two potential types of habitats of particular significance in HOK 1, these are spawning grounds and areas with high densities of small hoki. Spawning grounds include the west coast of the South Island (Hokitika Canyon), the Cook Strait, the Puysegur area and in Pegasus Canyon. Areas with high densities of small hoki include the Cook Strait (narrows basin), Canterbury Banks, Mernoo Bank and Puysegur (Table 3).

Table 3: Summary of information on potential habitats of particular significance for fisheries management for HOK 1.

Fish Stock	HOK 1
Spawning Habitat	Hokitika Canyon, Cook Strait, the Puysegur area and Pegasus Canyon
Attributes of habitat	• Potentially the canyons and trenches within these areas could make them areas favourable for spawning. However, the specific habitat characteristics of these canyons and trenches that could make these areas favourable for spawning are uncertain at present.
Reasons for particular significance	• Key spawning areas (winter months: June-September). • Spawning is of critical importance in supporting the productivity of a fish species. • These are the main spawning locations identified in New Zealand waters to date.
Juvenile Habitat	Cook Strait (Narrows basin), Canterbury Banks, Mernoo Bank and Puysegur Bank
Attributes of habitat	• There are thought to be higher densities of small hoki in these areas but the habitat characteristic making these areas favourable for juveniles are uncertain.
Reasons for particular significance	• There are thought to be higher densities of small hoki in these areas. • Survival of juveniles to an age where they can reproduce is essential for the productivity of a fish species. • These are the main areas identified with high densities of small hoki in NZ EEZ to date.
Risks/Threats to spawning and juvenile habitat	• Trawl fishing can contact the seafloor impacting benthic habitats. However, it is currently unknown what conditions make these areas favourable for spawning or for small hoki, and whether any are associated with the benthic environment. So it is also unknown to what extent this fishing activity impacts these habitats. • Oceanographic features and current/circulation patterns could be impacted by future development of tidal power (e.g. Sustainable Seas project - tidal farm potential in the Cook Strait). The impacts this would have on habitat of particular significance for hoki are uncertain. • Long term - current/circulation patterns could be impacted by climate change (ocean warming, changes to wind patterns). The temperature preferences for hoki may indicate environmental conditions which define spawning grounds and areas with high densities of small hoki, highlighting how important monitoring of climate change driven temperature changes could be.
Current marine protection in place	• The current regulatory marine protection in HOK 1 which could be relevant to potential spawning locations and areas with high densities of small hoki include: benthic protection areas and marine reserves (excluding those surrounding the Kermadec islands), marine parks, seamount closures and cable protection zones (Figure 8). • There is also the non-regulatory HMAs and HSSAs (Figures 1 and 2).

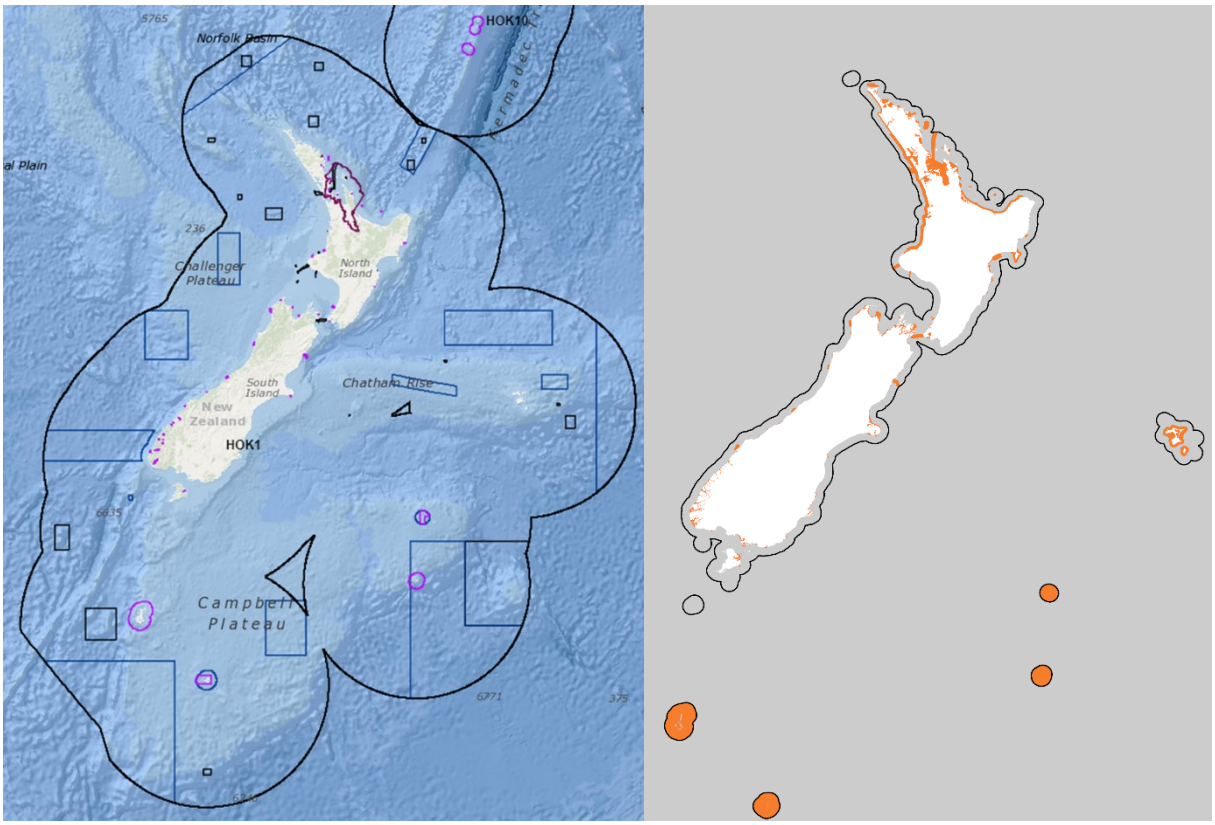


Figure 8: Non hoki-specific marine environmental protection in place within HOK 1: the left panel shows benthic protection areas (blue), marine reserves (pink), marine parks (purple) and cable protection zones and seamount closures (black), the right panel shows areas closed to trawling (orange) within the territorial sea.

4.2 Sustainability measures (section 11 of the Act)

268. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

269. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to HOK 1, the natural variability of the stock concerned, and any relevant fisheries plans.

270. The following plans and strategies are relevant for HOK 1.

4.2.1 National Fisheries Plan for Deepwater and Middle-depths Fisheries – s11(2A)

271. Hoki in HOK 1 is managed as a Tier 1 species within the National Fisheries Plan for Deepwater and Middle-depths Fisheries. A species-specific chapter of the National Deepwater Plan for hoki (Part 1B) was completed in 2010. This chapter contains a bespoke Harvest Strategy that guides the management of hoki.

272. The National Deepwater Plan sets out a series of Management Objectives for deepwater fisheries, the most relevant to the proposals for HOK 1 being:

> **Management Objective 1:** Ensure the deepwater and middle-depths fisheries resources are managed so as to provide for the needs of future generations.
>
> **Management Objective 4:** Ensure deepwater and middle-depth fish stocks and key bycatch fish stocks are managed to an agreed harvest strategy or reference points.

4.2.2 Regional Plans – s11(2)(a)

273. All regional councils have a coastline within HOK 1. Each of these regional councils have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems and habitats.

274. The provisions of these various documents are, for the most part, of a general nature and focus mostly on land-based stressors on the marine environment. There is nothing specific to hoki stocks. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235).

275. FNZ considers that the proposed management options presented are in keeping with the objectives of relevant regional plans.

276. The FNZ Coastal Planning Team engages with the RMA coastal planning processes (including regional authorities) to support marine management decisions to manage not only the fishing effects on the coastal environment but also land-based impacts on fisheries.

5 Submissions

277. A total of 17 submissions and responses were received on the proposed changes for HOK 1. Table 4 summarises the submissions received and shows the support for each option.

Table 4: Written submissions and responses received for HOK 1.

Submitter	Option Support		
	1	2	
Deepwater Group Limited (DWG)	✓		
Environmental and Conservation Organisations of NZ (ECO)		✓	
Ngati Mutunga O Wharekauri Asset Holding Co Ltd	✓		Support DWG's initiatives
Ngātiwai Trust Board		✓	
Rangitāne Holdings Ltd		✓	
Sealord Ltd	✓		
Te Ohu Kaimoana	✓		
Ngā Hapū o Ngāti Porou Management Trusts	✓		Support Te Ohu Kaimoana's response
Iwi Collective Partnership (ICP)	✓		Support Te Ohu Kaimoana's response & DWG's initiatives
Maruehi Fisheries Limited	✓		Support Te Ohu Kaimoana's response & DWG's initiatives
Ngaruahine Fisheries Limited	✓		Support Te Ohu Kaimoana's response & DWG's initiatives
Raukawa Asset Holding Co Ltd	✓		Support Te Ohu Kaimoana's response & DWG's initiatives
Tama Asset Holding Company	✓		Support Te Ohu Kaimoana's response & DWG's initiatives
Taranaki Iwi Fisheries Ltd	✓		Support Te Ohu Kaimoana's response & DWG's initiatives
Te Atiawa (Taranaki) Holdings Ltd	✓		Support Te Ohu Kaimoana's response & DWG's initiatives
Te Pataka O Tangaroa Ltd	✓		Support Te Ohu Kaimoana's response & DWG's initiatives
Whanganui Iwi Fisheries Ltd	✓		Support Te Ohu Kaimoana's response & DWG's initiatives
Total	14	3	

6 Options and analysis

278. The decision to set the TAC for HOK 1 will be made under section 13 2(a) the Act.

6.1 Option 1 - *status quo*

TAC	TACC	Western stock limit	Eastern stock limit	Customary	Recreational	Other mortality
111,140 t	110,000 t	45,000 t	65,000 t	20 t	20 t	1,100 t

279. The eastern stock biomass is estimated to be at 51% B_0 and is 'very likely' (> 90% probability) to be at or above the lower bound of the management target range (35% B_0) and is 'about as likely as not' (40–60% probability) to be above the upper bound of the management target range (50% B_0). Five-year projections at the current catch limits predict that the eastern stock biomass will increase further above the upper bound of the management target range (50% B_0) for two years, but then decrease towards the upper bound of this range over the following three years (Figure 4).

280. The western stock biomass is estimated to be at 28% B_0 and is 'unlikely' (<40% probability) to be at or above the lower bound of the target range. Five-year projections at the current catch limits predict that the western stock biomass will increase over the course of the five-year period. However, there is a risk associated with this option that if catch was taken at the current limits, the western stock is not predicted to reach the lower bound of the management target range within five years (Figure 4). Furthermore, it is likely that if the status quo is maintained there will be a carry forward of uncaught ACE from the 2021/22 fishing year (maximum 10% of available ACE).

281. Te Ohu Kaimoana supported Option 1 in their response. They noted that Iwi/Māori hold significant rights and interests in the hoki fishery, collectively owning or having ownership interest in 44% of the hoki quota. They support the ongoing management of HOK 1 through the industry initiatives, specifically referencing shelving of ACE. They also state that this adaptive and conscientious approach to fisheries management is responsive to change and is a model of responsible leadership being demonstrated by rights holders.

282. Deepwater Group Ltd and Sealord Group Ltd both supported Option 1. Both submissions highlighted their concerns with assumptions used in the recent stock assessment, notably uncertainty in stock structure and fish migration. Reference was made to a recent study that was unable to find a genetic difference between hoki from eastern and western areas. It was also stated that if HOK 1 was considered using a single stock model the current HOK 1 biomass would be around 40-45% B_0. Sealord Group Ltd note that the 5,000 tonne reduction the western catch limit will have a limited in impact on long term sustainability of HOK 1, based on the five-year projections. Additional work is planned to assess a single stock model for the next HOK 1 stock assessment in 2023 as this was agreed as a priority for the Deepwater Working Group.

283. Deepwater Group Ltd raised concern with the western stock virgin biomass being calculated using the average recruitment data since 1975 (the complete time series) when the western stock recruitment has been 30% lower than this level for 30 years. They propose recalculating B_0 for the western stock using only data from 1994 onward and suggest several alternative reasons, alongside a decreasing western stock biomass, as to why recruitment has been lower recently. Examples of these included changing environmental conditions, the model misattributing recruitment between the eastern and western areas and cryptic mortality. Recalculating B_0 from 1994 was not discussed by the Deepwater Working Group so this has not been recommended.

284. Both submissions note that the recent recruitment period used (2009-2018) represents a comparatively low level of recruitment when considering recruitment across the whole time

series of the available data. Sealord Group Ltd stated it supported the use of this recent recruitment period for future projections, but that they consider it a precautionary approach, and this should be recognised when making management decisions. Three recruitment periods were considered by the Deepwater Working Group and they agreed that the recent (2009-2018) period should be used. Other alternatives presented were a low recruitment (1995-2001) period and a long (1975-2018) period.

285. The 2022 hoki stock assessment that was accepted by the Fisheries Assessment Plenary used a base model that contained eastern and western sub-stocks and calculated the virgin biomass of the stocks using the complete time series of recruitment data. Whilst there are some uncertainties associated with the HOK 1 stock structure and model assumptions, the 2022 hoki stock assessment represents the best available scientific information on the biomass of HOK 1.

286. Deepwater Group Ltd and Sealord Group Ltd also noted that a reduction in the TACC would remove the ability for the carry forward of uncaught ACE from 2021/22 and that several quota owners have adopted harvest strategies this year, reliant upon accessing ACE that was uncaught during 2021/22. They state this under catch is a consequence of the Government's border restrictions which have precluded access to international labour limiting the ability to process fish, as opposed to a limited vessel capacity to catch the available ACE.

287. Deepwater Group Ltd and Sealord Group Ltd's submissions highlighted the industry initiatives, including HMAs, HSSAs and voluntary shelving of ACE, that have allowed for the effective management of HOK 1 catch by quota owners within the TACC over recent years.

288. FNZ considers that shelving is not a substitute for a properly set TAC and TACC. However, when making your decision, you may take into account the effect that any ACE shelving is expected to have on the level of biomass. FNZ notes that ACE shelving has been considered when setting a TAC in other fisheries (e.g. PAU 4 in 2019). Additionally, the Sealord Group Ltd submission notes that annual catch for the next few years is unlikely to exceed the current TACC through the use of industry shelving, despite the likely potential for carry-forward.

289. This has been reflected by the proposed shelving in the Deepwater Group Ltd letter from 23 August 2022. The effective catch limit with the proposed shelving for the western stock (40,000 tonnes) cannot exceed the current western stock catch limit (45,000 tonnes) even with the potential carry forward of ACE. This shelving proposal could be applied to Option 1 (*status quo*).

290. FNZ considers that while current biomass is below the management target, a projected increase in biomass in the short term suggests that the stock is not at an immediate sustainability risk. Option 1 would provide an opportunity for industry to demonstrate stewardship, by continuing to implement non-regulatory measures, that, in recent years, have maintained catch below the TACC, and submissions suggest this is likely for 2022/23.

291. In addition, there were 11 responses by quota owners, including Iwi, who either fully supported Te Ohu Kaimoana's response or Deepwater Group Ltd's initiatives, or supported both of these.

6.2 Option 2

TAC	TACC	Western stock limit	Eastern stock limit	Customary	Recreational	Other mortality
106,090 t (↓ 5,050 t)	105,000 t (↓ 5,000 t)	40,000 t (↓ 5,000 t)	65,000 t	20 t	20 t	1,050 t (↓ 50 t)

292. Option 2 reduces the HOK 1 TAC by 5,050 tonnes and the TACC by 5,000 tonnes. The western stock catch limit will be reduced by 5,000 tonnes with no change to the eastern stock limit.

293. For five-year projections under this option, the western stock is predicted to increase to the lower bound of the management target range (35% B_0) within five years. As the eastern stock

catch limit is unchanged for Option 2, the five-year projection values are the same as for Option 1 - *status quo* (Figure 4).

294. Both the Ngātiwai Trust Board and Rangitāne Holdings Ltd supported Option 2 in their responses.

295. The Environment and Conservation Organisations of New Zealand (ECO) also supported Option 2 in their submission. ECO noted that current assessment indicates that the biomass of the western stock was estimated to be 28% B_0 which is below the management target range and while the western stock biomass is predicted to increase over the five-year projection, it does not reach the lower bound of the management target (35% B_0) within five years.

296. ECO also stated that hoki are an important part of the middle depth ecosystem with the highest biomass in the bottom fish community of the upper slope (200– 800 m), particularly around the South Island and is considered to be a key biological component of the upper slope ecosystem. They also raised the importance of understanding the predator-prey relationships between hoki and other species in the slope community, particularly because substantial changes in the biomass of hoki have taken place since the fishery began.

297. Within their submission ECO also raised general sustainability concerns such as the need to reduce bycatch, manage the benthic impacts of bottom trawling, recognise habitats of particular significance for fisheries management, consider climate change impacts and reduce protected species interactions.

6.3 Economic considerations

298. Option 2 reduces the TACC by 5,000 tonnes, with this all coming from the western stock catch limit. This option would result in a potential reduction of $11.4 million in export revenue in the short term.[67]

299. As the 2021/22 fishing year is not yet concluded the quantum of the carry forward of uncaught ACE to the 2022/23 fishing year has not yet been confirmed. However, Deepwater Group Ltd and Sealord submissions indicate that there will be some carry forward if the TAC is not reduced for the 2022/23 fishing year; comparing the current years' catch reporting of HOK 1 to previous years support this.

300. Therefore, Option 2 also carries the additional economic cost of removing the potential for the carry forward of uncaught ACE. If the *status quo* remains, the maximum carry forward of uncaught ACE into 2022/23 is 10% therefore the range of potential reduction in export revenue from removing the ability to carry forward uncaught ACE is $0 – approximately $25 million.

7 Deemed values

301. The current basic annual deemed value rate for HOK 1 ($0.90 per kg) is set above the average price paid by fishers during the 2020/21 fishing year for one kilogram of HOK 1 ACE ($0.48 per kg). The 2022/23 port price of HOK 1 is $0.67 per kg[68].

302. FNZ is satisfied that the existing deemed value rates of HOK 1 are consistent with your mandatory statutory consideration under section 75(2)(a) in that they provide sufficient incentive for fishers to balance their catch with ACE.

[67] The export value is estimated by dividing the weight of the TACC change by a conversion factor for the most commonly landed processed state (Fillets: Skin-off trimmed) and then multiplying by the average export value for this product state (Frozen fillets) in 2021.

[68] Note that this port price has been updated from the value presented in the consultation paper ($0.66/kg), based on the most recently available port price data for 2022-23.

303. If the TACC is reduced under Option 2 outlined above, the changes in fishing behaviour will likely be small and therefore unlikely to greatly impact the ACE market, therefore no changes are proposed to the deemed value rates at this time (Table 5).

Table 5: **Deemed value rates for HOK 1.**

Fish stock	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)	
		100-102%	102%+
HOK 1	0.81	0.90	1.30

8 Conclusions and recommendations

304. The 2022 hoki stock assessment that was accepted by the Fisheries Assessment Plenary used a base model that contained eastern and western sub-stocks. This model estimated the current western stock biomass had fallen below the management target range to 28% B_0 and under the current catch limits the biomass is not projected to return to this target range within five years. Whilst there are some uncertainties associated with the HOK 1 stock structure and model assumptions, the 2022 hoki stock assessment represents the best available scientific information on the biomass of HOK 1.

305. Under the *status quo* (Option 1), the best available information indicates that if catch is taken at the current limits the western stock biomass is not predicted to reach the management target range as set out in the National Deepwater plan for hoki within the next five years. Also, the quantum of carry-forward of uncaught ACE into 2022/23 for the eastern and western stocks is currently unknown. However, Deepwater Group Ltd have proposed a shelving arrangement under the *status quo* for 2022/23 which would mean the western stock catch for 2022/23 does not exceed the current catch limit for the western stock, even with the potential carry forward of ACE from 2021/22.

306. Under the *status quo* (Option 1), you may seek to set an expectation of industry to adhere to this proposed shelving arrangement for 2022/23 outlined in the Deepwater Group Ltd letter of 23 August 2022.

307. Maintaining the *status quo* does not present an immediate sustainability risk to the western stock. The fishery will continue to be closely monitored and a further stock assessment will be undertaken in 2023, including further work to develop a single stock model in addition to the two stock model.

308. Option 2 represents a conservative management response to the estimated western stock biomass falling below the management target range by reducing the HOK 1 TAC by 5,050 tonnes. This reduction will move the western stock biomass back to the target range within a shorter timeframe (predicted to reach the lower bound of the management target within five years).

309. However, Option 2 will result in a significant economic cost to the fishing industry in potential lost revenue, from the reduction in the TACC and the lost potential for carry-forward that may impact some fishing companies.

310. For both options it is recommended that you express your expectation that quota owners will continue to implement the voluntarily catch split arrangement. If you decide on Option 2, you will need to express your expectation that quota owners reduce the catch limit from the western stock by 5,000 tonnes.

9 Decision for HOK 1

Option 1 *(Status quo)*

Agree to set the HOK 1 TAC at 111,140 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Retain the allowance for recreational fishing interests at 20 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 1,100 tonnes;
iv. Retain the HOK 1 TACC at 110,000 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

AND

Note Fisheries New Zealand expects that quota owners will implement the following catch split arrangements within the TACC of 110,000 tonnes and will monitor to ensure the arrangement is adhered to:

a) Western stock catch limit of 45,000 tonnes; and
b) Eastern stock catch limit of 65,000 tonnes.

Noted

OR

Option 2

Agree to set the HOK 1 TAC at 106,090 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Retain the allowance for recreational fishing interests at 20 tonnes;
iii. Decrease the allowance for all other sources of mortality to the stock caused by fishing from 1,100 to 1,050 tonnes;
iv. Decrease the HOK 1 TACC from 110,000 to 105,000 tonnes.

~~Agreed / Agreed as Amended~~ / Not Agreed

AND

Note Fisheries New Zealand expects that quota owners will implement the following catch split arrangements within the TACC of 105,000 tonnes and will monitor to ensure the arrangement is adhered to:

a) Western stock catch limit of 40,000 tonnes; and
b) Eastern stock catch limit of 65,000 tonnes.

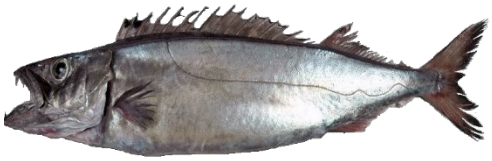
Noted

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

Gemfish (SKI 3 and SKI 7) – South Island, Chatham Rise, West Coast off Taranaki & Wellington

Rexea solandri, Maka-taharaki, Maka-tikati, Tiikati



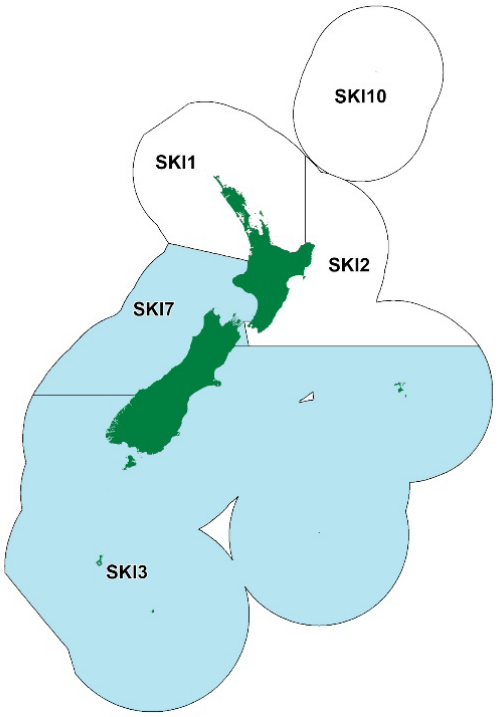


Figure 1: Quota Management Areas (QMAs) for gemfish, with SKI 3 and SKI 7 highlighted.

Table 1: Summary of options proposed for SKI 3 and SKI 7 from 1 October 2022. Figures are all in tonnes. The preferred option of Fisheries New Zealand is highlighted in blue.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
SKI 3	**Option 1** *(Status quo)*	848	839	1	0	8
	Option 2	1,018 ↑ (170 t)	1,007 ↑ (168 t)	1	0	10 ↑ (2 t)
	Option 3	1,103 ↑ (255 t)	1,091 ↑ (252 t)	1	0	11 ↑ (3 t)
SKI 7	**Option 1** *(Status quo)*	848	839	1	0	8
	Option 2	1,018 ↑ (170 t)	1,007 ↑ (168 t)	1	0	10 ↑ (2 t)
	Option 3	1,103 ↑ (255 t)	1,091 ↑ (252 t)	1	0	11 ↑ (3 t)

In total 24 submissions were received on the proposed options.

1 Why are we proposing a review?

311. Gemfish in SKI 3 and SKI 7 are considered to be a single biological stock. They are managed based upon the status of the stock in relation to the default reference points set out in the Harvest Strategy Standard for New Zealand Fisheries. This is supported by a partial quantitative stock assessment.

312. The current TAC for each stock is 848 tonnes, made up of a TACC of 839 tonnes, a customary *Māori* allowance of one tonne, a zero allowance for recreational fishing and an allowance for all other mortality caused by fishing of eight tonnes (equivalent to 1% of the TACC).

313. The best available information strongly suggests that the biomass of gemfish in both SKI 3 and SKI 7 has increased considerably during recent years. The bycatch of gemfish from target fisheries such as hoki has increased in line with increased abundance. The information suggests that a modest increase in catch limits for gemfish would be unlikely to cause the stock to decline in the short term. Consequently, a utilisation opportunity is available.

1.1 About the stock

1.1.1 Fishery characteristics

314. Gemfish in SKI 3 and SKI 7 are almost entirely caught by commercial fishers, with most catch taken between 120 and 550 metres depth as non-target catch by large (> 28 m) vessels using midwater and bottom trawl gear.

315. There are two main areas where gemfish are caught in SKI 3 and one area where gemfish are caught in in SKI 7:

    (i) **SKI 3**: Stewart-Snares Shelf and Pukaki Rise – gemfish are caught year-round by a mixed target trawl fishery (targeting squid, barracouta, hoki, silver warehou, gemfish and ling). Around 22% of the catch from the southern gemfish stock (SKI 3 and SKI 7 combined) is taken in this fishery.

    (ii) **SKI 3**: East Coast South Island – gemfish are caught year-round as bycatch in a mixed target trawl fishery (targeting squid, barracouta, hoki, red cod and tarakihi) in Pegasus Bay/Canterbury Bight. This fishery takes around 15% of the catch from the southern gemfish stock.

    (iii) **SKI 7**: West Coast South Island – gemfish are mainly caught as bycatch in the winter hoki target trawl fishery from May to September. Around 60% of the catch from the southern gemfish stock is taken in this fishery.

316. Consistent with the increase in stock abundance from strong year classes recruiting into the fishery, catches from both fish stocks have noticeably increased during recent years. As landings exceeded the available Annual Catch Entitlement (ACE) by considerable margins, both stocks have incurred significant deemed value invoices since the 2017/18 fishing year. In 2020/21 $403,611 was incurred for SKI 3 and $327,102 for SKI 7.

1.1.2 Biology

317. Gemfish (also known as southern kingfish) are benthopelagic[69] fish found over the continental shelf and slope around the coastline of New Zealand mainly in waters between 120 and 550 metres in depth.

318. Gemfish in SKI 3 and SKI 7 are considered to be one biological stock. Adult fish migrate from the Stewart-Snares shelf in the south (SKI 3) to the West Coast of the South Island (SKI 7) to spawn in August and September.

319. Gemfish feed on other benthopelagic fish such as hoki, squid, and crustaceans. They grow rapidly, attaining a length of approximately 30 cm at the end of the first year and growing to around 63 cm at the end of the fourth year. The maximum age of gemfish is around ten years. Individuals recruit into the fishery at age two when they are around 45 cm fork length.[70] In the 1980s and 1990s the recruitment variability of gemfish was correlated with wind and sea surface temperature patterns during the spawning season. However, a correlation has not been discerned in the last two decades.

[69] Benthopelagic fish feed near the seafloor as well as in midwater or close to the sea surface.
[70] The length of a fish as measured on a line tracing the contour of the body from the tip of the upper jaw to the fork of the tail.

1.1.3 Management background

320. Gemfish stocks entered the Quota Management System (QMS) on 1 October 1986.

321. The TACs of SKI 3 and SKI 7 were both reviewed for the 2021/22 fishing year, at which time the TACs for both stocks were increased from 606 to 848 tonnes.

1.2 Status of the stock

322. Gemfish are low-medium knowledge fishstocks. The status of SKI 3 and SKI 7 in relation to default reference points[71] is unknown. A Level 2 partial quantitative stock assessment for SKI 3 and SKI 7 (ranked '1 High Quality') was accepted by the 2021 Fisheries Assessment Plenary (the Plenary). The assessment indicated that the status of the stock in relation to the target of 40% B_0 was unknown. Given that the level of the stock that can produce the maximum sustainable yield cannot be estimated reliably, you must make decisions based on the best available information (section 13(2A) of the Act).

323. The best available information used to manage these fishstocks are Catch Per Unit Effort (CPUE)[72] indices and the West Coast South Island trawl survey biomass indices. A review of trends in abundance and length composition of gemfish from the West Coast South Island (WCSI) trawl survey series[73] indicated the presence of relatively strong 2014, 2015, and 2016 year-classes (or 'cohorts'). These strong cohorts were made up of fish in the 50 to 70 cm length range which were also present in the length compositions from observer sampling of gemfish from the summer squid trawl fishery on the Stewart-Snares shelf and the WCSI hoki fishery. The Deepwater Working Group (DWWG) concluded that there had been a considerable increase in gemfish stock abundance from the recruitment into the fishery of the three strong cohorts.

324. A standardised CPUE series in 2021 showed a sharp increase in CPUE beginning in 2017/18. The DWWG accepted that all CPUE series indicated a considerable increase in apparent relative biomass compared with the low levels of gemfish observed from 1989 to 2015. The strong increase in SKI 7 biomass was corroborated by the RV *Tangaroa* WCSI trawl survey biomass indices in 2018 and 2021.

325. The DWWG concluded that given recent gemfish recruitment, SKI 3 and SKI 7 stock size is likely to increase over the short term (one to three years) and that it is unlikely (< 40% probability) that biomass will decline below hard limits. Biomass has increased by about ten-fold from 2015 following improved gemfish recruitment.

326. New information since the gemfish stock assessment and consultation on catch limits in 2021 is the corroboration of the strong increase in SKI 7 by the RV *Tangaroa* trawl survey biomass index in 2021. Gemfish were widespread on the survey with a similar biomass to the 2018 RV *Tangaroa* trawl survey.

2 Catch information and current settings within the TAC

2.1 Commercial

327. Annual catches of southern gemfish (SKI 3 and SKI 7) increased significantly from 1980/81 with a combined total peak catch of 8,253 tonnes in 1985/86 (Figures 2 and 3). Catches subsequently declined in the late 1980s. TACCs were reduced to 300 tonnes for both

[71] Under the Harvest Strategy Standard, the default management target is 40% B_0 (unfished biomass), the soft limit is 20% B_0, and the hard Limit is 10% B_0.

[72] CPUE is the quantity of fish caught with one standard unit of fishing effort (e.g., the number of fish taken per 1000 hooks per day or the weight of fish taken per hour of trawling. CPUE is often assumed to be a relative abundance index).

[73] WCSI Trawl Series using Research Vessels *Kaharoa* and *Tangaroa*.

fishstocks from 1997/98 and catches of gemfish generally stayed below the TACC until 2016/17.

328. Catches of gemfish increased in 2016/17 for both stocks. In the last four years (2016/17 to 2020/21) catches of SKI 3 have exceeded the TACC by 152% on average and catches of SKI 7 by 208% on average despite the TACC for both stocks being doubled in 2019/20 to 599 tonnes.

329. In 2020/21 a total of 1,063 tonnes of gemfish was landed in SKI 3 and 1,012 tonnes in SKI 7. The TACC was increased to 839 tonnes for both stocks for the 2021/22 fishing year, however current landings are tracking at a similar rate to the previous fishing year so are expected to exceed the TACC by around 20%.

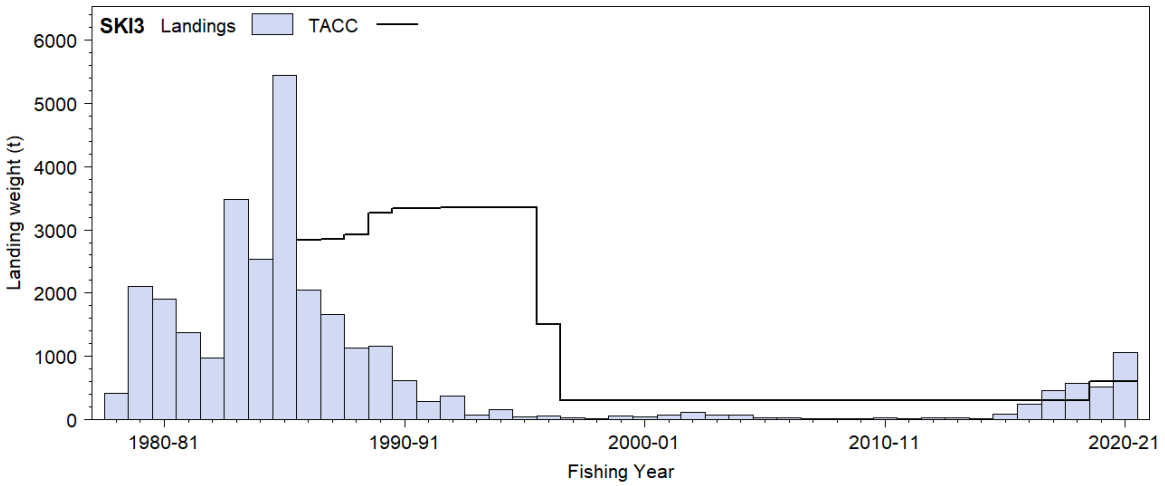


Figure 2: Reported commercial landings (in tonnes) and TACC for SKI 3 between 1978/79 and 2020/21.

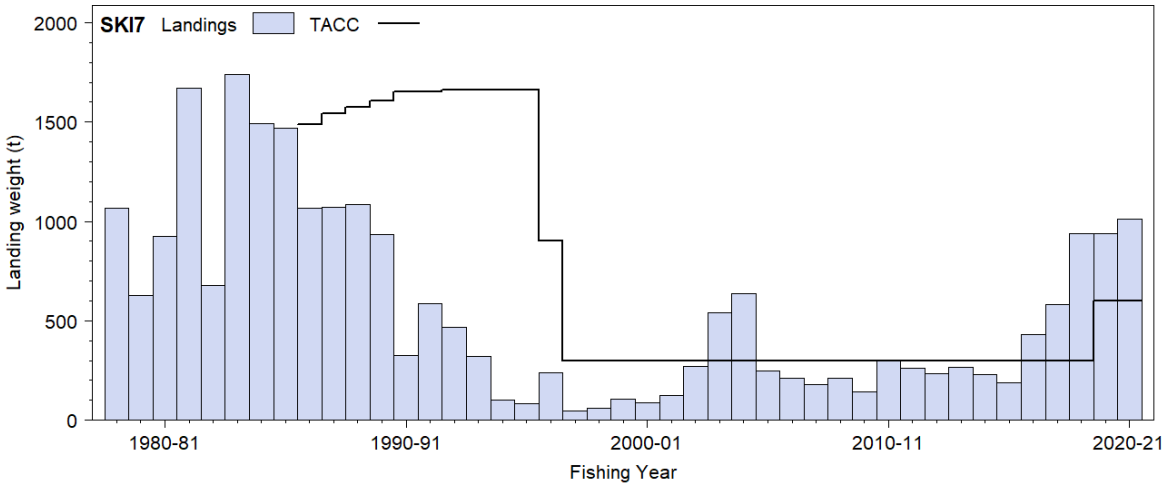


Figure 3: Reported commercial landings (in tonnes) and TACC for SKI 7 between 1978/79 and 2020/21.

2.2 Customary Māori

330. There has been no recorded customary harvest of gemfish in SKI 3 or SKI 7. A one tonne allowance was introduced in both SKI 3 and SKI 7 in the 2019/20 fishing year to provide for gemfish taken under customary permits on commercial trawlers. The current allowance is considered to meet customary needs.

2.3 Recreational

331. Although gemfish are often caught by recreational fishers around the North Island in SKI 1 and SKI 2, there has been negligible reported recreational catch in SKI 3 and SKI 7.

332. The National Panel Survey of Marine Recreational Fishers (2017/18) reported 27 individual gemfish were caught by recreational fishers in SKI 7 in the 2017/18 fishing year and nil reported catch in SKI 3 for the same year. The negligible level of reported recreational catch for these fishstocks is reflected in the recreational allowances, which are currently set at zero for both stocks.

333. The current allowance is considered to meet recreational needs.

2.4 All other mortality caused by fishing

334. The allowance for all other mortality caused by fishing is set at a level equivalent to approximately 1% of the TACC for both SKI 3 and SKI 7. This allowance is the same as that used for hake. It is to provide for unrecorded mortality of gemfish, such as fish escaping through the trawl net and subsequently dying from injuries, accidental loss from ripped trawl nets, and unreported discarding.

335. There is likely to be some mortality associated with escapement from trawl nets, mostly from small fish that can escape through the trawl mesh. The mortality of gemfish associated with escapement is not known. Catch and effort records suggest that small gemfish are uncommon in areas where the fishery occurs. Hence the level of mortality of gemfish associated with escapement is likely to be low over the history of the fishery and is assumed to be negligible. FNZ has no new information to suggest this proportion (1%) is not suitable.

3 Treaty of Waitangi Obligations

3.1 Input and participation of tangata whenua

336. 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.

337. Particular regard must be given to kaitiakitanga when making sustainability decisions.

338. The SKI 3 and SKI 7 fish stocks (Figure 1) include the rohe of Te Waka a Māui me Ōna Toka Iwi fisheries forum — which includes all nine tangata whenua iwi of Te Wai Pounamu: Ngāti Apa ki Ratō, Ngāti Kōata, Ngāti Kuia, Ngāti Rarua, Ngāti Tama, Ngāti Tōarangatira, Rangitāne ō Wairau, Te Ati Awa and Ngai Tahu. The upper part of SKI 7 also includes rohe of Te Tai Hauāuru (Taranaki/ Whanganui/ Manawatu/ Horowhenua/ Kapiti) and Ngaa Hapuu o Te Uru o Tainui (Waikato).

339. Table 2 below provides a summary of engagement with these Iwi Fisheries Forums on the gemfish proposals.

Table 2: Summary of engagement with Iwi Fisheries Forums.

Iwi Fisheries Forum	Engagement on SKI 3 and SKI 7
Te Waka a Māui me Ōna Toka, representing the South Island (Te Waipounamu) and Stewart Island (Rakiura) rohe	The proposed options for SKI 3 and SKI 7 were discussed at a hui held on 12 July 2022. No specific feedback was received on the gemfish stocks.
Ngaa Hapuu o Te Uru o Tainui (Te Puaha ki Te Manuka to Waipingao) *(Waikato)*	A one-pager outlining the proposed options for SKI 3 & 7 was presented to the forum in a hui held on 14 June 2022. No specific feedback was received on the gemfish stocks.

Te Tai Hauauru (*Taranaki to Titahi Bay)*	The forum has not been meeting regularly in 2022. The proposed options for SKI 3 and SKI 7 were sent to forum members via email. No specific feedback was received on the gemfish stocks.

3.2 Kaitiakitanga

340. Te Tai Hauāuru Iwi Fisheries Forum, Te Waka a Māui me Ōna Toka (Te Waka a Māui) Iwi Forums represent iwi with an interest in these two gemfish stocks. Iwi Forum Fisheries Plans contain objectives to support and provide for the interests of the relevant iwi and these Forums regard all fish species as taonga species.

341. Te Tai Hauāuru Iwi Fisheries Plan provides specific objectives in respect of commercial fisheries, that commercial fisheries are sustainable and support economic well-being of their iwi, and that the value of Annual Catch Entitlement is stable or increasing.

342. FNZ considers that the management options presented in this consultation paper are in keeping with the objectives of the Te Waipounamu Iwi (Te Waka a Māui me Ōna Toka) Fisheries Plan in relation to Management Objective Three:

> *'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.'*

343. There are no customary fisheries management tools such as mātaitai reserves, taiāpure, or section 186B temporary closures relevant to these proposals, as the majority of gemfish in SKI 3 and SKI 7 are caught offshore at depths between 200 m and 500 m.

344. FNZ considers that the proposed management options are in keeping with the objectives of the Iwi Fisheries Forum Plans which generally relate to active engagement with iwi and the maintenance of healthy and sustainable fisheries.

4 Environmental and Sustainability Considerations

4.1 Environmental principles (section 9 of the Act)

345. The key environmental principles which must be taken into account when considering sustainability measures for SKI 3 and SKI 7 are as follows:

a) Associated or dependent species should be maintained above a level that ensures their long-term viability (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).

b) Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and

c) Habitats of particular significance for fisheries management should be protected.

346. Gemfish are predominantly a bycatch species of the squid target trawl fishery on the Stewart-Snares Shelf (SKI 3); mixed target trawl fishery off the east coast of the South Island (SKI 3); and the hoki target fishery on the west coast of the South Island (SKI 7). Over the last five fishing years (2016/17 to 2020/21) the average observer coverage was 49% of events that caught gemfish in SKI 3 and 24% of events that caught gemfish in SKI 7.[74]

347. Target tows for gemfish steadily decreased from a peak of 82 tows in 2011/12. Since the 2018/19 fishing year there have been fewer than 20 target tows for gemfish in SKI 3 and SKI 7. It is unlikely that the proposed options will result in increased commercial targeting of gemfish.

[74] This coverage was calculated based on fishing events in which the fish stock was recorded as caught and an observer was on board. This metric does not reflect the overall level of monitoring in the fishery.

Likewise, the amount of trawl effort targeting other fish species is not expected to increase as a consequence of the proposed options.

348. You recently announced key details of the nationwide rollout of cameras on commercial fishing vessels. Deepwater vessels that account for most catch of gemfish in SKI 3 and SKI 7 are not being targeted by this camera rollout since there is already high levels of monitoring on these vessels. However, on-board cameras will be installed and transmitting footage on a range of smaller vessels (some of which catch gemfish) by November 2024. This camera rollout will improve FNZ's ability to monitor any environmental interactions occurring in the fisheries which bycatch gemfish.

4.1.1 Marine mammals

349. New Zealand sea lions, New Zealand fur seals, common dolphins and other marine mammals inhabit the marine environment where gemfish are caught in SKI 3 and SKI 7. These species periodically interact with the fisheries where gemfish are taken mostly as bycatch however, there have been no reported captures of marine mammals while targeting gemfish.

4.1.2 Seabirds

350. The management of seabird interactions with New Zealand's commercial fisheries is guided by the National Plan of Action for Seabirds (NPOA-Seabirds 2020), which sets out the New Zealand Government's commitment to reducing fishing-related captures and associated mortality of seabirds. There have been no reported seabird captures from vessels targeting gemfish in SKI 3 or SKI 7.

351. Seabird species that overlap with the main target fisheries that catch gemfish as bycatch include the Westland petrel, white-chinned petrel, sooty shearwater, white-capped albatross and southern Buller's albatross. In 2019/20 (the most recent data) 2,378 trawl tows were observed on the West Coast South Island (24% of total effort) and 10 seabird captures were observed. On the Stewart-Snares Shelf in 2019/20, 3,526 trawl tows were observed (36% of total effort) and 232 seabird captures were observed.

4.1.3 Fish bycatch

352. The gemfish fishstocks are rarely targeted, so do not have associated bycatch species. The main associated species are those associated with the main target fisheries (hoki and squid).

4.1.4 Benthic impacts

353. Because gemfish are rarely targeted, the proposed options are not considered likely to increase benthic impacts for the target fisheries involved. Gemfish are not acting as a "choke" species that constrains other target species such as hoki or squid. For this reason, it is unlikely that fishers will increase their effort for target species because they can catch more bycatch of gemfish under the options.

354. Trawling effort for target species that bycatch gemfish, interacts with the seabed and the associated benthic environment. The nature and extent of those impacts depends on a range of factors such as seafloor type (e.g., mud/sand/rock), gear type, types of organisms encountered and oceanographic characteristics. Contact of the trawl gear with the seabed can lead to bycatch of benthic organisms including corals, sponges and sea anemones.

355. The impact of tows on the benthic environment (the trawl footprint) is mitigated by the spatial concentration of the fishery where vessels typically trawl along previously trawled tow lines. The trawl footprint is mapped and monitored annually.

356. FNZ monitors the trawl footprint and the cumulative fishable area contacted by trawl fishing. Management measures to address the effects of trawl activity have focused on avoiding

benthic impacts. Around 30% of New Zealand's fisheries waters are closed to trawling. These closures are primarily Seamount Closures and Benthic Protection Areas (BPAs) which were implemented to avoid adverse effects of fishing on the benthic environment.

4.1.5 Habitats of particular significance for fisheries management

357. Gemfish are broadly distributed in SKI 3 and SKI 7 and there is little information available to help identify habitats of particular significance to the stocks. Some general habitats that may potentially be significant for SKI 3 and SKI 7 are discussed in Table 3.

Table 3: Summary of information on potential habitats of particular significance for fisheries management for SKI 3 and SKI 7.

Fish stock	SKI 3 and SKI 7
Potential habitat of particular significance	• Water column between 120 and 550 metres depth West Coast South Island (WCSI). There may be other spawning grounds for the southern gemfish biological stock, however the WCSI spawning ground appears to be the most important.
Attributes of habitat	• Potentially the canyons and trenches on the continental shelf and slope WCSI make them areas favourable for spawning. However, the specific habitat characteristics of these canyons and trenches that could make these areas favourable for spawning are uncertain at present. • The sea surface temperature of the WCSI in winter is variable over time. Records have shown occasional periods of increased temperature.
Reasons for particular significance	• Spawning is critically important in supporting the productivity and recruitment of gemfish. • Observer data and research trawl surveys have suggested that the southern gemfish stock (SKI 3 and SKI 7) migrate to spawn off the west coast of the South Island during August-September. • Recruitment is highly variable, periodic increases in sea surface temperatures, as well as less than average strength south-westerly winds have been correlated with the presence of strong gemfish year classes.
Risks/Threats	• Long term ocean current and circulation patterns could be impacted by climate change (sea surface temperature change and changes to wind patterns). • Due to the unknown significance of the benthic environment to the life cycle of gemfish it cannot be determined whether bottom-contacting fishing activities will have an impact on any habitats of particular significance to the management of SKI 3 or SKI 7.
Existing protection measures	• There are no known habitats of particular significance for gemfish that are protected by existing management measures.

4.2 Sustainability measures (section 11 of the Act)

358. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

359. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to SKI 3 and SKI 7, the natural variability of the stock concerned, and any relevant fisheries plans.

360. The following plans and strategies are relevant for SKI 3 and SKI 7.

4.2.1 National Fisheries Plan for Deepwater and Middle-depth fisheries – s11(2A)

361. Gemfish in SKI 3 and SKI 7 are managed as a Tier 2 species within the National Fisheries Plan for Deepwater and Middle-depth fisheries 2019 – Part 1A (National Deepwater Plan 2019). Tier 2 fisheries are typically less commercially valuable, comprise bycatch fisheries, or are only

targeted periodically throughout the year.

362. The National Deepwater Plan 2019 sets out a series of Management Objectives for deepwater fisheries, the most relevant to SKI 3 and SKI 7 being:
    - **Management Objective 1:** Ensure the deepwater and middle-depth fisheries resources are managed so as to provide for the needs of future generations.
    - **Management Objective 4:** Ensure deepwater and middle-depth fishstocks and key bycatch fishstocks are managed to an agreed harvest strategy or reference points.

4.2.2 Regional Plans – s11(2)(a)

363. There are seven regional councils (Environment Canterbury, Environment Southland, Otago Regional Council, West Coast Regional Council, Greater Wellington Regional Council, Horizons Regional Council, Taranaki Regional Council) and three unitary authorities (Marlborough District Council, Nelson City Council and Tasman District Council) that have coastline within SKI 3 and SKI 7 boundaries respectively. Each of these regional councils and unitary authorities have plans and regional policy statements to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats.

364. The provisions of these various documents are, for the most part, of a general nature and focus mostly on land-based stressors on the marine environment. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235).

365. FNZ considers that the proposed management options presented are in keeping with the objectives of relevant regional plans. The FNZ Coastal Planning Team engages with the RMA coastal planning processes (including regional authorities) to support marine management decisions to manage not only the fishing effects on the coastal environment but also land-based impacts on fisheries.

5 Submissions

366. A total of 24 submissions were received on SKI 3 and SKI 7. Table 4 summarises the submissions received and shows the support for each option.

Table 4: Written submissions and responses received for SKI 3 and SKI 7. Submissions refer to both gemfish stocks unless otherwise indicated.

Submitter	Option Support			
	1	2	3	
Environment and Conservation Organisations of New Zealand (ECO)	✓			
Fish Mainland	✓			
A. Reay	✓			Agrees with Fish Mainland's submission
A. Crossland	✓			Agrees with Fish Mainland's submission
B. Reay	✓			Agrees with Fish Mainland's submission
B. Capill	✓			Agrees with Fish Mainland's submission
B. Meikle	✓			Agrees with Fish Mainland's submission
B. Stewart	✓			Agrees with Fish Mainland's submission
D. Broom	✓			Agrees with Fish Mainland's submission
G. McInnes	✓			Agrees with Fish Mainland's submission
M. Lamb	✓			Agrees with Fish Mainland's submission

Iwi Collective Partnership (ICP)		✓		Not opposed outright to Option 3
Ngāti Mutunga o Wharekauri Asset Holding Company Ltd		✓		Submission relates to SKI 3 only
Rangitāne Holdings Ltd	✓			Submission relates to SKI 7 only
Southern Inshore Fisheries Management Ltd Endorsed by: –Deepwater Group Limited (DWG) –Fisheries Inshore New Zealand Ltd (FINZ)			✓	
Sealord Group Ltd			✓	
Te Ohu Kaimoana Endorsed by: –Raukawa Asset Holding Co Ltd			✓	
Maruehi Fisheries Ltd		✓		Supports Te Ohu Kaimoana's submission, but supports the more cautious Option 2 for SKI 7
Ngaruahine Fisheries Ltd.		✓		Supports Te Ohu Kaimoana's submission, but supports the more cautious Option 2 for SKI 7
Tama Asset Holding Company Ltd		✓		Supports Te Ohu Kaimoana's submission, but supports the more cautious Option 2 for SKI 7
Taranaki Iwi Fisheries Ltd		✓		Supports Te Ohu Kaimoana's submission, but supports the more cautious Option 2 for SKI 7
Te Atiawa (Taranaki) Holdings Ltd		✓		Supports Te Ohu Kaimoana's submission, but supports the more cautious Option 2 for SKI 7
Te Paataka o Tangaroa Ltd		✓		Supports Te Ohu Kaimoana's submission, but supports the more cautious Option 2 for SKI 7
Whanganui Iwi Fisheries Ltd		✓		Supports Te Ohu Kaimoana's submission, but supports the more cautious Option 2 for SKI 7
Total	12	9	3	

6 Options and analysis

6.1 Option 1 – *status quo*

SKI 3	**TAC:** 848 t	**TACC:** 839 t	**Customary**: 1 t	**Recreational**: 0 t	**Other mortality**: 8 t
SKI 7	**TAC:** 848 t	**TACC:** 839 t	**Customary**: 1 t	**Recreational**: 0 t	**Other mortality**: 8 t

367. Option 1 is the *status quo*. It retains the existing catch limits and allowances for 2022/23. This is the most cautious approach and results in the lowest risk to the stock, and wider ecosystem. However, by retaining the *status quo*, there is likely to be a missed opportunity for utilisation.

368. The Environment and Conservation Organisations of NZ (ECO) does not support a further increase of SKI 3 and SKI 7 at this stage. They consider a cautious approach results in lower risk to the stock and wider ecosystem. They note that changes to the hoki catch limit could reduce the current over-catch of gemfish and that gemfish stocks have collapsed in the past in Australia and New Zealand.

369. Fish Mainland's purpose is to coordinate and assist the South Island marine fishing community (particularly recreational fishers) in restoring and sustaining fisheries resources. They do not support Options 2 and 3 that would increase the TAC and TACC for SKI 3 and SKI 7. They support the *status quo* and note that gemfish is increasingly taken by recreational fishers as bycatch when fishers are targeting bluenose and grouper. They question why there is no

proposed increase in recreational allowances. Fish Mainland's submission was supported by nine submissions from members of the public.

370. Rangitāne Holdings Limited support Option 1, *status quo* (no additional supporting information is provided).

371. FNZ notes that gemfish catch has exceeded the TACC and available ACE in the last four years for SKI 7, and three of the last four years for SKI 3. On 1 August 2022 catch had already exceeded the available ACE for SKI 3 for the 2021/2022 fishing year.

372. Landings for the 2020/21 fishing year exceeded the current TACC for SKI 3 by just over 26% (a total of 1,063 tonnes were landed) and by just over 20% for SKI 7 (a total of 1,012 tonnes were landed).

373. FNZ does not recommend Option 1. By retaining the *status quo* there is likely to be a missed opportunity for utilisation if, as models predict, gemfish biomass remains high in the short term. The submission that gemfish are increasingly caught by recreational fishers supports the analysis that gemfish biomass has increased but is anecdotal at this stage. We will revisit the recreational allowance when we analyse data from the next National Panel Survey of Marine Recreational Fishers which will be undertaken on 1 October this year.

6.2 Option 2

SKI 3	**TAC:** 1,018 t (↑ 170 t)	**TACC:** 1,007 (↑ 168 t)	**Customary**: 1 t –	**Recreational**: 0 t –	**Other mortality**: 10 t (↑ 2 t)
SKI 7	**TAC:** 1,018 t (↑ 170 t)	**TACC:** 1,007 (↑ 168 t)	**Customary**: 1 t –	**Recreational**: 0 t –	**Other mortality**: 10 t (↑ 2 t)

374. Option 2 proposes to increase the TAC, TACC and allowance for all other mortality caused by fishing for both stocks to reflect the increase in abundance of gemfish in SKI 3 and SKI 7. This would set the TACC at the approximate current catch levels based on the previous fishing year (in the 2020/21 fishing year 1,063 tonnes were landed in SKI 3 and 1,012 tonnes were landed in SKI 7).

375. Ngāti Mutunga o Wharekauri Asset Holding Company Ltd supports Option 2 (no additional supporting information is provided).

376. Maruehi Fisheries Limited, Ngaruahine Fisheries Limited, Tama Asset Holding Company Ltd, Te Paataka o Tangaroa Limited, Te Atiawa (Taranaki) Holdings Ltd, Taranaki Iwi Fisheries Limited, and Whanganui Iwi Fisheries Limited fully support the submission from Te Ohu Kaimoana regarding the sustainability measures for the October 2022 fishing year. In addition, they all support Option 2 for SKI 7 (no additional supporting information is provided).

377. Iwi Collective Partnership also support Option 2 for both stocks as a conservative increase based on the significant increase in gemfish biomass. They note that they are not opposed to the greater TACC increase under Option 3. They consider that at high catch levels in a bycatch fishery, the deemed values costs for gemfish are inappropriate and unfair when the TACC is set too low.

378. Option 2 equates to a 20% increase to the TACC (168 tonne increase). As the Deepwater Working Group estimated that current catch levels are unlikely to result in a biomass reduction over the short term, there is no information to suggest that the proposed increase under Option 2 would pose a sustainability risk to either stock.

379. By increasing the TACC to recent catch levels, Option 2 would provide for an increased quantity of gemfish to be taken as unavoidable bycatch. However, on current catch trends and

stock assessment predictions, it would not fully provide for utilisation of the strong increase in gemfish biomass.

380. FNZ considers it unlikely that Option 2 would result in an increase in the level of commercial fishing effort targeting either gemfish, or any other species in SKI 3 and SKI 7. As such, the environmental impacts of the proposed TACC increases are likely to be negligible.

6.3 Option 3 – *Fisheries New Zealand preferred option*

SKI 3	**TAC:** 1,103 t (↑ 255 t)	**TACC:** 1,091 t (↑ 252 t)	**Customary**: 1 t –	**Recreational**: 0 t –	**Other mortality**: 11 t (↑ 3 t)
SKI 7	**TAC:** 1,103 t (↑ 255 t)	**TACC:** 1,091 t (↑ 252 t)	**Customary**: 1 t –	**Recreational**: 0 t –	**Other mortality**: 11 t (↑ 3 t)

381. Under Option 3 FNZ proposes to increase the TAC, TACC and allowance for all other mortality caused by fishing for both stocks to reflect the increase in abundance of gemfish in SKI 3 and SKI 7. FNZ proposes to increase the TACC by 30% for both stocks (a 252 tonne increase). The proposed option would set the TACC slightly above recent catch levels based on the previous fishing year. There is no information to suggest that the proposed increase under Option 3 would pose a sustainability risk to either stock.

382. Te Ohu Kaimoana notes that the gemfish stock is experiencing above average recruitment and the biomass is predicted to increase. They state that the limited availability of gemfish ACE affects the profitability of the target fisheries that SKI is caught with due to the increase in SKI ACE price and deemed value payments. Given there are no sustainability concerns apparent for these stocks and the ability of FNZ to monitor the stocks, they support Option 3 for SKI 3 and SKI 7 to allow maximum profitability of fishing trips.

383. Sealord Group Limited support Option 3 because they have observed that the abundance of gemfish bycatch in the target fisheries is not decreasing. They consider that the CPUE model appears to accurately characterise the fishery and agree with FNZ analysis that as a bycatch fishery, changes to the TACC will have little effect on SKI 3 or SKI 7 catch or effort. They support annual monitoring for adaptive fishery management of this stock.

384. Southern Inshore Fisheries Management Limited prefer Option 3 for SKI 3 and SKI 7 because gemfish is now an unavoidable bycatch species. They note that abundance has increased significantly over the past six years and that past increases in TACCs have not resulted in increased targeting of this species. They agree that based on recent recruitment of strong gemfish year classes the stock size is likely to increase over the short term. They note that biomass could also fall quickly in future and that vigilance with monitoring will be necessary. Deepwater Group Limited and Fisheries Inshore New Zealand endorse this submission from Southern Inshore Fisheries Management Limited.

385. Option 3 is FNZ's preferred option. The new TACC for SKI 3 and SKI 7 would provide for an increased quantity of gemfish to be taken as unavoidable bycatch (as a result of the increase in gemfish biomass). FNZ considers it unlikely that Option 3 would result in an increase in the level of commercial fishing effort targeting either gemfish, or any other species in SKI 3 and SKI 7. As such, the environmental impacts of the proposed TACC increases are likely to be negligible.

6.4 Economic considerations

386. Gemfish product is primarily exported. In the 2021 calendar year, all gemfish stocks had a FOB[75] value of NZ $3.2 million. It is unknown how much is sold on the domestic market.

387. It is unlikely that changes to the TACC will affect fishing effort or the quantity of gemfish landed in SKI 3 or SKI 7. Therefore, the export value of SKI 3 or SKI 7 is also unlikely to be impacted by the proposed options.

7 Deemed values

388. The deemed value rates for SKI 3 and SKI 7 are shown in Table 5.

Table 5: Standard deemed value rates ($/kg) for SKI 3 and SKI 7.

	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	200%+
SKI 3 & 7 Status quo	0.65	0.72	0.86	1.01	1.15	1.3	1.44

389. The existing basic annual deemed value rates are below the port prices ($1.31/kg for SKI 3 and $1.35/kg for SKI 7) and above the average ACE prices ($0.45/kg for SKI 3 and $0.36/kg for SKI 7). FNZ is therefore satisfied that the existing deemed value rates are consistent with your mandatory statutory consideration under section 75(2)(a) in that they provide sufficient incentive for fishers to balance their catch with ACE.

390. On that basis, FNZ is not recommending any changes to deemed value rates for these stocks at this time.

8 Conclusions and recommendations

391. FNZ consulted on increasing the catch allowances for the SKI 3 and SKI 7 stocks based on a 2021 stock assessment. The Deepwater Working Group accepted in 2021 that the biomass of gemfish in SKI 3 and SKI 7 has increased in recent years and is likely to continue to increase over the short term.

392. Of the 24 submissions received, 12 supported an increase to the catch limits of either SKI 3, SKI 7, or both fish stocks.

393. After considering the views of submitters, FNZ recommends increasing the catch limits of SKI 3 and SKI 7 under Option 3. This option will provide an opportunity to increase utilisation of both fish stocks in line with recent CPUE increases.

394. The recommended increases to catch limits are unlikely to result in increased targeted effort due to the relatively low market demand for gemfish and recent trends in fishing effort. It is also considered unlikely that the recommended option will cause the biomass of the southern gemfish stocks to decline below the soft limits. FNZ will continue to carefully monitor the catch of gemfish in SKI 3 and SKI 7 to confirm that catch remains as a bycatch of other target fisheries.

395. The effects on associated species and habitats of particular significance are likely to be negligible due to the improbability of target effort increasing.

[75] Free on board. The value of export goods, including raw material, processing, packaging, storage and transportation up to the point where the goods are about to leave the country as exports. FOB does not include storage, export transport or insurance cost to get the goods to the export market.

9 Decision for Gemfish - SKI 3

Option 1 *(Status quo)*

Agree to retain the SKI 3 TAC at 848 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 8 tonnes;
iv. Retain the SKI 3 TACC at 839 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SKI 3 TAC at 1,018 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 8 to 10 tonnes;
iv. Increase the SKI 3 TACC from 839 to 1,007 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 (*Fisheries New Zealand preferred option*)

Agree to set the SKI 3 TAC at 1,103 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 8 to 11 tonnes;
iv. Increase the SKI 3 TACC from 839 to 1,091 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

10 Decision for Gemfish - SKI 7

Option 1 *(Status quo)*

Agree to retain the SKI 7 TAC at 848 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 8 tonnes;
iv. Retain the SKI 7 TACC at 839 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SKI 7 TAC at 1,018 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 8 to 10 tonnes;
iv. Increase the SKI 7 TACC from 839 to 1,007 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 (Fisheries New Zealand's preferred option)

Agree to set the SKI 7 TAC at 1,103 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 8 to 11 tonnes;
iv. Increase the SKI 7 TACC from 839 to 1,091 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

Scampi (SCI 1) – Northern East Coast North Island

Scampi - *Metanephrops challengeri*

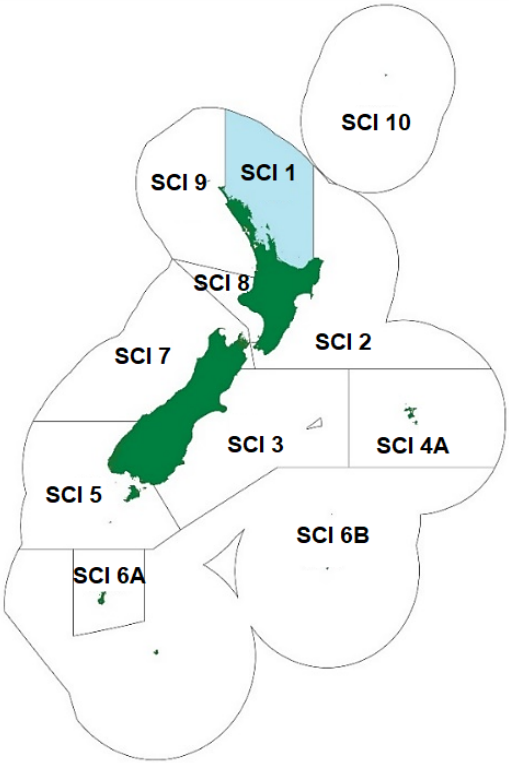


Figure 1: Quota Management Areas (QMAs) for scampi, with SCI 1 highlighted.

Table 1: Summary of options proposed for SCI 1 from 1 October 2022. Figures are all in tonnes. The preferred option of Fisheries New Zealand is highlighted in blue.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 *(Status quo)*	139	132	0	0	7
Option 2	153 ↑ (14 t)	145 ↑ (13 t)	0	0	8 ↑ (1 t)
Option 3	166 ↑ (27 t)	158 ↑ (26 t)	0	0	8 ↑ (1 t)

In total 15 submissions were received on the proposed options.

1 Why are we proposing a review?

396. Using the best available information, FNZ considers that there is an opportunity to increase utilisation of SCI 1 whilst maintaining the status of the stock above the management target. FNZ is therefore proposing options that increase the TAC, allowance for other sources of mortality caused by fishing, and TACC for SCI 1.

397. The current SCI 1 TAC is 139 tonnes, which includes a 132 tonne TACC. There are no customary Māori nor recreational allowances, and 7 tonnes for all other mortality caused by fishing (equivalent to 5% of the TACC).

398. The most recent stock assessment wasn't accepted by the Deepwater Working Group, however the SCI 1 biomass in relation to MSY is estimated from Catch Per Unit Effort (CPUE) indices. The Fisheries Assessment Plenary agreed that updated CPUE indices indicate there

has been an increase in abundance of scampi in SCI 1 since 2019. Estimates suggest that SCI 1 biomass was very likely (> 90%) to be at or above the target biomass and exceptionally unlikely (< 1%) to be below the soft (20% B_0) or the hard limit (10% B_0). These updated CPUE indices are the best available information at this time.

399. On this basis, FNZ proposed a review of SCI 1 management settings and consulted on options to increase the TAC to either 153 tonnes or 166 tonnes.

1.1 About the stock

1.1.1 Fishery characteristics

400. Virtually all scampi (over 99% of scampi catch) is taken within the target bottom trawl fishery. Negligible quantities of scampi are caught as non-target bycatch in other fisheries.

401. Vessels used to target scampi are typically 20-32 m in length and deploy light, low headline trawl gear with a double or triple rig configuration. When targeting scampi, vessels typically conduct three long (approx. seven-hour) tows per day and remain at sea for between two and six weeks (with the scampi frozen on board). The scampi fishery is a low volume, high value fishery; the average catch of scampi for the ~5,000 target tows completed in 2021-22 across all scampi fisheries was 194 kg with the highest catch of about 800 kg.

402. Given the need for a specific gear setup, most vessels used to target scampi are not typically used to target other species. There can, however, be high levels of bycatch for other species in the scampi fisheries (see Heading 4.1.3 of this stock chapter). The number of vessels used to target scampi has remained relatively constant, at between eight and eleven vessels, over the last ten years.

1.1.2 Biology

Distribution

403. Scampi are mobile, bottom dwelling crustaceans widely distributed but patchily abundant around the coast of New Zealand, principally in depths between 200 and 500 m on the continental slope.

Habitat

404. The main areas of scampi distribution are in the depth band between about 300 and 500 m in muddy sand. These occur along the east coast of North Island (Bay of Plenty, Hawke Bay, and Wairarapa), to the east of the Mernoo Bank and the northern side of the Chatham Rise, an area to the north and northwest of the Chatham Islands, and to the east and northeast of the Auckland Islands (350 m-550 m). Scampi also occur in lower densities in similar habitats on the Challenger Plateau, off the northwest coast of South Island, and to the south of Chalky Sound. Like other species of *Metanephrops* and *Nephrops*, *M. challengeri* builds a burrow in the sediment and may spend a considerable proportion of time within this burrow. From trawl catch rates, it appears that there are daily and seasonal cycles of emergence from burrows onto the sediment surface. Catch rates are typically higher during the hours of daylight than night, and patterns vary seasonally between sexes and areas, dependent on the moult cycle.

405. Bioturbation from scampi burrowing activity is thought to influence oxygen and nutrient fluxes across the sediment-water boundary, especially when scampi density is high (e.g., Hughes & Atkinson 1997[76], who studied *Nephrops norvegicus* at densities of 1–3 m^{-2}). Observed scampi densities from photographic surveys in New Zealand have been 0.02–0.1 per m^2 , [77] similar to

[76] Hughes, D; & Atkinson, R. (1997) A towed video survey of megafaunal bioturbation in the north-eastern Irish Sea. Journal of the Marine Biological Association of the United Kingdom 77(3): 635–653.

[77] Tuck, I. (2010) Scampi burrow occupancy, burrow emergence, and catchability. New Zealand Fisheries Assessment Report 2010/13. 58 p.

densities of *N. norvegicus* in comparable depths.

Growth and Maturity

406. Tagging of *M. challengeri* to determine growth rates was undertaken in the Bay of Plenty in 1995, and the bulk of recaptures were made late in 1996. About 1% of tagged animals were recaptured, similar to the average return rate of similar tagging studies for scampi and prawns in the UK and Australia. Many more females than males were recaptured, and small males were almost entirely absent from the recapture sample. The reasons for this are not understood but may relate to the timing of moulting in relation to the study and tag retention. Males grow to a larger size than females.

407. A tagging project *has* been conducted in the Auckland Islands (SCI 6A), with six release events (March 2007, 2008, 2009, 2013, 2016 and 2019). Most recaptures occur within a year of release. Tagging work has also more recently been conducted in SCI 1, 2, and 3, although recapture rates have been low. Tag recaptures are fitted within assessment models to estimate growth.

408. The maximum age of scampi in New Zealand is not known. However, analysis of tag return data and aquarium trials coupled with studies of similar species overseas, such as *N. norvegicus*, suggests that scampi may achieve a maximum age of 15-20 years.

409. Scampi moult several times per year in early life and probably about once a year after sexual maturity (at least in females). Early work suggested that female *M. challengeri* achieve sexual maturity at about 40 mm orbital carapace length (OCL) in the Bay of Plenty and on the Chatham Rise, about 36 mm OCL off the Wairarapa coast, and about 37 mm OCL around the Auckland Islands (approximately 3 to 4 years of age). Examination of ovary maturity on more recent trawl surveys suggest that 50% of females were mature at 30 mm OCL in SCI 1. The peak of moulting and spawning activity seems to occur in spring or early summer.

Predator-Prey interactions

410. Scampi are thought to prey mainly on invertebrates[78] or carrion. Scampi have a range of different fish predators.

411. A 3-year diet study of the Chatham Rise showed that scampi was the first, third, and fourth most important item (by IRI, Index of Relative Importance) in the diet of smooth skate, ling, and sea perch, respectively[79]. In the SCI 6A fishery around the Auckland Islands important predator species were smooth skate, ling, swollen head and hairy conger eels, pale ghost shark, and spiny dogfish[80].

Stock structure

412. Stock structure of scampi in New Zealand waters is not well known. Preliminary genetic analyses suggest that scampi in SCI 6A are genetically distinct from those in other areas, and that there is substantial heterogeneity in samples from SCI 1, 2, and 4A. Studies using newer mitochondrial DNA and microsatellite approaches support these results. The abbreviated larval phase of this species may lead to low rates of gene mixing because of lack of dispersion. Differences among some scampi populations in average size, size at maturity, the timing of daily and seasonal cycles of catchability, catch to bycatch ratios, and CPUE trends also suggest that their treatment as separate management units is appropriate.

[78] Meynier, L.; et al. (2008) Proximate composition, energy content, and fatty acid composition of marine species from Campbell Plateau, New Zealand. New Zealand Journal of Marine and Freshwater Research 42(4): 425–437.
[79] Dunn, M; et al (2009) Ecosystem-scale trophic relationships: diet composition and guild structure of middle-depth fish on the Chatham Rise. Final Research Report for Ministry of Fisheries Research Project, ZBD2004-02. (Unpublished report held by Fisheries New Zealand, Wellington).
[80] Tuck, I.; et al. (2020). Estimating the abundance of scampi in SCI 6A (Auckland Islands) in 2019. New Zealand Fisheries Assessment Report 2020.

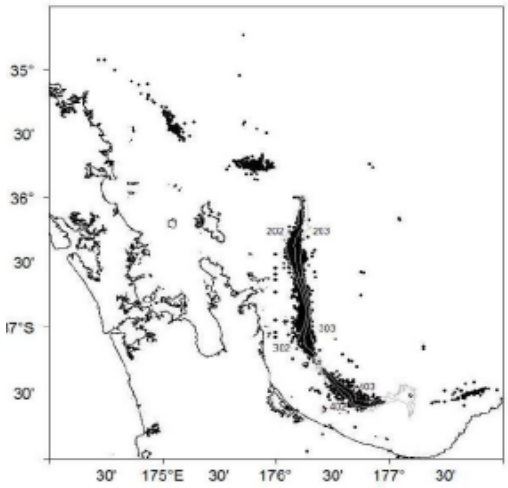


Figure 2: Spatial Distribution of the SCI 1 Fishery since 1988/89. Each dot shows the mid-point of a scampi target tow (Tuck 2020).

1.1.3 Management background

413. Scampi stocks entered the Quota Management System (QMS) on 1 October 2004. The SCI 1 stock was last reviewed in 2020 when the TAC was increased by 10% and the TACC increased to 132 tonnes for the 2020/21 fishing year. The reason for this increase was the 2019 stock assessment, which estimated that the SCI 1 biomass was very likely to be above the management target of 40% B_0.

1.2 Status of the stock

414. In the absence of an agreed species-specific harvest strategy, scampi stocks are managed in relation to the default reference points set out in the Harvest Strategy Standard (HSS)[81].

415. Management of SCI 1 is supported by a fully quantitative stock assessment undertaken every three years. Each stock assessment is preceded by a dedicated photographic and trawl survey.

416. In 2022, the Deepwater Working Group (DWWG) did not accept the fully quantitative assessment for SCI. Instead, the Fisheries Assessment Plenary proposed assessing the status of the stock in a partial-quantitative method that involved examination of the trends in the available abundance indices since the 2019 assessment of the stock. The burrow count index was not used in 2022 because of high readings attributed to reader bias thus leaving the remaining indices (trawl, visible animal and CPUE) which are all dependent on emergence.

417. However, the Plenary agreed that updated CPUE indices (supported by trawl and photo animal survey indices) indicate there has been an increase in abundance of scampi in SCI 1 since 2019. They estimated that SCI 1 biomass was very likely (> 90%) to be at or above the target biomass and exceptionally unlikely (< 1%) to be below the soft (20% B_0) or the hard limit (10% B_0). These updated CPUE indices are the best available information at this time.

2 Catch information and current settings within the TAC

2.1 Commercial

418. Target trawl fisheries for scampi first developed in the late 1980s and, until the 1999–2000 fishing year, there were restrictions on the vessels that could be used to target each stock.

[81] Under the Harvest Strategy Standard, the default management target is 40% B_0 (unfished biomass), the soft limit is 20% B_0, and the hard Limit is 10% B_0.

Between October 1991 and September 2002, catches were restrained using a mixture of competitive and individually allocated catch limits. Between October 2001 and September 2004, all scampi fisheries were managed exclusively using competitive catch limits – i.e., there were no individual allocations. Scampi was introduced into the QMS in the 2004/05 fishing year and like other QMS stocks, was managed using individual transferable quota (ITQ).

419. SCI 1 is a low volume (currently the TACC is 132 tonnes), high-value (approximately $6.8 million export [82]) fishery. Reported landings of scampi from SCI 1 have fluctuated closely around the TACC since it was introduced to the QMS (Figure 3).

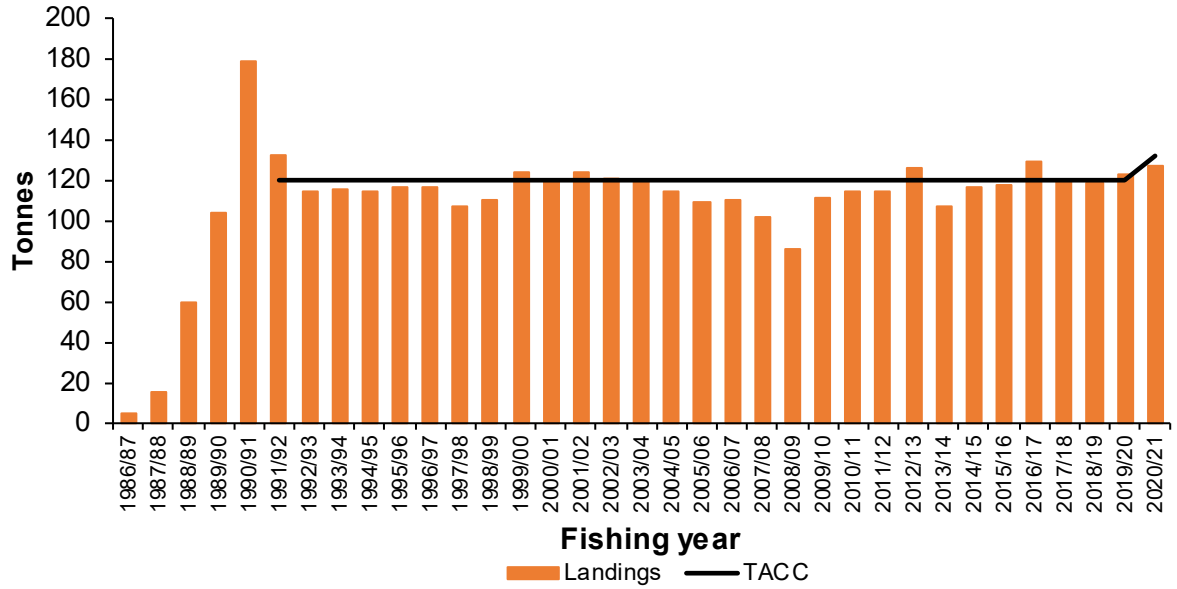


Figure 3: SCI 1 annual landings (in tonnes) and TACC from 1986/87 – 2020/21.

2.2 Customary Māori

420. There is no known customary non-commercial fishery for scampi and no customary catch of scampi has been reported since 1998/99. However, there is also no requirement to report the amount of customary catch for each species to FNZ for customary fishing harvests authorised under the Fisheries (Amateur) Fishing Regulations 2013 (Amateur Regulations) therefore, we have little information about the customary non-commercial catch of scampi.

421. Although the customary allowance is set at zero tonnes, the take of fish for customary purposes can proceed in accordance with the Fisheries (Kaimoana (Customary Fishing) Regulations 1998 or the customary fishing provisions of the Amateur Regulations. Therefore, an allowance of zero tonnes is not a limit on the take by either customary or recreational fishers.

422. Given a lack of information to suggest otherwise, FNZ is not proposing a change to the customary allowance at this time.

2.3 Recreational

423. There is no information to suggest that there is recreational catch of scampi; it is generally not accessible to recreational fishers due to the depths that it is found at and the specialised gear required to catch it. The current recreational allowance is set at zero tonnes. The National Panel Survey of Marine Recreational Fishers (NPS) report in 2017/18 did not list scampi as a

[82] As scampi are primarily exported whole, the volume was multiplied by the average export price for the 'Shrimps & Prawns cold-water" category from the Seafood New Zealand annual report 2021.

separate species for reporting catch data. Therefore, given a lack of information to suggest otherwise, FNZ is not proposing a change to the recreational allowance at this time.

2.4 All other mortality caused by fishing

424. The allowance for other sources of mortality caused by fishing accounts for unreported scampi mortality, such as loss due to ripped nets or the incidental effects of trawl gear on scampi and their burrows.

425. Currently the allowance for other sources of mortality caused by fishing for SCI 1 is set at a level that equates to 5% of the TACC. There is no new information to suggest that a different allowance of other mortality (as a proportion of the TAC) would be more appropriate for this fishery, therefore FNZ is proposing to increase the allowance for all other mortality caused by fishing to maintain the same proportion, under Options 2 and 3.

3 Treaty of Waitangi obligations

3.1 Input and participation of tangata whenua

426. 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.

427. Particular regard must be given to kaitiakitanga when making sustainability decisions.

428. SCI 1 includes the rohe of Te Hiku o Te Ika, Mid-North and Mai i Ngā Kuri a Whārei ki Tihirau Iwi Fisheries Forums. Table 2 below provides a summary of engagement with these Iwi Fisheries Forums on the scampi proposal.

Table 2: Summary of engagement with Iwi Fisheries Forums.

Iwi Fisheries Forum	Engagement on SCI 1
Te Hiku o te Ika *(Far North)*	Held hui on 28 April and 30 June 2022. One-pagers for all sustainability round stocks including SCI 1 were presented to the forum. No feedback specific to SCI 1 was received.
Mid-North (*Kerikeri to Auckland)*	Held hui on 29 April and 1 July 2022. One-pagers for all sustainability round stocks including SCI 1 were presented to the forum. No feedback specific to SCI 1 was received; but the forum has a standing resolution that it does not support any increases to TAC/TACCs for any stocks, so by default that they do not support an increase to scampi.
Mai i Ngā Kuri a Whārei ki Tihirau *(Bay of Plenty)*	Held hui on 4 July 2022. One-pagers for stocks including SCI 1 were provided. No feedback specific to SCI 1 was received, but forum members noted their main approach was to favour sustainability.

3.2 Kaitiakitanga

429. Scampi are a taonga species in Mai i Ngā Kuri a Whārei ki Tihirau (Bay of Plenty) and Te Hiku o Te Ika Iwi (far North) Fisheries Forum Plans.[83]

430. Although no feedback specific to SCI 1 was received from Mai i Ngā Kuri a Whārei ki Tihirau fisheries forum, in FNZ's view, the two proposed options to increase the TAC for SCI 1 are consistent with Mai i Ngā Kuri a Whārei ki Tihirau Forum's Fisheries Plan Management Objective 1: Iwi fisheries management activities support the growth and wellbeing of our people. In particular, options to increase the TAC are consistent with performance measure 2 – fisheries management tools are applied (where required) to improve management

[83] The Mid North IFF does not yet have a fisheries plan

performance; as well as performance measure 5 – optimal returns on fisheries assets and investments are achieved and maintained.

431. Although no feedback specific to SCI 1 was received from Te Hiku o te Ika fisheries forum, in FNZ's view, the two proposed options to increase the TAC for SCI 1 are consistent with Outcome Area 2 – Fisheries are developed and used in a manner that gains best value for Te Hiku Iwi and Hapu (Management Objective – Fish stocks are healthy and support the social, cultural and economic prosperity of Te Hiku Iwi). In particular, the options to increase the TAC are consistent with outcome benefits (b) Fisheries in the region are sustainable, and (c) Iwi businesses and investments are profitable.

432. Although no increase in the customary allowance is proposed under either Option, the lack of a customary allowance does not preclude gathering scampi under customary permit, so Te Hiku o te Ika would be no worse off in this respect. There are no customary fisheries management tools such as mātaitai, taiāpure or section 186A temporary closures relevant to SCI 1 as scampi fishing takes place offshore in depths between 300 to 500 metres.

433. Iwi are significant quota holders of scampi, holding 20% of quota in SCI 1. The current export value to iwi is approximately $1.36 million; a 10% increase in the TAC would see this increase to approximately $1.5 million, all other things being equal.

4 Environmental and sustainability considerations

4.1 Environmental principles (section 9 of the Act)

434. The key environmental principles which must be taken into account when considering sustainability measures for SCI 1 are as follows:

a) Associated or dependent species should be maintained above a level that ensures their long-term viability (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).

b) Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and

c) Habitats of particular significance for fisheries management should be protected.

4.1.1 Marine mammals

435. No marine mammal captures have ever been reported from SCI 1 either by fishers or observers on board vessels targeting scampi in SCI 1.

436. The incidental capture of marine mammals during scampi target trawls in SCI 1 are likely to be very rare events and are therefore considered unlikely to impact the population of such species under the options proposed.

4.1.2 Seabirds

437. Although most scampi are retained whole, scampi fishing incurs high rates of fish and invertebrate bycatch which results in relatively high rates of fish waste being discharged. The discharge of fish waste attracts seabirds to the vessel, increasing the risk of seabird captures. However, seabird interactions with vessels in the SCI 1 fishery occur at a low rate. In the five fishing years from 2015/16 - 2019/20 an average of 1 bird per year was reported by observers[84] as caught across all scampi targeted tows in SCI 1. These were three white-capped albatross, one flesh-footed shearwater, and one unidentified albatross specimen.

[84] Observer coverage ranged between 2.8% and 15.5% of tows across all scampi fisheries for the 2015/16 to 2019/20 fishing years.

438. In 2020 the National Plan of Action (NPOA) for Seabirds was approved. This sets out the New Zealand government's commitment to reducing fishing-related captures and associated mortality of seabirds. The NPOA Seabirds' (2020) vision is that New Zealanders work towards zero fishing-related seabird mortalities.

439. The two seabird species that are of most concern in the scampi fishery are black petrels and flesh-footed shearwaters. Both seabirds' at-sea distribution overlaps with the SCI 1 QMA and both have a New Zealand Threat Classification of 'Vulnerable'. The most recent update to the Seabird Risk Assessment that underpins the NPOA-Seabirds identified black petrels in the 'Very High Risk' category from fishing and flesh-footed shearwaters as 'High Risk.'

440. To mitigate the risk of seabird interactions, scampi trawl vessels use a variety of measures. These include warp strike mitigation devices and fish waste management systems. All trawl vessels 28 metres or greater in length (including those targeting scampi) are required to deploy one type of seabird scaring device during all tows in accordance with Seabird Scaring Devices Circular 2010 to deter seabirds from approaching trawl warp(s).

441. Other mitigation measures deployed include the management of fish waste to ensure no fish waste is discharged during shooting or hauling with any discharge during towing occurring in batches; the use of specialist devices during times of high risk (i.e. net restrictors to limit the opening of the centre net during hauling); and minimising the amount of time the net spends at the surface during hauling.

442. Mitigation practices are implemented through the Scampi Operational Procedures. Operational Procedures apply to all vessels used to target scampi and set out the fleet wide mitigation measures agreed between FNZ, scampi quota holders and ACE holders. As part of the Operational Procedures, each vessel used to target scampi is expected to follow a Protected Species Risk Management Plan (PSRMP) which sets out the specific actions each vessel will follow to reduce the risk to seabirds, and other protected species.

443. FNZ recognises that an increase in the TAC/TACC might lead to an increase in effort, which in turn would increase the risk of capture of seabirds. Therefore, FNZ will continue to monitor the SCI 1 fishery and interactions with seabirds by deploying observers on vessels and working closely with industry.

4.1.3 Fish bycatch

444. In the 2002/03 to 2015/16 fishing years, total modelled annual bycatch for all targeted scampi fisheries was estimated to range from 2,400–5,600 tonnes compared with total landed scampi catches of 550–893 tonnes. Across all scampi fisheries, scampi accounted for 19% of the total estimated catch by weight from all observed tows targeting scampi for the 2002/03 to 2015/16 fishing years[85]. For the 2015/16 fishing year, scampi accounted for 27% of the total estimated catch by weight from all observed tows targeting scampi in SCI 1, which is similar to catch rates for the largest scampi fishery, SCI 3 (East Coast South Island) for 2015/16.

445. The main bycatch species in the 2015/16 fishing year were javelinfish (18%), rattails (12%), and sea perch (10%). Smaller catches of hoki (5%), ling (4%), and dark ghost shark (3%) were also recorded. Invertebrate species made up a much smaller fraction of the bycatch overall (about 7%), with crustaceans (3%), echinoderms (2%), and squid (0.9%) being the main invertebrate bycatch species groups.

446. Incidental catch of non-target species is high in the scampi fishery relative to other fisheries due to the use of finer mesh nets. Under s 71(5) of the Fisheries (Commercial Fishing) Regulations 2001 the minimum legal mesh size for scampi fishing (as well as prawnkiller) is 80 mm in the

[85] Anderson, O; & Edwards, C. (2018) Fish and invertebrate bycatch and discards in New Zealand arrow squid and scampi trawl fisheries from 2002–03 until 2015–16 New Zealand Aquatic Environment and Biodiversity Report No. 199.

body of the net, and not less than 55 mm in the cod-end; in contrast, minimum legal mesh size is 100mm for other trawl fisheries. Consequently, some fish and other organisms that would otherwise pass through a 100 mm mesh net and/or codend are more likely to be retained in the 80 mm mesh and/or the 50 mm codend of a scampi trawl net.

447. Anderson & Edwards (2018) state the level of discarding is very high in the SCI 1 fishery, ranging from 940 tonnes to 4,070 tonnes. Non-QMS species were the main group discarded, often at a magnitude of two to three times that of observer authorised QMS species discards. The species discarded in the greatest amounts were javelinfish (95% of javelinfish caught), rattails (91%), and sea perch (68%).

448. The quantity of bycatch is likely to increase proportionately under either of the proposed options to increase the TAC. Periodic monitoring[86] and the quantification of bycatch in scampi fisheries over time will continue to take place to manage any risks associated with any increase in bycatch. If non-QMS bycatch species are identified through the monitoring process as requiring additional management, the species may be considered for QMS introduction or be managed through alternative sustainability measures under section 11 of the Act.

449. No captures of protected shark or fish species have ever been reported from a scampi targeted trawl in SCI 1 (either by observers or unobserved vessels).

450. Incidental captures of protected fish or sharks for scampi target trawls in SCI 1 are likely to be very rare events and are therefore considered unlikely to impact the population of such species under the options proposed.

4.1.4 Benthic impacts

451. Fishing for scampi is likely to have effects on benthic community structure and there may be consequences for benthic productivity. FNZ has estimated the bottom trawl footprint of the entire New Zealand scampi fishery with the results summarised within the Deepwater Fisheries Annual Review Report. Within the annual trawl footprint report it was estimated that the cumulative trawl footprint of scampi fishing between 1990 and 2019 covered less than 1% of New Zealand's EEZ.

452. Bottom trawling for scampi uses relatively light bottom gear, in comparison to the trawl gear used to target fish species, and the footprint of the SCI 1 fishery is concentrated to a relatively narrow 300-500 metre depth band where vessels typically trawl along previously-trawled tow lines.

453. Scampi are predominantly found in areas where soft sediment/mud substrate predominates, whereas most fragile benthic epifauna communities are most abundant in areas of hard benthic substrate. As such, tows targeting scampi are characterised by low capture rates of sessile benthic invertebrates. Although the scampi trawl fishery in New Zealand is concentrated in areas where soft sediment/mud predominates, observers and unobserved vessels occasionally report the incidental capture of small quantities of protected corals in scampi target tows.

454. Given that the SCI 1 fishery is constrained to a specific depth band and substrate, an increase in SCI 1 fishing effort will likely result in an increase in the density of fishing effort within currently or historically fished areas rather than increasing the benthic footprint into new areas.

455. Whilst FNZ acknowledges that the options to increase the TAC (as proposed) might result in increased fishing effort and therefore increased contact with the benthos, we consider that the additional risk to the benthic environment is low since additional effort will likely be constrained

[86] The most recent report quantifying bycatch in the scampi fishery was Anderson & Edwards (2018). The current iteration of the bycatch quantification project is again addressing scampi, with results expected to be available in the final quarter of 2022.

to existing trawled areas. FNZ will continue to monitor and review the trawl footprint of scampi annually.

4.1.5 Habitats of particular significance for fisheries management

Table 3: Summary of information on potential habitats of particular significance for fisheries management for SCI 1.

Fish Stock	SCI 1
Potential habitat of particular significance	Scampi have a preference for muddy sand seabed habitats where they excavate and inhabit burrows. The main population densities are generally found between 300-500m (slightly deeper at the Auckland Islands), with a bottom water temperature from 8-12°C.
Attributes of habitat	Sediment composition averages about 60% sand and 40% silt and clay. Scampi of all ages (once settled to the seabed) live in the same habitats. There are suggestions from similar species overseas that post-larval juveniles are attracted to adult burrows and burrow off side-passages in adult systems, rarely emerging onto the seabed surface, to avoid predation
Reasons for particular significance	Scampi are reliant on muddy habitats where they form burrows. They spend much of their time in the entrance or within a burrow, which provides them protection from predation. Scampi are opportunistic predators and scavengers, and feed on a range of fauna found in their habitat.
Risks/Threats	Trawling disturbance can flatten mounds in muddy seabed habitats, and can fill in the entrances to scampi burrows, but scampi are capable of re-excavating burrows, and the physical impact of trawling is unlikely to be a threat to the physical muddy habitat. Impacts that deposit a significant depth of sediment on top of a scampi ground (e.g., mudslide, localised dredge spoil), or change the surface sediment composition would be a threat, but overall, there is no real evidence of fishing having a detrimental effect on SCI habitat.
Existing protection measures	There are no known habitats of particular significance to scampi in SCI 1 that are protected by existing management measures.

4.2 Sustainability measures (section 11 of the Act)

456. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

457. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to SCI 1, the natural variability of the stock concerned, and any relevant fisheries plans.

458. The following plans and strategies are relevant for SCI 1.

4.2.1 National Fisheries Plan for Deepwater and Middle-depths Fisheries – s11(2A)

459. Scampi in SCI 1 is managed as a Tier 1 species within the National Fisheries Plan for Deepwater and Middle-depths Fisheries. Tier 1 fisheries are high volume and/or high value fisheries and are typically targeted. In contrast, Tier 2 fisheries are typically less commercially valuable, comprise bycatch fisheries, or are only targeted periodically throughout the year.

460. The National Deepwater Plan sets out a series of Management Objectives for deepwater fisheries, the most relevant to the proposals for SCI 1 being:

Management Objective 1: Ensure the deepwater and middle-depths fisheries resources are managed so as to provide for the needs of future generations.

Management Objective 4: Ensure deepwater and middle-depth fish stocks and key bycatch fish stocks are managed to an agreed harvest strategy or reference points.

4.2.2 Regional Plans – s11(2)(a)

461. There are four regional councils that have a coastline within SCI 1: Auckland - Te Kaunihera o Tāmaki Makaurau, Bay of Plenty Region – Toi Moana, Northland Region - Te Kaunihera ā Rohe o Te Tai Tokerau, and Waikato region - Te Kaunihera ā Rohe o Waikato. Coastal plans for these regions aim to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems, and habitats.

462. The provisions of these various documents are, for the most part, of a general nature and focus mostly on land-based stressors on the marine environment. There is nothing specific to scampi stocks. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235).

463. FNZ considers that the proposed management options presented are in keeping with the objectives of relevant regional plans.

464. The FNZ Coastal Planning Team engages with the RMA coastal planning processes (including regional authorities) to support marine management decisions to manage not only the fishing effects on the coastal environment but also land-based impacts on fisheries.

4.2.3 Hauraki Gulf Marine Park Act (HGMPA) – s11(2)(c)

465. The Hauraki Gulf Marine Park Act 2000 establishes the Hauraki Gulf Marine Park. It also recognises that the interrelationship between the Hauraki Gulf, its islands, and catchments and the ability of that interrelationship to sustain the life-supporting capacity of the environment of the Hauraki Gulf and its islands. Successive State of the Gulf reports have suggested significant ongoing environmental decline of the Hauraki Gulf.

466. In June 2021 *Revitalising the Gulf:* Government *Action on the Sea Change Plan* was released which contains a package of integrated actions across marine conservation and fisheries management, including the development of an area-based fisheries plan for the Hauraki Gulf.

467. Section 11(2)(c) of the Fisheries Act 1996 requires you to have regard to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 (HGMPA) when varying the TAC relating to stocks with boundaries intersecting with the Park.

468. Both options to increase the TAC/TACC presented here are consistent with section 7 of the HGMPA *Recognition of national significance of Hauraki Gulf - The interrelationship between the Hauraki Gulf, its islands, and catchments and the ability of that interrelationship to sustain the life-supporting capacity of the environment of the Hauraki Gulf and its islands are matters of national significance* - in particular they provide for social, economic, recreational, and cultural well-being of people and communities (s7(2)(a)(ii)).

469. Section 8 of the HGMPA states: *To recognise the national significance of the Hauraki Gulf, its islands, and catchments, the objectives of the management of the Hauraki Gulf, its islands, and catchments are:*

(a) the protection and, where appropriate, the enhancement of the life-supporting capacity of the environment of the Hauraki Gulf, its islands, and catchments:
(b) the protection and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments:

(c) the protection and, where appropriate, the enhancement of those natural, historic, and physical resources (including kaimoana) of the Hauraki Gulf, its islands, and catchments with which tangata whenua have an historic, traditional, cultural, and spiritual relationship:

(d) the protection of the cultural and historic associations of people and communities in and around the Hauraki Gulf with its natural, historic, and physical resources:

(e) the maintenance and, where appropriate, the enhancement of the contribution of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments to the social and economic well-being of the people and communities of the Hauraki Gulf and New Zealand:

(f) the maintenance and, where appropriate, the enhancement of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments, which contribute to the recreation and enjoyment of the Hauraki Gulf for the people and communities of the Hauraki Gulf and New Zealand.

470. Both options to increase the TAC presented here are consistent with s(8)(e), specifically, enhancing economic well-being of fishing communities.

471. Whilst the majority of fishing activity in the Hauraki Gulf is characterised by inshore fisheries there is a small portion of activity on the eastern side of the marine park that is utilised by the deepwater scampi fishery. FNZ is considering how to manage the eastern side of the marine park that is utilised by the deepwater scampi fishery.

472. As part of the Sea Change plan – Tai Timu Tai Pari – the Hauraki Gulf Marine Spatial Plan is identifying potential trawl corridors with a specific focus is on managing the impacts of bottom contact fishing on the sea floor.

5 Submissions

473. A total of 15 submissions and responses were received on the proposed changes for SCI 1. Table 4 summarises the submissions received and shows the support for each option.

Table 4: Written submissions and responses received for SCI1.

Submitter	Option Support			Comments
	1	2	3	
Deepwater Group Limited (DWG)			✓	
Environmental and Conservation Organisations of Aotearoa New Zealand (ECO)	✓			
Iwi Collective Partnership (ICP)		✓		Not opposed to Option 3; do not support *status quo*.
Ngati Mutunga O Wharekauri Asset Holding Co Ltd		✓		
Ngātiwai Trust Board	✓			
Rangitāne Holdings Ltd	✓			
Te Ohu Kaimoana		✓	✓	Support either Option 2 or 3.
Maruehi Fisheries Limited		✓		Support Te Ohu Kaimoana's position but opt for a more cautious approach of option 2.
Ngaruahine Fisheries Limited		✓		Support Te Ohu Kaimoana's position but opt for a more cautious approach of option 2.
Raukawa Asset Holding Co Ltd		✓		Support Te Ohu Kaimoana's position but opt for a more cautious approach of option 2.
Tama Asset Holding Company		✓		Support Te Ohu Kaimoana's position but opt for a more cautious approach of option 2.
Taranaki Iwi Fisheries Limited		✓		Support Te Ohu Kaimoana's position but opt for a more cautious approach of option 2.
Te Atiawa (Taranaki) Holdings Ltd		✓		Support Te Ohu Kaimoana's position but opt for a more cautious approach of option 2.
Te Pataka O Tangaroa Limited		✓		Support Te Ohu Kaimoana's position but opt for a more cautious approach of option 2.
Whanganui Iwi Fisheries Ltd		✓		Support Te Ohu Kaimoana's position but opt for a more cautious approach of option 2.
Total	3	11	2	

6 Options and analysis

474. The TAC for this stock will be set by you under section 13 (2)(a) of the Act.

6.1 Option 1 (*Status quo*)

TAC: 139 t	**TACC:** 132 t	**Customary**: 0 t	**Recreational**: 0 t	**Other mortality**: 7 t

475. Option 1 maintains the current settings (*status quo*). Retaining the *status quo* means that effort would likely remain unchanged or even decrease if catch rates increase, so there would be no change in the sustainability of the SCI 1 stock, nor any increase in adverse environmental impacts, all other things being equal.

476. However, given the 2022 Fisheries Assessment Plenary agreed that preliminary results from the 2022 stock assessment indicate increases in abundance of scampi in SCI 1 since 2019, retaining the *status quo* would mean utilisation opportunities would be foregone.

477. This option was supported by two quota holders, Rangitane Holdings Ltd and Ngātiwai Holdings Ltd. Ngātiwai noted in their response that they are fully committed to the sustainable management of fisheries and ensuring the protection and continued productivity for Ngātiwai's future generations.

478. Option 1 was also supported by ECO, who do not support an increase SCI 1 given the impact of bottom trawling and the bycatch level in the targeted scampi fishery. ECO also notes the DWWG did not accept the fully quantitative assessment for SCI, which they provide as a point to support their recommendation to retain the *status quo* for this stock.

479. ECO notes that the boundaries of the Hauraki Gulf Marine Park also intersect with SCI 1, however, there is some commercial fishing for scampi in the deeper waters within the park area, therefore managing the stocks need to be consistent with the Hauraki Gulf legislation as noted at section 4.2.3,above.

480. ECO notes that the quantity of non-target bycatch is likely to increase proportionately under either of the proposed options to increase the TAC. ECO maintain that monitoring bycatch is not an acceptable response to a known problem. Scampi fisheries have a bycatch and bottom impact problem given that they bottom trawl using a much finer mesh than other trawl fisheries. The bycatch of fish species is over five times the level of the target scampi catch.

481. ECO also notes the Anderson & Edwards (2018) report states the level of discarding is very high in the SCI 1 fishery, ranging from 940 tonnes to 4,070 tonnes. Non-QMS species were the main group discarded, often at a magnitude of two to three times that of QMS species discards. The species discarded in the greatest amounts were javelinfish (95% of javelinfish caught when targeting scampi in SCI 1 were discarded), rattails (91%), and sea perch (68%).

6.2 Option 2 - *Fisheries New Zealand preferred option*

TAC: 153 t (↑ 14 t) **TACC:** 145 t (↑ 13 t)	**Customary**: 0 t – **Recreational**: 0 t –	**Other mortality**: 8 t (↑ 1 t)

482. Option 2 increases the SCI 1 TAC by 14 tonnes and the TACC by 13 tonnes, or approximately 10% of the current TACC.

483. Unlike the previous SCI 1 TAC review in 2019, the proposed options are not supported by a fully quantitative stock assessment. The proposed options have instead been informed by agreement of the 2022 Fisheries Assessment Plenary on the status of the stock for SCI 1 based on preliminary results from the 2022 stock assessment and updated CPUE indices.

484. The 2022 Fisheries Assessment Plenary agreed that preliminary results from the 2022 stock assessment indicate increases in abundance of scampi in SCI 1 since 2019 and estimated that SCI 1 biomass was very likely (> 90%) to be at or above the target biomass and exceptionally unlikely (< 1%) to be below the soft (20% B_0) or hard limit (10% B_0). This indicates that there is a utilisation opportunity for SCI 1.

485. Given that no marine mammal captures have ever been reported (including from both observed and unobserved tows) and the average number of sea bird captures is one per year, a 10% increase in effort is likely to have minimal impact on marine mammal and seabird captures. Fish bycatch including QMS and non-QMS species could increase from around 375 tonnes per year to 414 tonnes per year with a 10% increase in effort under Option 2, all other things being equal and so is a compromise between Option 1 and Option 3 with respect to the increased risk to marine mammals and seabirds.

486. As noted above, because the SCI 1 fishery is constrained to a specific depth band and substrate, an increase in SCI 1 fishing effort following a TAC/TACC increase under Option 2

will likely result in an increase in fishing effort within currently or historically fished areas rather than increasing the benthic footprint into new areas. FNZ will continue to monitor and review the trawl footprint of scampi annually.

487. Option 2 provides an increase in TAC and TACC that is intermediate between Option 1 and Option 3 and is similar to the 10% increase following the most recent review in 2020. This is the option preferred by the majority of responding iwi organisations, who noted that they are fully committed to the sustainable management of their fisheries and ensuring the protection and continued productivity for their respective future generations. In addition, Te Ohu Kaimoana support either Option 2 or Option 3.

6.3 Option 3

TAC: 166 t (↑ 27 t) **TACC:** 158 t (↑ 26 t)	**Customary**: 0 t –	**Recreational**: 0 t –	**Other mortality**: 8 t (↑ 1 t)

488. Option 3 increases the SCI 1 TAC by 27 tonnes and the TACC by 26 tonnes, or approximately 20% of the current TACC.

489. As with Option 2, a 20% increase in effort under Option 3 is likely to have minimal impact on seabird or marine mammal captures. Fish bycatch including QMS and non-QMS species could increase from around 375 tonnes per year to 449 tonnes per year with a 20% increase in effort under Option 3, all other things being equal.

490. Under Option 3, the likely increase in fishing effort within currently fished areas is greater than either of the other two options presented here. As noted under Option 2, FNZ will monitor the trawl footprint of scampi annually.

491. Option 3 provides the greatest utilisation opportunity out of the three options provided here.

492. DWG note that although the DWWG rejected the stock assessment, there is considerable evidence to suggest the stock has increased since 2019, and that it is at a level that will support increased utilisation. Consequently, SCI 1 quota owners can confidently support FNZ's assessment that the SCI 1 stock can sustain a TAC/TACC increase, with the majority of DWG shareholder owners of SCI 1 quota supporting Option 3.

493. DWG note that science suggests that these catch limits will maintain the stocks at or above sustainable limits. The options proposed this year have been informed by the 2022 Fishery Assessment Plenary on the status of the stock, based on preliminary results from the 2022 stock assessment. The Plenary agreed that updated CPUE indices indicated that there has been an increase in the abundance of scampi in SCI 1 since 2019 and they estimated that SCI 1 biomass was very likely (> 90%) to be at or above the target biomass and exceptionally unlikely (< 1%) to be below the soft (20% B_0) or hard limit (10% B_0).

494. DWG considers any increase in environmental risk, including protected species, interdependent stocks, and habitats to be low or negligible under both Option 2 and Option 3. DWG shareholders remain committed to and supportive of the continued management and monitoring of these interactions. DWG note:

- Seabird capture events in SCI 1 have been very low since 2012, and most of the birds caught in the 2011 year were in a single capture event. DWG has developed tools outlined in the scampi Operational Procedures to mitigate against capture events such as this.
- There have been no observed interactions with marine mammals in SCI 1.
- Benthic interactions of scampi trawls are concentrated between 300-500 m on soft sediment, whereas most fragile benthic epifauna communities are most abundant in areas of hard benthic substrate. DWG considers the additional risk of an increased TACC to be low.

495. Te Ohu Kaimoana support either Option 2 or Option 3, noting the SCI 1 is in good health and estimated to be above the management target. The scampi fishery is a high value, low volume fishery. An increase in the TACC for this stock would be beneficial as operators could utilise a high value fishery to offset some of the economic impacts from fuel increases.

6.4 Economic considerations

496. Option 2 increases the SCI 1 TACC by 13 tonnes and Option 3 increases the SCI 1 TACC by 26 tonnes. This would result in a potential increase of $670,000 and $1.3 million in annual export revenue, respectively.[87]

6.5 Other matters raised

497. DWG note that given the proposed options are not supported by an accepted fully quantitative stock assessment, nor are any yield estimates and projections available for SCI 1, DWG supports the exploration of programs to improve the application of a stock assessment model to SCI 1 including programs listed in the Plenary for SCI 1.

498. ECO notes it looks forward to measures to maintain marine biodiversity and to avoid, remedy or mitigate the impacts of the scampi fishery on benthic species, and welcomes a higher level of observer coverage in the scampi fishery. ECO also looks forward to discussion on the scampi fishery impacts as part of the discussion on trawl impacts.

7 Deemed values

499. The deemed value rates for SCI 1 are shown in Table 5 below.

Table 5: Deemed value rates for SCI 1.

Fish stock	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	200%+
SCI 1	46.17	51.30	61.56	$71.82	$82.08	$92.34	$102.60

500. The current basic annual deemed value rate for SCI 1 ($51.30 per kg) is set above the average price paid by fishers during the 2020/21 fishing year for one kilogram of SCI 1 ACE ($13.53 per kg). The 2022/23 port price index of SCI 1 is $17.04 per kg.

501. FNZ is satisfied that the existing deemed value rates for SCI 1 are consistent with your mandatory statutory consideration under section 75(2)(a) in that they provide sufficient incentive for fishers to balance their catch with ACE. On that basis, FNZ is not recommending any changes to deemed value rates for SCI 1 at this time.

502. FNZ believes that if the TACC is increased under either of the options outlined above, the changes in fishing behaviour will be small and unlikely to greatly impact the ACE market.

503. No submissions were received in respect to deemed values for SCI 1.

[87] As scampi are primarily exported whole the TACC increases were multiplied by the average export price for the 'Shrimps & Prawns cold-water" category from the Seafood New Zealand annual report 2021.

8 Conclusions and recommendations

504. FNZ recommends that you choose Option 2, that is increase the SCI 1 TAC by 14 tonnes and the TACC by 13 tonnes, or approximately 10% of the current TACC. This option provides a modest opportunity for increased utilisation of the stock, and is likely to have minimal impact on seabird or marine mammal captures, given these occur infrequently at current catch settings.

505. Option 2 provides a more conservative increase than Option 3, recognising that recently (for the 2020/21 fishing year) the TAC/TACC was increased by 10% and that there is not an accepted fully quantitative assessment for the SCI 1 stock in 2022. As noted above, both Option 2 and Option 3 were instead informed by agreement of the 2022 Fisheries Assessment Plenary on the status of the stock for SCI 1 based on preliminary results from the 2022 stock assessment and updated CPUE indices.

506. Fish bycatch including QMS and non-QMS species could increase from around 375 tonnes per year to 413 tonnes per year with a 10% increase in effort under Option 2, all other things being equal. There are no known sustainability issues for the major, non-QMS species currently caught (javelinfish and rattails, as well as other crustaceans and echinoderms), nor for QMS species (hoki, ling, sea perch, dark ghost shark and squid).

9 Decision for Scampi - SCI 1

Option 1

Agree to retain the SCI 1 TAC at 139 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 0 tonnes;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 7 tonnes;
iv. Retain the SCI 1 TACC at 132 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(Fisheries New Zealand preferred option)*

Agree to set the SCI 1 TAC at 153 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 0 tonnes;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 7 to 8 tonnes;
iv. Increase the SCI 1 TACC from 132 to 145 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

OR

Option 3

Agree to set the SCI 1 TAC at 166 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 0 tonnes;
ii. Retain the allowance for recreational fishing interests at 0 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 7 to 8 tonnes;
iv. Increase the SCI 1 TACC from 132 to 158 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

Rough skate (RSK 8) and **smooth skate (SSK 8)** – West Coast North Island

Rough skate – *Zearaja nasuta*, Waewae

Smooth skate – *Dipturus innominatus*, Uku

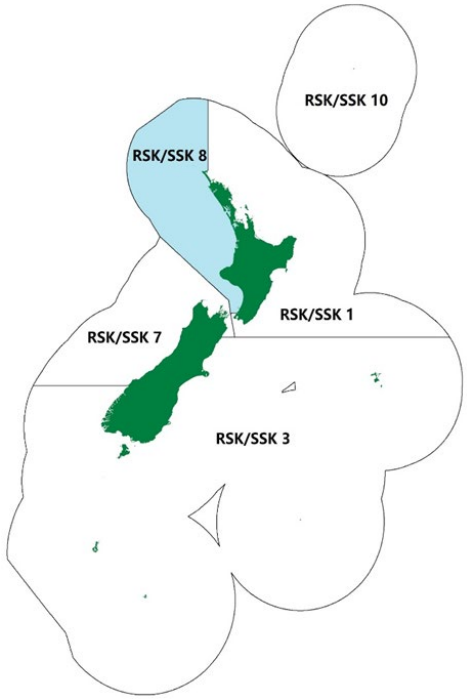


Figure 1: Quota Management Areas (QMAs) for rough and smooth skate, with RSK 8/SSK 8 highlighted in blue.

Table 1: Summary of options proposed for RSK 8 and SSK 8 from 1 October 2022. Figures are all in tonnes. The preferred option of Fisheries New Zealand is highlighted in blue.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
RSK 8	**Option 1** *(Status quo)*	24	21	1	1	1
	Option 2	43 ↑ (19 t)	37 ↑ (16 t)	1	1	4 ↑ (3 t)
SSK 8	**Option 1** *(Status quo)*	23	20	1	1	1
	Option 2	49 ↑ (26 t)	43 ↑ (23 t)	1	1	4 ↑ (3 t)
	Option 3	60 ↑ (37 t)	53 ↑ (33 t)	1	1	5 ↑ (4 t)

In total 10 submissions were received on the proposed options for RSK 8, and 15 submissions on the options for SSK 8.

1 Why are we proposing a review?

507. The review of RSK 8 and SSK 8 is in response to consistent commercial catch above their current TACCs.

508. RSK 8 and SSK 8 are both caught exclusively as bycatch. Since introduction to the Quota Management System (QMS) in 2003, catches of RSK 8 have been consistently above the TACC. Catches of SSK 8 have been increasing and have exceeded the TACC each fishing year since 2007/08. The highest catch levels for SSK 8 have been reported in the past five years. These trends in catch suggest there could be an opportunity to provide for increased utilisation of both RSK 8 and SSK 8 and that the current TACCs may no longer be appropriate.

509. There is some uncertainty around the cause of these increasing catch trends. However, the management measures and spatial restrictions introduced as part of the Hector's and Māui Dolphin Threat Management Plan (TMP) have shifted the distribution of fishing effort further

offshore. This shift in depth and fishing location has meant that fishers are potentially operating in previously lightly exploited parts of the populations.

1.1 About the stocks

1.1.1 Fishery characteristics

510. Rough skates (*Zearaja nasuta*) and smooth skates (*Dipturus innominatus*) in RSK 8 and SSK 8 are almost exclusively caught by commercial fishers, with almost all catch taken as bycatch.

511. Most RSK 8 and SSK 8 catch is reported as bycatch by commercial fishers targeting tarakihi (TAR), gurnard (GUR), ling (LIN), trevally (TRE), school shark (SCH), snapper (SNA) and john dory (JDO). Rough skates have never been a target fishery and smooth skates have only ever been recorded as the target species on one occasion, during the 2007/08 fishing year.[88]

512. Since 2003, most RSK 8 and SSK 8 estimated catch (94% and 70% respectively[89]) has been taken by bottom trawling. RSK 8 has always been caught predominantly by bottom trawl. However, between 2003 and 2007 a moderate proportion of SSK 8 catch (10-40%) was also caught by set net. This set net fishery then transitioned to bottom long-lining, which accounted for between 20% and 50% of SSK 8 catch each year until 2019. Since 2019 catch for both stocks has been almost exclusively taken by bottom trawl. Changes in catch within these fisheries is likely directly related to management measures introduced to protect Hector's and Maui dolphins under the 2019 TMP.

513. Both rough and smooth skates are listed on Schedule 6[90] of the Fisheries Act 1996. This means commercial fishers have the option to release skates back to the ocean, as long as they are likely to survive. Commercial catch data suggests that an average of seven tonnes each of rough and smooth skate is released annually in RSK 8 and SSK 8 using the Schedule 6 exemption.

514. Some fishers report releasing almost all skate catch under Schedule 6, while others do not use Schedule 6 at all. This could suggest that some fishers are making a choice to land skates without ACE and to pay the deemed value, rather than releasing skates that are likely to survive. However, some fishers report they choose to keep their skate catch as they believe they will not survive being released under Schedule 6 and landing assures they are accounted for under the QMS.

1.1.2 Biology

515. Rough and smooth skates occur throughout New Zealand, but are most abundant around the South Island in depths down to 500 m. There is a difference in their depth profiles (Figure 2) with smooth skates generally being caught deeper than rough skates.

516. Rough and smooth skates reproduce by laying paired eggs on the seabed. Embryos feed solely on the yolk, with a single embryo developing inside each egg case. The young of both species hatch at around 10-15 cm pelvic length[91] (PL)[92].

[88] In March 2008, one fisher reported smooth skates as target catch for a single fishing event, with 30 t of smooth skate catch.

[89] Calculated as a proportion of estimated green weight of rough and smooth skates caught in RSK 8 and SSK 8.

[90] Schedule 6 of the Fisheries Act 1996 (Schedule 6) refers to stocks which may be returned to the sea or other waters in accordance with stated requirements. A commercial fisher may return any rough or smooth skate to the waters from which it was taken if (a) that skate is likely to survive on return; and (b) the return takes place as soon as practicable after the skate is taken.

[91] The length from the tip of the animal's snout to the outer margin of the pelvic fins.

[92] Francis, M P (1997). A summary of biology and commercial landings, and a stock assessment of rough and smooth skates (Raja nasuta and R. Innominata). New Zealand Fisheries Assessment Research Document 1997/5 27 p. (Unpublished document held by NIWA library, Wellington).

517. Male rough skates mature at 4 years and female rough skates mature at 6 years, indicative of low-moderate productivity. Rough skates grow to at least 79 cm PL. The greatest reported age for a female rough skate is 9 years with a PL of 70 cm.

518. Male smooth skates mature at 8 years, and female smooth skates mature at 13 years, indicative of very low productivity. The greatest reported age for smooth skate is 28 years for a 155 cm PL female. Females grow larger than males and appear to live longer. There are no apparent differences in growth rate between the sexes.

519. Rough skate are specialised feeders, preying mostly on crab species[93]. Meanwhile, smooth skates have a more varied diet composed mainly of three crustacean species and fishes from 17 families, including hoki, sea perch, and a variety of scavenged fishes[94].

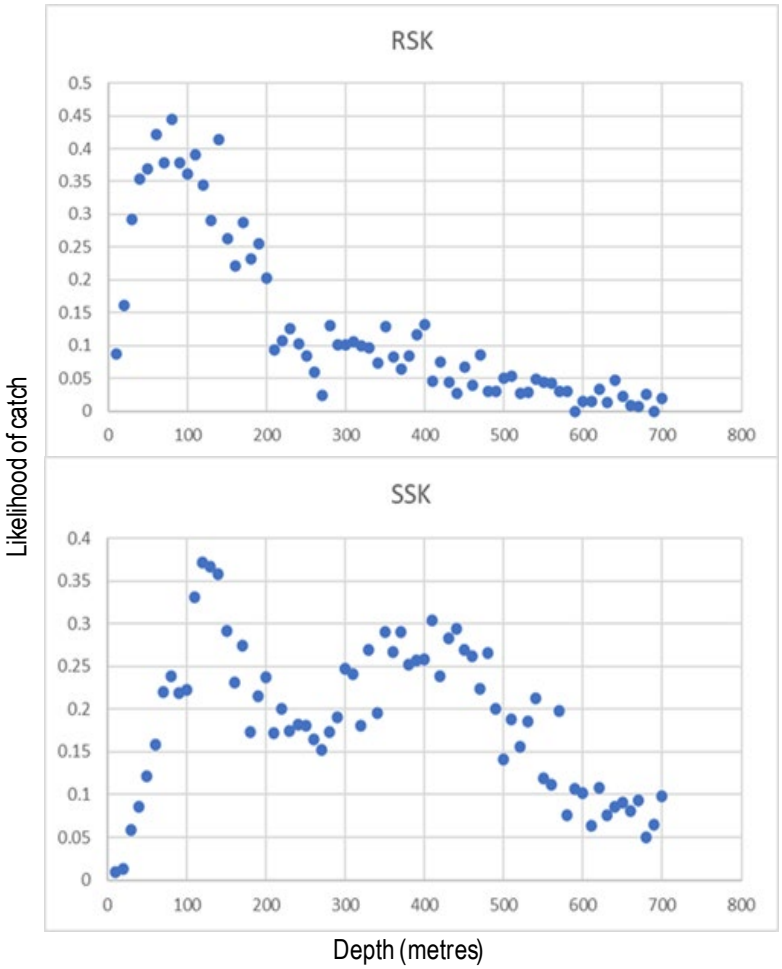


Figure 2: Depth profiles for RSK (left) and SSK (right) based on proportion of occurrence (in 10 metre increments), derived from New Zealand trawl survey data on skates.

1.1.3 Management background

520. Rough and smooth skates were introduced into the QMS in 2003, with an October fishing year (1 October – 30 September). The TAC, TACC and allowances for RSK 8 and SSK 8 have not been reviewed since being introduced into the QMS.

[93] Bennett, J., and Randhawa, H S (2019). Diet composition of New Zealand's endemic rough skate, *Zearaja nasuta*. New Zealand Journal of Marine and Freshwater Research 53: 162-168.

[94] Forman, J S., Dunn, M R (2012). Diet and scavenging habits of the smooth skate *Dipturus innominatus*. Journal of Fish Biology 80(5): 1546-1562.

521. Prior to 2003, rough and smooth skates were not distinguished in landing returns and were instead coded generically as “skates” (SKA). Following introduction to the QMS in 2003, the two skate species were not always correctly identified. Disproportionate reporting in early catch records indicates some catches of both species were likely misidentified or misreported, with potential over-reporting of rough skate and, correspondingly, under-reporting of smooth skate.

522. Upon QMS introduction in 2003, the RSK 8 and SSK 8 TACCs were set at a level that reflected the average reported commercial landings over the 10 years between 1991/92-2000/01. This approach recognised that skate identification between the two stocks had been uncertain, the bycatch fisheries for these stocks were relatively stable, and a high TACC (relative to historical reported catch) would allow for increased catches in years of higher abundance.

1.2 Status of the stocks

523. For stocks in which Maximum Sustainable Yield (MSY) is not able to be reliably estimated using available information, section 13(2A)(c) of the Act specifies that decisions to set or vary the TAC must (i) use the best available information; and (ii) not be inconsistent with the objective of maintaining the stock at or above, or moving the stock towards a level at or above a level that can produce the MSY.

524. RSK 8 and SSK 8 are low knowledge stocks with no reliable estimates of biomass or yield. The status of the stocks in relation to default reference points is unknown.

525. The May 2022 Fisheries Assessment Plenary report (the Plenary) states it is unknown if recent catch levels or the TACCs are sustainable or at levels that will allow RSK 8 and SSK 8 to remain at a size that will support the maximum sustainable yield.

526. RSK 8 and SSK 8 are currently monitored using trends in catch. Other monitoring methods such as trawl surveys and Catch Per Unit Effort (CPUE) analysis, have been unsuccessful in producing a series of relative abundance that can be used to assess stock status for skates in RSK 8 and SSK 8.

527. A recent research project (INS2021-02) aimed to provide a stock assessment of rough and smooth skate stocks nation-wide. The project was successful for some stocks, however the West Coast North Island (WCNI) fishery-independent trawl surveys in 2018, 2019 and 2020, which covered RSK 8 and SSK 8, were assessed as being unable to provide reliable indices of abundance for skates.

528. Rough and smooth skates fall under Group 3 of the Draft National Inshore Finfish Fisheries Plan which recognises that they are subject to less fishing pressure than some other stocks, and that less comprehensive information for management is available. This means that while the social, commercial, and cultural benefits from these stocks are provided for, trends in catch and any other relevant information should be monitored and a review should be initiated if catch either exceeds the TAC/TACC, or declines, over three consecutive fishing years.

529. With no reliable estimates of biomass or yield there is uncertainty if either of these stocks are at a level that supports MSY.

2 Catch information and current settings within the TAC

2.1 RSK 8 commercial catch

530. The commercial catch history of RSK 8 is shown in Figure 3. Since the introduction of rough skates to the QMS in 2003, commercial landings of RSK 8 have consistently remained above the TACC. The average annual landings for the past five fishing years is 37 tonnes, which is

178% of the current TACC.

531. There are various factors that can influence whether a TACC is exceeded. Higher commercial landings can be related to higher abundance but also to fisher behaviour (e.g., increased effort) and market factors (e.g., increased market demand and port price).

532. The price of Annual Catch Entitlement (ACE) has remained consistent (around $0.20/kg) since rough skates were introduced to the QMS. Port prices paid for RSK 8 have fluctuated but are relatively low, indicating that port prices (and by proxy, market demand) are unlikely to be contributing to higher landings than the TACC.

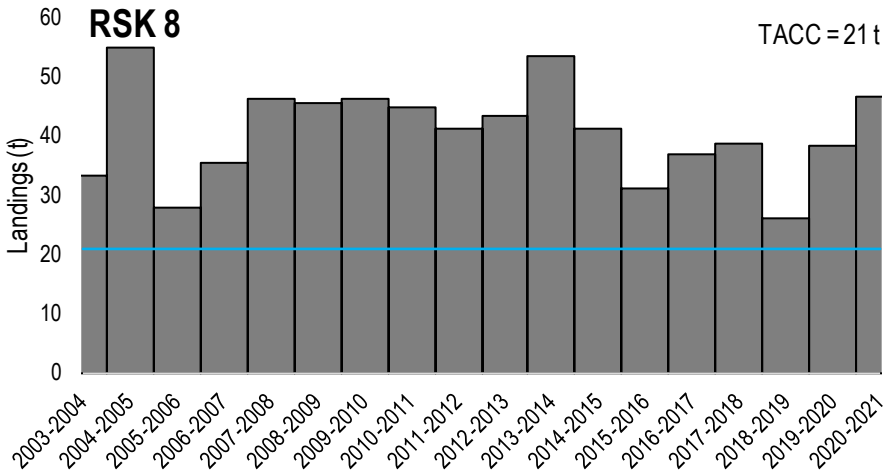


Figure 3: Reported commercial landings (tonnes) and TACC of RSK 8 since 2003 (year of introduction to the QMS).

533. Data is not available to accurately determine how overall fishing effort has impacted RSK 8 landings over time. Reported landing data does not have associated target species information, and estimated catch data from historical reporting is largely unavailable as only estimates of the top five to eight species were required to be reported under the previous paper-based reporting regime.

534. There are differences across the fishery in the use of Schedule 6 for releasing rough skates. This could suggest that some fishers are making a choice to land skates without ACE and to pay the deemed value, rather than releasing skates that are likely to survive. However, some fishers report they choose to keep their skate catch as they believe they will not survive being released under Schedule 6 and landing assures they are accounted for under the QMS.

2.2 SSK 8 commercial catch

535. The commercial catch history of SSK 8 is shown in Figure 4. Since introduction to the QMS in 2003, commercial landings of SSK 8 have steadily increased over time and have exceeded the TACC since 2007 (Figure 4). SSK 8 catch has reached its highest level in the past five years, and in 2019, the TACC was more than 300% caught. The most recent commercial landings are 53 tonnes, approximately 267% of the TACC.

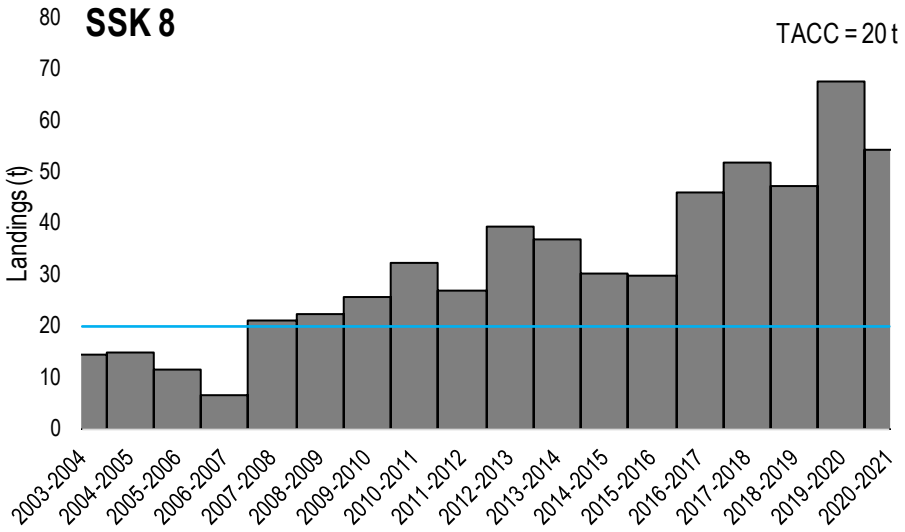


Figure 4: Reported commercial landings (tonnes) and TACC of SSK 8 since 2003 (year of introduction to the QMS).

536. The price of ACE has remained consistent (around $0.20/kg) since smooth skates were introduced to the QMS. Port prices paid for SSK 8 have fluctuated but are relatively low and have not increased in line with the increase in landings, indicating that port prices (and by proxy, market demand) are unlikely to be contributing to increasing landings.

537. Rough and smooth skates have differing depth profiles. Rough skates are caught in generally shallower waters than smooth skates, with catch levels dropping off at depths over 100 m (Figure 2). The highest catch rates for rough skate are expected around the 50-150 m range, and for smooth skate, rates of capture are expected to be highest around the 100-200 m range. While there is a substantial increase in expected rough skate catch from 0-50 m, there is not a substantial increase from 50 m to 100 m. For smooth skate on the other hand, expected catch shows a marked increase from 50 m to around the 100 m mark.

538. Data on the average depth of trawls in fisheries that catch skates shows that average fishing depth has increased over time in FMAs 8 and 9[95], and that fishing has occurred at the greatest average depths in recent years, between 110-120 m (Figure 5). This suggests that depth increases could be at least partly responsible for why SSK 8 catches have increased more relative to RSK 8 in recent years. Increases in depth for these fisheries have likely been influenced by Hector's and Māui Dolphin TMP regulations, which have required trawl vessels to fish further offshore to reduce the risk of encounters with Hector's and Māui dolphins.

539. Recent TACC reductions for tarakihi on the east coast of the North Island have also resulted in fishers targeting tarakihi on the west coast. Tarakihi are found in deeper waters, further offshore than other inshore mixed trawl target species and fishers are likely to fish in deeper waters to target them. This may also be contributing to larger smooth skate catches, as they are typically encountered deeper than rough skates.

[95] FMAs 8 and 9, which together cover the entire West Coast of the North Island, make up QMA 8 for rough and smooth skates.

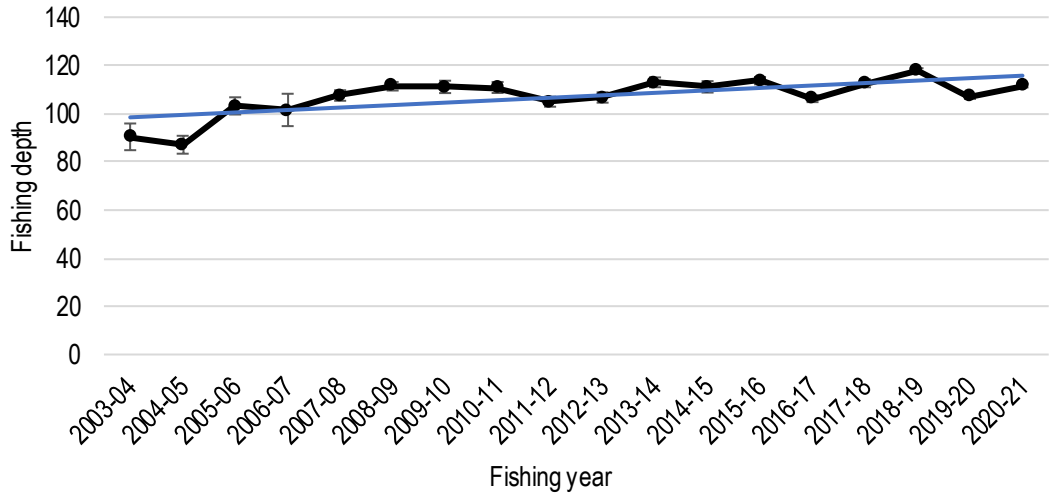


Figure 5: Average depth of trawling (metres) of inshore target fisheries relevant to West Coast North Island skates (tarakihi / snapper / red gurnard / John dory / trevally / school shark), since 2003. Trend is shown as the blue line.

540. Another consideration is that there have been gear changes and fishing innovations in west coast North Island trawl fisheries in recent years, to avoid catching snapper. These changes entail wider and lower trawl nets being used for targeting species closer to the bottom such as red gurnard. It is expected that based on this factor alone, there would be an increase in captures for both skate species.

2.3 Customary Māori

541. Customary catch information for these stocks is uncertain because there is no recorded data.

542. Customary fishing activities along the area of coastline spanning from Marokopa to Kaipara coastline operate under the Fisheries (Kaimoana Customary Fishing) Regulations 1998, which requires authorisation to be reported.

543. Customary fishing for much of the rest of RSK 8 and SSK 8 is authorised under provisions within the Fisheries (Amateur Fishing) Regulations 2013. There is no requirement to report customary catch under these regulations, however it is not expected that permits for skates have been issued in these areas as up until May 2022 there was no daily limit in place for skates. A customary permit would therefore not be required if there was the desire to utilise skates for customary purposes.

544. One tonne allowances for both species for customary fishing were included when the TACs were introduced in 2003. The allowances were intended to provide for any rough and smooth skate that may be taken, including under a future pātaka arrangement if one were to be established.

2.4 Recreational

545. Recreational fishing surveys indicate that skates are very rarely caught by recreational fishers. The National Panel Survey of Marine Recreational Fishers (2017/18) reports skates under the umbrella of stingrays, which means the accuracy of recreational information for these stocks is poor. The 2017/18 survey indicated that 1,171 individual 'stingray' were caught in RSK 8 and SSK 8, which is likely to indicate very low rough and smooth skate catch.

546. The negligible level of recreational catch reported in the Panel Survey for these stocks is reflected in their recreational allowances, which are currently both set at a nominal level of one

tonne.

2.5 All other mortality caused by fishing

547. 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. The current allowance set for all other mortality caused by fishing is one tonne for both RSK 8 and SSK 8.

548. Potential sources for other mortality for RSK 8 and SSK 8 could include unreported and illegal catch, misidentification of rough and smooth skates, misreporting of Schedule 6 releases, mortality associated with injury from contact with (but not capture by) fishing gear, and orca or shark predation while in fishing gear such as long lines and set nets.

549. Quantitative information on the level of illegal catch is not available and because skates are taken mainly as bycatch of bottom trawl fisheries, historical catches have probably been proportional to the amount of effort in the target trawl fisheries. Past catches were probably higher than historic landing data due to unrecorded discards and foreign catch before 1983. As such, the current and proposed changes are based off the best available information.

550. In 2018, the then Minister of Fisheries, as part of decisions relating to the 2018 October sustainability round, decided to set an allowance for all other sources of mortality caused by fishing at an equivalent of 10% of the TACC for predominantly trawl caught fisheries. This is considered an appropriate approach unless evidence suggests an alternative setting more suitable to the stock being reviewed. For RSK 8 and SSK 8 there is currently no such evidence.

3 Treaty of Waitangi Obligations

3.1 Input and participation of tangata whenua

551. 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.

552. Particular regard must be given to kaitiakitanga when making sustainability decisions.

553. RSK 8 and SSK 8 cover the rohe of Te Hiku o Te Ika, Mid-North, Ngaa Hapuu o Te Uru o Tainui and Te Tai Hauāuru Iwi Fisheries Forums.

554. Table 2 below provides a summary of engagement with these Iwi Fisheries Forums on the proposals for these stocks.

Table 2: Summary of engagement with Iwi Fisheries Forums.

Iwi Fisheries Forum	Engagement on RSK 8 & SSK 8
Te Hiku o Te Ika Iwi Fisheries Forum *(North of Kerikeri)*	• One-pagers for all sustainability round stocks were provided to the forum 2 weeks prior to their hui on 30 June 2022. A summary of stocks with specific focus directed to the RSK 8, and SSK 8 and east coast tarakihi reviews was discussed at the hui. • The Te Hiku o Te Ika forum did not have any specific feedback on the review of RSK 8 and SSK 8.
Mid-North Iwi Fisheries Forum *(Kerikeri to Auckland)*	• One-pagers for all sustainability round stocks were provided to the forum 2 weeks prior to their hui on 1 July 2022. A summary of stocks with specific focus directed to the RSK 8, and SSK 8 and east coast tarakihi reviews TAR was discussed at the hui. • No specific feedback on the review of RSK 8 or SSK 8 was received from the Mid-North forum. However, the forum has a standing resolution that they do not currently support any proposal for TACC increases. This position was reconfirmed

	during discussions on the October 2022 sustainability review at their hui on 1 July 2022.
Ngaa Hapuu o Te Uru o Tainui *(Te Puaha ki Te Manuka to Waipingao)*	Feedback during early engagement: • The forum members were concerned that as low knowledge stocks, RSK 8 and SSK 8 may be at risk of over-exploitation if a large TAC and TACC increase were to be implemented. • The forum supported increasing the deemed value rates for RSK 8 & SSK 8 to encourage restraint and prevent future increases in over-catch • Members suggested that FNZ continued to monitor RSK 8 and SSK 8 and encouraged a further review if a downward trend in landings occurs. • One member of the forum expressed the opinion that the rough and smooth skate catch on the west coast of the North Island may start trending downwards with the introduction of the Hector's and Māui Dolphin TMP. They expressed concern that more data may be needed to understand the impact of the Hector's and Māui Dolphin TMP on catch and that a review of RSK 8 and SSK 8 should be held off until then. Specific engagement on RSK 8 and SSK 8 options: • One-pagers for WAR 2 & 8, SKI 3 & 7, RSK 8 & SSK 8 and Deemed Values for KIN were presented to the forum in a hui held on 14 June 2022. • No further specific feedback was received for RSK 8 and SSK 8 beyond the discussions during early engagement on the review.
Te Tai Hauāuru *(Taranaki to Titahi Bay)*	• This Forum is not currently meeting. One-pagers for key stocks in the rohe were provided to forum members by email, including WAR 2 & 8, RSK 8 & SSK 8, HOK 1, SKI 3 & 7 and deemed value stocks. • No specific feedback was received for RSK 8 and SSK 8.

3.2 Kaitiakitanga

555. Te Hiku o Te Ika Fisheries Forum, Mid-North Iwi Fisheries Forum, Ngaa Hapuu o Te Uru o Tainui Fisheries Forum and Te Tai Hauāuru Iwi Fisheries Forums represent iwi with an interest in these rough and smooth skate stocks. The Mid-North Iwi Fisheries Forum does not currently have an Iwi Fisheries Forum Plan in place however the other forums do. In the absence of an Iwi Fisheries Forum Plan it should be noted that iwi may still consider rough and smooth skates taonga species.

556. Te Hiku o Te Ika Fisheries Forum and Ngaa Hapuu o Te Uru o Tainui Fisheries Forum both have an Iwi Fisheries Forum Plan that identifies all fish as taonga, and rough and smooth skates are named specifically.

557. FNZ considers the proposed changes for RSK 8 and SSK 8 management are generally consistent with management objectives of Te Hiku o Te Ika Iwi Forum Fisheries Plan in relation to Management Objective Two:

"Fish stocks are healthy and support the social, cultural and economic prosperity of Te Hiku iwi and Hapu."

And with management objectives of Ngaa Hapuu o Te Uru o Tainui Iwi Forum Fisheries Plan in relation to Outcome Area One:

"The fishery and its environment is healthy and sustainable."

558. Te Tai Hauāuru Iwi Fisheries Plan provides specific objectives in respect of commercial fisheries, that commercial fisheries are sustainable and support economic well-being of their iwi, and that the value of ACE is stable or increasing.

559. Customary tools utilised under the Fisheries (Kaimoana Customary Fishing) Regulations 1998 and the Fisheries Act 1996, provide for tangata whenua to manage local fisheries in ways that best fits local customary practices in the form of mātaitai reserves, taiāpure and temporary closures.

560. You must take into account any gazetted mātaitai reserves and fishing method restrictions or prohibitions in the relevant quota management area when allowing for Māori customary non-commercial interests while setting or varying any TACC under s21(4) of the Fisheries Act 1996. There are three customary fisheries management areas within RSK 8 and SSK 8. These include two mātaitai reserves and one taiāpure (Table 3). FNZ does not anticipate that the options proposed would negatively impact the availability of rough and smooth skate in these areas.

Table 3: Customary fisheries management areas in RSK 8 and SSK 8.

QMA	Customary Area	Management Type
RSK 8/SSK 8	Kawhia Aotea (Kawhia Harbour)	**Taiāpure** *All types of fishing are permitted within a Taiāpure. The management committee can recommend regulations for commercial, recreational and customary fishing.*
RSK 8/SSK 8	Aotea Harbour Marokopa	**Mātaitai** *Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.*

4 Environmental and Sustainability Considerations

4.1 Environmental principles (section 9 of the Act)

561. The key environmental principles, which must be taken into account when considering sustainability measures for RSK 8 and SSK 8, are as follows:

a) Associated or dependent species should be maintained above a level that ensures their long-term viability (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).

b) Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and

c) Habitats of particular significance for fisheries management should be protected.

562. It is important to note that due to RSK 8 and SSK 8 both being bycatch fisheries, the proposed actions are unlikely to impact environmental interactions because fishing effort is unlikely to change as a result of the options. Even so, FNZ believes the proposed options do take all of the above principles into account.

563. It is also important to note, in some cases, FNZ has made assumptions about environmental interactions based on fisher reported data that may not have been independently verified (for example, by an on-board FNZ Observer). Observer coverage on the west coast of the North Island has been moderate since 2014 to monitor for potential interactions with Māui and Hector's dolphins. Average observer coverage for the past 5 fishing years has been 28.11% for RSK 8 and 16.81% for SSK 8, based on event level data.[96]

[96] This coverage was calculated based on fishing events in which the fish stock was recorded as caught and an observer was on board. This metric does not reflect the overall level of monitoring in the fishery.

564. Increased observer coverage and uptake of cameras onboard some vessels will enhance FNZ's abilities to monitor environmental interactions along the west coast of the North Island.

4.1.1 Marine mammals

565. RSK 8 and SSK 8 extend along the whole west coast of the North Island, an area associated with the critically endangered Māui dolphin. The Hector's and Māui Dolphin TMP guides management approaches for addressing both non-fishing and fishing-related impacts on Hector's and Māui dolphins.

566. Trawl fisheries have a higher risk of dolphin capture compared to line fisheries but are lower risk than set net fisheries. Since the 2008/09 fishing year, there have been 14 reported interactions with marine mammals (including six common dolphins, six fur seals and two unidentified seals or sealions) in key trawl fisheries associated with RSK 8 and SSK 8 (tarakihi, snapper, red gurnard, John dory, trevally, and school shark).

567. Observer coverage in the west coast North Island nearshore has been particularly high since 2014 to monitor for potential interactions with Māui dolphins. This enhanced coverage area corresponds with a significant proportion of the area in which RSK 8 and SSK 8 is taken. In addition to enhanced observer coverage, a number of trawl and set net vessels operating on the west coast North Island have installed onboard cameras.

568. As the proposed increases to the TACCs for both fish stocks are not significantly higher than what is currently caught, they are not expected to lead to an increase in fishing effort, and therefore it is not expected there will be an associated increase to the risk of marine mammal interactions.

4.1.2 Seabirds

569. The most recent Spatially Explicit Fisheries Risk Assessment ranks black petrel as the most at risk seabird, followed by the Salvin's albatross, Westland petrel, flesh-footed shearwater, southern Buller's albatross, and Gibson's albatross[97].

570. The management of seabird interactions with New Zealand's commercial fisheries is guided by the National Plan of Action to Reduce the Incidental Captures of Seabirds in New Zealand Fisheries (NPOA-Seabirds).

571. Since the 2008/09 fishing year, there have been 54 seabird captures reported in key trawl fisheries associated with RSK 8 and SSK 8. Most of these seabirds (35) were identified as petrels, prions, or shearwaters. Of these there were six black petrels, five sooty shearwaters, and five flesh-footed shearwaters.

572. As the proposed increases to the TACCs for both fish stocks are not significantly higher than what is currently caught, they are not expected to lead to an increase in seabird interactions.

4.1.3 Fish bycatch

573. Rough and smooth skates are not targeted, so do not have associated bycatch species. Their main associated species are those within the target fisheries (tarakihi, gurnard, trevally, snapper, john dory, ling and school shark). The proposed options are not expected to significantly change the catches in these fisheries.

4.1.4 Benthic impacts

[97] Baird, S J., Mules, R (2021). Extent of bottom contact by commercial trawling and dredging in New Zealand waters, 1989–90 to 2018–19. New Zealand Aquatic Environment and Biodiversity Report No. 260. 161 p

574. It is worth noting that target fisheries involved in RSK 8 and SSK 8 are predominantly trawl fisheries and as such, there are impacts to the seafloor due to the nature of trawling in general. However, because these stocks are not targeted, the proposed options are not expected to increase benthic impacts for the fisheries involved.

4.1.5 Habitats of particular significance for fisheries management

575. FNZ considers that habitats of particular significance for fisheries management are areas of critical importance in supporting the productivity of harvested species.

576. Rough and smooth skates are broadly distributed in RSK 8 and SSK 8 and there is limited information regarding what specific areas of habitat are of particular significance to the stocks. Some general habitats that could be regarded as particularly significant to RSK 8 and SSK 8 are discussed in Table 4 below.

Table 4: Attributes, reasons for significance and risks/threats to the West Coast North Island skate area.

Stocks	RSK 8 and SSK 8
Habitat	West coast North Island. There is very little information on Habitats of particular significance for these species. The stock is data deficient, and the exact location and type of habitat is unknown.
Attributes of habitat	• A mix of coarse sandy or muddy sediment substrate on the continental shelf. This habitat is present in the area, but exact habitat preferences of egg-laying females is unknown[98].
Reasons for particular significance	• Skates lay their eggs on the seabed in shallower waters and spawning is critically important in supporting the productivity and recruitment of a fish stock. There is limited evidence to identify areas that are particularly significant.
Risks/Threats	• Bottom-contacting fishing activities are likely to have an impact on any habitats of particular significance to the management of RSK 8 and SSK 8. However, the adverse effects of fishing activities and other impacts is uncertain due to there being limited knowledge on habitat preferences of egg-laying females, the attributes of those habitats and their sensitivity to activities. • Effects of damage to spawning habitat might not be apparent in the population for many years due to the species being long-lived.
Existing protections	• Although not specific to RSK 8 and SSK 8, within the management area of RSK 8 and SSK 8 there are several habitats that are possibly of particular significance to other species that are currently protected by regulatory and non-regulatory measures (voluntary). Given that skates lay eggs in shallower waters, these protections may provide protection to some skate spawning grounds. These areas include: The Hectors and Māui dolphin TMP trawl closure areas from Maunganui Bluff to the Waiwhakaiho river (New Plymouth) and extending 4 nautical miles offshore.

4.2 Sustainability measures (section 11 of the Act)

577. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

578. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to RSK 8 and SSK 8, the natural variability of the stock concerned, and any relevant fisheries plans.

579. The following plans and strategies are relevant for RSK 8 and SSK 8.

[98] Morrison, M A.; Jones. E G.; Parsons, D P.; Grant, C M. (2014). Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge, and suggestions for future research. New Zealand Aquatic Environment and Biodiversity Report No. 125. 205 p.

4.2.1 National Inshore Finfish Fisheries Plan

580. Although not yet approved under section 11A of the Act[99], the National Inshore Finfish Fisheries Plan (the Plan) provides guidance on management objectives and strategies for finfish species, including rough and smooth skates. The Plan will guide the operational management of inshore finfish fisheries for the next five years and is aimed at progressing New Zealand towards more ecosystem-based fisheries management.

581. Stocks are grouped within the Plan, with management approaches and objectives tailored accordingly for each group.

582. Rough and smooth skates from RSK 8 and SSK 8 fall under Group 3 which recognises that they are subject to less fishing pressure than some other stocks, and that less comprehensive information for management exists. The general approach is to minimise management costs by using catch trends as the key monitoring tool. RSK 8 and SSK 8 landings in excess of the TACC are used as a trigger for further investigation and consideration of review.

4.2.2 Regional Plans – s11(2)(a)

583. There are six regional councils/unitary authorities that have coastline within RSK 8 and SSK 8 boundaries. These are Northland, Auckland, Waikato, Taranaki, Manawatū-Whanganui and Greater Wellington. Each of these regions have multiple plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems and habitats.

584. The provisions of these various documents are, for the most part, of a general nature and focus mostly on land-based stressors on the marine environment. There is nothing specific to rough skate and smooth skate stocks. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235).

585. FNZ considers that the proposed management options presented are in keeping with the objectives of relevant regional plans.

586. The FNZ Coastal Planning Team engages with the RMA coastal planning processes (including regional authorities) to support marine management decisions to manage not only the fishing effects on the coastal environment but also land-based impacts on fisheries.

4.2.3 NPOA sharks – s11(1)(b)

587. As an elasmobranch (cartilaginous fish, including sharks, skates, and rays), skates are included in the National Plan of Action for Sharks (NPOA Sharks), which considers the biological characteristics of skates in terms of their vulnerability to fishing pressure, the connectivity of skate stocks, and their status as taonga (species of importance to Māori). The purpose of the NPOA sharks is to maintain the biodiversity and the long-term viability of all New Zealand shark populations by recognising their role in marine ecosystems, ensuring that any utilisation of sharks is sustainable, and that New Zealand receives positive recognition internationally for its efforts in shark conservation and management.

588. FNZ anticipates that the options proposed in this paper are unlikely to impact the sustainability of RSK 8 or SSK 8. However, there could be higher risks to sustainability for the options that increase the TACCs of RSK 8 and SSK 8 if the new TACCs are overcaught. FNZ is proposing deemed value changes should mitigate this risk (see Heading 7: *Deemed values* below). The lack of information available on the status of RSK 8 and SSK 8 will require FNZ to continue monitoring landings of the stocks to ensure overfishing does not occur.

[99] Therefore, under section 11(2A), you are not required to take it into account.

5 Submissions

589. There were 10 submissions and responses on the proposed changes to RSK 8 and 15 on the proposed changes to SSK 8 (Table 5). Most of the submissions supported increasing the TACC to reflect current catch levels for RSK 8 (nine support Option 2 and one support Option 1). Regarding SSK 8, 12 submissions were in favour of Option 2 and two supported Option 1). Two submissions commented on deemed value changes for both stocks. One supported increased deemed value rates (Option 1) and one supported the *Status Quo*.

Table 5: Written submissions and responses received for RSK 8 and SSK 8.

Submitter	Option Support					
	RSK 8		SSK 8			Comments
	1	2	1	2	3	
Environment and Conservation Organisations of NZ Inc. (ECO)	✓		✓			Does not support an increase in the skate TACCs. This is a cautious approach and results in the lowest risk to the stock, and wider ecosystem.
Fisheries Inshore New Zealand (FINZ)		✓			✓	Would have preferred to see a further option for RSK 8 that would effectively cover recent levels of catch and allow for some limited headroom. Support exploring methods to monitor the stock in the future, particularly if trends indicate there is issue with the stock. Support the *status quo* for deemed values for both stocks.
Iwi Collective Partnership (ICP)		✓		✓		Not opposed to a greater increase to SSK 8 under Option 3. Also note: • There is limited knowledge about the status of these stocks only that it is largely a bycatch fishery, and that catch is increasing. • Given the limited knowledge, the stocks should be monitored and reviewed.
Ngātiwai Holdings Ltd				✓		
Ngāti Mutunga o Wharekauri Asset Holding Company Ltd				✓		
Rangitāne Holdings Ltd			✓			
Te Ohu Kaimoana		✓		✓		Note it is important that FNZ continue to monitor the progress of the catch in these fisheries to detect any downward or upward trend. Also support deemed value increase for both stocks.
Maruehi Fisheries Ltd		✓		✓		Supports Te Ohu Kaimoana's approach to RSK 8 and SSK 8.
Ngāruahine Fisheries Ltd		✓		✓		Supports Te Ohu Kaimoana's approach to RSK 8 and SSK 8.
Raukawa Asset Holding Company Ltd				✓		Supports Te Ohu Kaimoana's approach to SSK 8.
Taranaki Iwi Fisheries Ltd		✓		✓		Supports Te Ohu Kaimoana's approach to RSK 8 and SSK 8.
Tama Asset Holding Company Ltd				✓		Supports Te Ohu Kaimoana's approach to SSK 8.
Te Atiawa (Taranaki) Holdings Ltd		✓		✓		Supports Te Ohu Kaimoana's approach to RSK 8 and SSK 8.
Te Pataka o Tangaroa Ltd		✓		✓		Supports Te Ohu Kaimoana's approach to RSK 8 and SSK 8.
Whanganui Iwi Fisheries Ltd		✓		✓		Supports Te Ohu Kaimoana's approach to RSK 8 and SSK 8.
Total	1	9	2	12	1	

6 Options and analysis

590. When setting a TAC, the requirement is to set it to a level that maintains the stock at, or above a level that can produce the MSY. Due to the limited science information on RSK 8 and SSK 8, there is uncertainty regarding the status of these stocks in relation to MSY.

591. FNZ considers that the options proposed below would not be inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the maximum sustainable yield.

6.1 Options for RSK 8

6.1.1 RSK 8 Option 1 – *Status Quo*

TAC: 24 t	**TACC:** 21 t	**Customary**: 1 t	**Recreational**: 1 t	**Other mortality**: 1 t

592. Option 1 is the *Status Quo*. It retains the existing catch limits and allowances.

593. This option reflects a cautious approach, placing weight on the lack of current information on the status of the stock. It carries the least sustainability risk of the options presented. However, it still contains a degree of risk if current levels of over catch persist. This cautious approach also takes into account the likely low fecundity and low productivity of rough skate. This option places the least weight on providing for utilisation.

594. The current catch limits may not be appropriate based on recent trends in catch for the fishery, and catch has been well above the TACC since introduction to the QMS. Landings as of March 2022 have almost reached the total available ACE and, if the current trend continues, are expected to exceed the TACC by at least 100% (21 tonnes). Additionally, there has been a shift further offshore where skates were previously less utilised. Retaining the *Status Quo* may have the effect of unnecessarily constraining commercial catches of skates and target species, which would negatively impact commercial fishers.

595. One submission from ECO was made in support of this option because it is a cautious approach to management with the lowest risk presented to the stock and wider ecosystem. They noted that skates have low fecundity and there is uncertainty about the increasing catch trends for these stocks.

596. Additionally, the Mid-North Iwi Fisheries Forum has a standing resolution not to support an increase to TACCs for any stock.

6.1.2 RSK 8 Option 2 – Fisheries New Zealand preferred option

TAC: 43 t (↑ 19 t)	**TACC:** 37 t (↑ 16 t)	**Customary**: 1 t –	**Recreational**: 1 t –	**Other mortality**: 4 t (↑ 3 t)

597. Under Option 2 the TAC for RSK 8 would increase by 19 tonnes, from 24 tonnes to 43 tonnes. The allowances for customary Māori and recreational fishing each will remain at one tonne, and the allowance for all other mortality caused by fishing will increase to four tonnes. The TACC is proposed to increase from 21 tonnes to 37 tonnes, which is in line with most recent average catch levels.

598. Under this proposal, all other mortality caused by fishing will be set at 4 tonnes. This amount is equivalent to 10% of the proposed TACC, which is consistent with the former Minister's decision in 2018. Customary Māori and recreational allowances are proposed to remain at one tonne each, as catch is expected to remain negligible.

599. This proposed option recognises that the consistent catch above the TACC of a non-target by-catch species may indicate an opportunity to provide for additional utilisation. However, Option 2 poses a higher level of risk as there is no current information on B_{MSY} or recent biomass estimates for RSK 8. As productivity in rough skate is likely to be low, RSK 8 may be more vulnerable to fishing pressure.

600. There is no information to suggest that this option would present a significant sustainability concern, however there is uncertainty. Under Option 2 FNZ will continue to monitor RSK 8 landings and undertake a further review of the TAC and allowances if required.

601. Improvements to electronic reporting and Global Position Reporting (GPR) technology, and the upcoming roll-out of cameras on commercial fishing boats, is likely to improve the knowledge of catch, discards, and species identification accuracy. This improved monitoring will assist FNZ to identify and address emerging risks to these stocks.

602. This proposed option is unlikely to cause a significant increase to catch of rough skate in RSK 8 as it is completely caught as bycatch and current catch levels are similar to the TACC proposed under Option 2.

603. The Mid-North Iwi Fisheries Forum have a standing resolution that they do not support any increases to TACCs for any stock, and therefore opposed this option.

604. The majority of submissions received on RSK 8 supported this option. Te Ohu Kaimoana and the Iwi Collective Partnership noted that due to limited knowledge for this stock, continued monitoring for upward or downward trends and subsequent reviews should occur.

605. FINZ believed that there was no more risk in taking Option 2 than Option 1, because the stock is already overcaught at the level proposed by Option 2. In their submission FINZ also proposed the statement in the consultation document; “there is no information to suggest that increasing the TAC in Option 2 would present a significant sustainability risk” is overly cautious. They put forward that the information available does not indicate that the TACC in Option 2 presents a sustainability risk, it actually suggests that Option 2 is sustainable and consistent with the Act.

6.2 Options for SSK 8

6.2.1 SSK 8 Option 1 – *Status Quo*

TAC: 23 t	**TACC:** 20 t	**Customary**: 1 t	**Recreational**: 1 t	**Other mortality**: 1 t

606. Option 1 is the *Status Quo*. It retains the existing catch limits and allowances.

607. This option reflects a cautious approach, placing weight on the lack of current information on the status of the stock. It carries the least sustainability risk of the options presented. However, it still contains a degree of risk if the increasing trend in catch persists. This cautious approach also takes into account the likely low fecundity and low productivity of smooth skate. This option places the least weight on providing for utilisation.

608. The current catch limits may not be appropriate based on recent trends in catch for the fishery. Catch has been above the TACC since the 2007/08 fishing year and has been steadily increasing. Landings as of September 2021 have exceeded ACE by considerable margins (34 tonnes). Additionally, there has been a shift further offshore where skates were previously less utilised. Retaining the *Status Quo* could have the effect of unnecessarily constraining

commercial catches of skates and target species, which would negatively impact commercial fishers.

609. Two submissions were made in support of this option (ECO and Rangitāne Holdings Ltd). ECO supported the *status quo* because it is a cautious approach to management with the lowest risk presented to the stock and wider ecosystem. They noted that skates have low fecundity and there is uncertainty about the increasing catch trends for these stocks. Skates are taken predominantly in bottom trawling, and ECO note that the management of bottom trawling "needs to be sorted". In their submission they urge MPI to undertake broader stock assessments of skate stocks.

610. Additionally, the Mid-North Iwi Fisheries Forum has a standing resolution not to support increased TACCs for any stock.

6.2.2 SSK 8 Option 2

TAC: 49 t (↑ 26 t)	**TACC:** 43 t (↑ 23 t)	**Customary**: 1 t –	**Recreational**: 1 t –	**Other mortality**: 4 t (↑ 3 t)

611. Under Option 2 the TAC for SSK 8 will increase by 26 tonnes, from 23 tonnes to 49 tonnes. The allowances for customary Māori and recreational fishing each will remain at one tonne, and the allowance for all other mortality caused by fishing will increase to four tonnes. Option 2 proposes to increase the TACC from 20 tonnes to 43 tonnes.

612. Option 2 proposes a TACC which is below current catch levels and is a moderate approach to provide for utilisation. It proposes to increase the TACC to the approximate average catch over the last ten years to reflect the longer term trend in landings.

613. This proposed option recognises that the increasing catch levels of a non-target by-catch species may indicate an opportunity to provide for additional utilisation. However, it is unlikely to significantly impact economic benefits from smooth skate in SSK 8 as most recent catch levels [100] are greater than the TACC proposed under Option 2. Given SSK 8 is completely caught as bycatch, the changes proposed under Option 2 are unlikely to lead to increased targeting of smooth skates.

614. Under this proposal, all other mortality caused by fishing will be increased to an amount that equals 10% of the TACC, which is consistent with the former Minister's decision in 2018. Customary Māori and recreational allowances remain at one tonne each, as catch is likely to remain negligible.

615. This proposed option recognises that the consistent catch above the TACC of a non-target by-catch species may indicate an opportunity to provide for additional utilisation. However, Option 2 imposes a higher level of risk as there is no current information on B_{MSY} or recent biomass estimates for SSK 8. As the ability to produce many offspring in smooth skate is low, SSK 8 may be more vulnerable to fishing pressure.

616. There is no information to suggest that this option would present a significant sustainability concern, however there is uncertainty. Under Option 2 FNZ will continue to monitor SSK 8 landings and undertake a further review of the TAC and allowances if required.

617. The Mid-North Iwi Fisheries Forum have a standing resolution that they do not support any increases to TACCs for any stock, and therefore oppose this option.

[100] Most recent catch is calculated as the average annual landings for the past five fishing years with the 2019/20 fishing year data excluded because of the effect of COVID-19 on fishing.

618. The majority of submissions received on SSK 8 support this option. Te Ohu Kaimoana and the Iwi Collective Partnership noted that due to limited knowledge for this stock, continued monitoring for upward or downward trends and subsequent reviews should occur.

6.2.3 SSK 8 Option 3 – Fisheries New Zealand's preferred option

TAC: 60 t (↑ 37 t)	**TACC:** 53 t (↑ 33 t)	**Customary**: 1 t –	**Recreational**: 1 t –	**Other mortality**: 5 t (↑ 4 t)

619. Under Option 3 the TAC of SSK 8 will increase by 37 tonnes, from 23 tonnes to 60 tonnes. Allowances for customary Māori and recreational fishing each will remain at one tonne, and the allowance for all other mortality caused by fishing will increase to five tonnes. Option 3 proposes to increase the TACC from 20 tonnes to 53 tonnes.

620. Option 3 proposes a TACC which is slightly above most recent catch levels and provides for current utilisation, above that of Option 2. It proposes to increase the TACC to the approximate average catch over the last five years to reflect the recent increasing trend in landings.

621. This proposed option will provide for current levels of utilisation of SSK 8. However, it is unlikely to cause any significant increase to economic benefits from smooth skate in SSK 8 as most recent catch levels are similar to the TACC proposed under Option 3. Given SSK 8 is exclusively caught as bycatch, a higher TACC is also unlikely to lead to increased targeting of smooth skates.

622. The allowance for all other mortality caused by fishing will be increased to an amount that equals 10% of the TACC, which is consistent with the former Ministers' decision in 2018. Customary Māori and recreational allowances remain at one tonne each, as catch is likely to be negligible.

623. This proposed option recognises that the consistent catch above the TACC of a non-target by-catch species may indicate an opportunity to provide for additional utilisation. However, Option 3 poses the highest level of risk as there is no current information on B_{MSY} or recent biomass estimates for SSK 8. The potential vulnerability of smooth skates to fishing pressure increases the potential risk of this option.

624. There is no information to suggest that this option would present a significant sustainability concern, however there is uncertainty. Under Option 3 FNZ will continue to monitor SSK 8 landings and undertake a further review of the TAC and allowances if required.

625. The Mid-North Iwi Fisheries Forum have a standing resolution that they do not support any increases to TACCs for any stock, and therefore oppose this option.

626. The Iwi Collective Partnership stated that although they support Option 2, they do not oppose this option.

627. FINZ support Option 3 and believe that there is no more risk in taking Option 3 than Option 1 because the stock is already substantially overcaught. They also support exploring methods to monitor the stock in the future, particularly if trends indicate there is issue with the stock.

6.3 Other options proposed by submitters

628. FINZ noted that they would have preferred to see a further option for RSK 8 that would effectively cover the recent levels of catch and allow for some limited headroom. They noted the level of reported catch in 2020/21 has shown increases. The deemed values for RSK 8 were decreased in 2017 to allow for better incentives for fishers to more accurately report their catch. In addition to the reported catch landed, with ER fishers have also reported approximately 8.5 tonnes of RSK 8 returns to the sea under Schedule 6 exemption.

6.4 Economic considerations

629. The economic impacts associated with all options proposed for RSK 8 and SSK 8 are likely to be minimal as these stocks are both caught completely as bycatch and TACCs have been overcaught for both stocks since 2007.

630. Provided recent catch trends continue, all options will provide for existing levels of utilisation. It is therefore unlikely that fishers would need to adjust their fishing behaviour in response to the proposed changes.

6.5 Other matters raised by submitters

631. Skates are taken predominantly in bottom trawling, and ECO note that the management of bottom trawling needs to be "sorted". They also urge MPI to undertake broader stock assessments of skate stocks.

7 Deemed values

632. The current deemed value rates for RSK 8 and SSK 8 are shown in Table 6. The deemed value rates for both RSK 8 and SSK 8 stocks are the same and have remained unchanged since 2017. The annual deemed value rates for other significant stocks (RSK/SSK 1, 3 and 7) have not changed since 2013 and are set at $0.35/kg.

Table 6: Current deemed value rates ($/kg) for RSK 8 and SSK 8.

Stock	Interim	Annual 100-120%	Differential rates ($/kg) of excess catch (% of ACE)				
			120-140%	140-160%	160-180%	180-200%	200%+
RSK 8 & SSK 8	0.24	0.26	0.31	0.36	0.42	0.47	0.52

633. The port price index and average ACE price trends for both stocks are shown in Figure 6. Since the 2003/04 fishing year, the average ACE price has remained relatively constant. The port prices for RSK 8 and SSK 8 have been decreasing slightly since the early to mid-2010s, although there was a sudden increase in the 2020/21 fishing year.

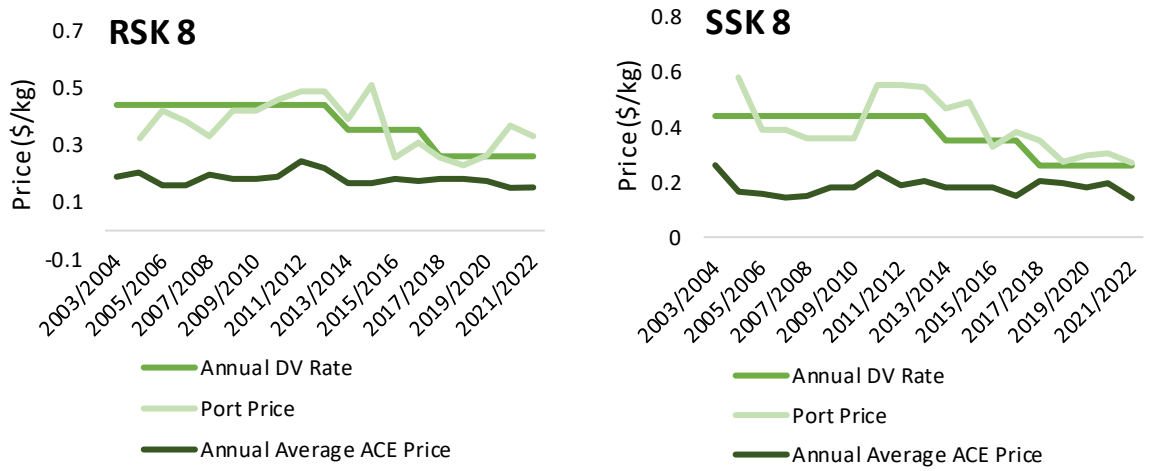


Figure 6: Average ACE price, average port price and deemed values ($/kg) for RSK 8 and SSK 8 from 2003/04 to the current fishing year.

634. The current port prices for RSK 8 and SSK 8 are \$0.33/kg and \$0.27/kg[101], respectively. The average price paid by fishers for ACE for the past five fishing years, was \$0.17/kg in RSK 8 and \$0.19/kg in SSK 8.

635. Figure 6 shows that the current annual deemed value rates of RSK 8 and SSK 8 are set above their average ACE prices. However, FNZ recognises that the options presented in this paper involve TACC increases, which could lead to subsequent changes in fishing behaviour and the ACE market.

636. During the 2017/18 fishing year, the basic annual deemed value rate for rough and smooth skates in RSK 8 and SSK 8 was decreased (annual deemed value rate of \$0.35 decreased to \$0.26). This decision was made due to the delayed implementation to increase the TACC of RSK 8 and SSK 8, to increase incentives for fishers to more accurately report their catch.

637. Section 75 of the Act lists mandatory considerations and other matters that may be taken into account when setting deemed values. The current annual deemed value rate for RSK 8 and SSK 8 (\$0.26/kg) is set only slightly above the average price paid by fishers during the 2020/21 fishing year for one kilogram of RSK 8 and SSK 8 ACE (\$0.15 and \$0.20/kg respectively). FNZ proposes that the annual deemed value rates for RSK 8 and SSK 8 be increased if the TACCs are also increased, to bring them in line with the deemed value rates for the other rough and smooth skate stocks (Table 7). These values have been assessed as appropriate to fisheries management objectives across the other skate stocks.

638. Setting deemed value rates above average ACE prices will strengthen incentives for fishers to balance their catch with ACE, consistent with your mandatory consideration under section 75(2)(a) of the Act.

639. Further, FNZ considers that aligning the deemed value rates for RSK 8 and SSK 8 with those of the adjacent skate stocks is something you may have regard to under section 75(2)(b)(vi) (any other matters you consider relevant). Aligning deemed value rates between adjacent stocks provides appropriate incentives for fishers who fish across the stock boundaries to report accurately.

Table 7: Proposed deemed value rates (\$/kg) for RSK 8 and SSK 8.

Stock		Interim	Annual 100- 120%	Differential rates (\$/kg) of excess catch (% of ACE)				
				120-140%	140-160%	160-180%	180-200%	200%+
RSK 8 & SSK 8	*Status quo*	0.24	0.26	0.31	0.36	0.42	0.47	0.52
	Option 1↑	0.32	0.35	0.42	0.49	0.56	0.63	0.70

640. The proposed changes to the deemed values for RSK 8 and SSK 8 were presented to Te Hiku o Te Ika, Mid-North, Ngaa Hapuu o Te Uru o Tainui, and Te Tai Hauāuru Iwi Fisheries Forums alongside the proposed changes to TAC, TACC and allowances. Only the Ngaa Hapuu o Te Uru o Tainui Forum commented on the deemed values, saying that they support deemed value increases to encourage restraint from any future increases in over catch of RSK 8 and SSK 8.

641. Only two submissions from public consultation commented on the deemed value rates, those from Te Ohu Kaimoana and FINZ. Te Ohu Kaimoana supports an increase to the deemed values for both RSK 8 and SSK 8 (Option 1).

642. FINZ supports the *status quo* as port prices are low compared to other stocks, and there are no perceived sustainability issues currently. They note that current catch is trending higher than the proposed options and that skates are an unavoidable bycatch species. Therefore, even if

[101] Note that port prices have been updated from the values presented in the consultation paper (\$0.37/kg and \$0.31/kg for RSK 8 & SSK 8, respectively), based on the most recently available port price data for 2022-23.

TACCs increase, deemed values are likely to continue to be paid. They believe it would be inequitable to increase deemed values.

8 Conclusions and recommendations

643. The best available information to guide RSK 8 and SSK 8 management is catch history, which shows that commercial catch has been consistently above the TACC since introduction to the QMS in RSK 8 and trending upwards since introduction to the QMS in SSK 8. These trends in catch could suggest there is an opportunity to provide for increased utilisation of both RSK 8 and SSK 8. Both fish stocks are substantially over caught relative to their respective TACCs, which may no longer be appropriately set. These TACCs were set based on historical catch in the respective Quota Management Area (QMA) at the time. It is possible historical reported catch did not accurately reflect what was occurring in the fishery at the time.

644. For these reasons, and on the basis that rough and smooth skates on the west coast of the North Island are caught entirely as bycatch, FNZ recommends Option 2 for RSK 8 and Option 3 for SSK 8 to provide for increased utilisation, at current catch levels. FNZ notes that if you were to agree to these recommendations further monitoring and management options will be explored, particularly when further camera data from the fishery becomes available. Commercial catch levels will also be closely monitored to see how the fishery responds to the changes.

645. FNZ also notes these are large increases relative to current TAC/TACCs for these stocks. However, when compared to recent catch levels they reflect small changes to actual catch in both RSK 8 and SSK 8. The current and proposed TACCs are also small relative to the size and scale of the RSK 8 and SSK 8 QMAs, particularly when compared to the TACs for other skate stocks of similar size and habitat type (such as the adjacent RSK 7 and SSK 7 stocks, which have TACs of 205 and 217 tonnes respectively). For these reasons, using the best available information, FNZ considers these options would not be inconsistent with the objective of maintaining the stock at or above or moving the stock towards a level that can produce the maximum sustainable yield.

646. FNZ considers that the current one tonne allowances adequately account for customary and recreational harvests of these skate stocks, and therefore proposes that they should remain the same. If a customary or recreational fishery for skates were to emerge in RSK 8 and/or SSK 8, these allowances could be reviewed at that time.

647. FNZ is proposing that should the TACCs be increased for both stocks, the deemed value rates be adjusted, to better reflect the current state of the fishery and to bring them in line with other rough and smooth skate stocks. FNZ recommends Deemed Value Rate Option 1.

9 Decision for Rough Skate - RSK 8

Option 1

Agree to retain the RSK 8 TAC at 24 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 1 tonne;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 1 tonne;
iv. Retain the RSK 8 TACC at 21 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(Fisheries New Zealand preferred option)*

Agree to set the RSK 8 TAC at 43 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 1 tonne;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 1 to 4 tonnes;
iv. Increase the RSK 8 TACC from 21 tonnes to 37 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

AND

Agree to increase the deemed value rates for rough skate 8 (RSK 8) to the values outlined below:

Stock	Interim	Annual 100- 120%	Differential rates ($/kg) of excess catch (% of ACE)				
			120-140%	140-160%	160-180%	180-200%	200%+
RSK 8	0.32	0.35	0.42	0.49	0.56	0.63	0.70

Agreed / Agreed as Amended / Not Agreed

10 Decision for Smooth Skate - SSK 8

Option 1

Agree to retain the SSK 8 TAC at 23 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 1 tonne;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 1 tonne;
iv. Retain the SSK 8 TACC at 20 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2

Agree to set the SSK 8 TAC at 49 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 1 tonne;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 1 to 4 tonnes;
iv. Increase the SSK 8 TACC from 20 tonnes to 43 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 3 *(Fisheries New Zealand preferred option)*

Agree to set the SSK 8 TAC at 60 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 1 tonne;
ii. Retain the allowance for recreational fishing interests at 1 tonne;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 1 to 5 tonnes;
iv. Increase the SSK 8 TACC from 20 tonnes to 53 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

AND

Agree to increase the deemed value rates for smooth skate 8 (SSK 8) to the values outlined below:

Stock	Interim	Annual 100- 120%	Differential rates ($/kg) of excess catch (% of ACE)				
			120-140%	140-160%	160-180%	180-200%	200%+
SSK 8	0.32	0.35	0.42	0.49	0.56	0.63	0.70

Agreed / ~~Agreed as Amended / Not Agreed~~

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

Blue warehou (WAR 2 and WAR 8) – Taranaki, Wellington, Wairarapa, Hawke's Bay and East Cape

Blue warehou - *Seriolella brama,*
Common warehou

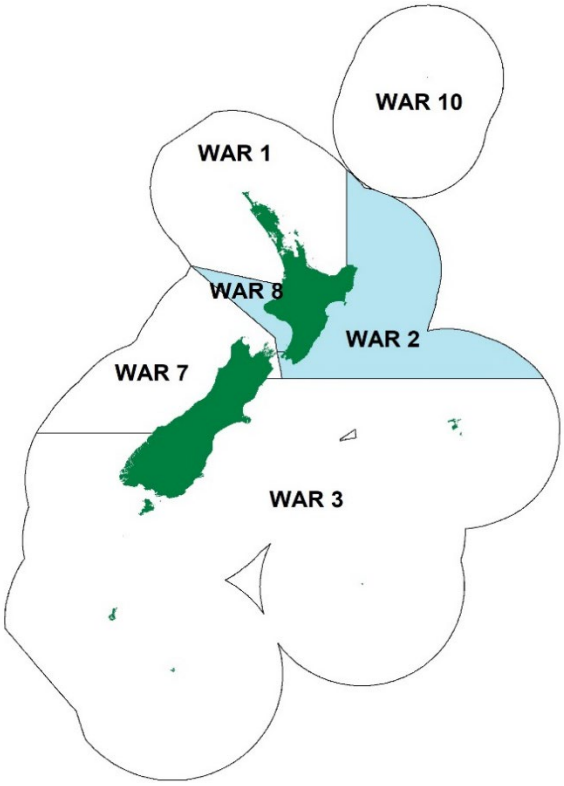


Figure 1: Quota Management Areas (QMAs) for blue warehou, with WAR 2 and WAR 8 highlighted.

Table 1: Summary of options proposed for WAR 2 and WAR 8 from 1 October 2022. Figures are all in tonnes. The preferred option of Fisheries New Zealand is highlighted in blue.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
WAR 2	**Current settings**	-	577.835	-	-	-
	Option 1 *(modified Status quo)*	646.835	577.835	5	6	58
	Option 2	297	260 ↓ (317.835 t)	5	6	26
	Option 3	176	150 ↓ (427.835 t)	5	6	15
WAR 8	**Current settings**	-	232.8	-	-	-
	Option 1 *(modified Status quo)*	250.8	232.8	2	4	12
	Option 2	174	160 ↓ (72.8 t)	2	4	8
	Option 3	117	105 ↓ (127.8 t)	2	4	6
In total 5 submissions were received on the proposed options for WAR 2, and 10 submissions on the options for WAR 8.						

1 Why are we proposing a review?

648. FNZ is reviewing sustainability measures for blue warehou in Quota Management Areas WAR 2 and WAR 8 for the 1 October 2022 fishing year (Figure 1).

649. FNZ is proposing to set a TAC for WAR 2 and WAR 8, noting that currently only a TACC is set in both fisheries. This will include the setting of allowances for customary and recreational fishing, as well as other sources of mortality caused by fishing.

650. As part of setting a TAC, consideration is being given to whether a reduction to the TACC is warranted. When WAR 2 and WAR 8 entered the Quota Management System (QMS) TACCs were set relative to the highest catches on record, however, since then these catch levels have not been reached in either fishery.

651. WAR 2 commercial landings have been trending downwards for the past decade and in the 2020/21 fishing year, landings were less than 10% of the TACC.

652. Commercial landings of WAR 8 are more variable, but two out of the last three fishing years have recorded the lowest landings in the last decade. This follows substantial closures to set net fishing that significantly impacted on the WAR 8 fishery. FNZ notes there has been considerable reduction in fishing effort within WAR 8 in response to fishing restrictions put in place under the Hector's and Māui dolphin Threat Management Plan (TMP).

653. WAR 2 and WAR 8 are low knowledge stocks with no estimates of biomass or yield, hence these stocks are currently monitored using trends in catch. There tends to be uncertainty in understanding such trends in low knowledge stocks, as it is not always clear if a reduction in catch is due to declines in stock biomass or changes in fishing practices.

654. FNZ is proposing three options each for WAR 2 and WAR 8, as outlined in Table 1 above.

1.1 About the stock

1.1.1 Fishery characteristics

655. Blue warehou are confined to Australian and New Zealand seas. They are a semi-pelagic schooling species found in depths of less than 300 m, particularly around the South Island and the lower parts of the North Island. Blue warehou are primarily of interest to the commercial sector, with seasonal patterns in commercial landings suggestive of a coastal migration of blue warehou.

656. Commercially, these stocks are mainly caught via bottom trawl and set nets.

657. In the early 2010s, 80% of all WAR 2 commercial catch was reported as targeted catch, however, in recent years the proportion of targeted catch has decreased to 25-35%.

658. For WAR 8 over the past decade the proportion of targeted catch has fluctuated between 65% and 85%. In the last fishing year, the proportion of targeted catch decreased to 15%, following an extensive closure to set net fishing around the Taranaki coast for the protection of Māui and Hector's dolphins that was implemented in 2020.

659. Blue warehou are caught as bycatch in bottom trawl fisheries targeting tarakihi and barracouta (WAR 2 and 8), blue moki and gurnard (WAR 2) and set net fisheries targeting school shark (WAR 2 and 8) and rig (WAR 8).

1.1.2 Biology

660. Blue warehou can be classified as a medium productivity species with a natural mortality[102] of 0.24, and a maximum recorded age of 21 years for females and 22 years for males[103]. Generally, medium productivity species such as blue warehou are less resilient to high rates of

[102] Proportion of mortality applied to a fish stock that is caused by predation and other natural events.
[103] Bagley, N W; Ballara, S L; Horn, P L; Hurst, R J (1998) A summary of commercial landings and a validated ageing method for blue warehou, Seriolella brama (Centrolophidae), in New Zealand waters, and a stock assessment of the Southern (WAR 3) Fishstock. New Zealand Fisheries Assessment Research Document 1998/20. 46 p. (Unpublished document held by NIWA library, Wellington.)

fishing mortality than high productivity species (e.g. anchovy) and more resilient than low productivity species (e.g. hāpuku).

661. Eggs are found in the surface plankton and juvenile fish are believed to occur in inshore areas.

662. Blue warehou exhibit fast growth up until the time of first spawning, which is usually four to five years of age, and 37 cm fork length (FL). After about 10 years there is usually negligible growth. Females grow significantly faster than males. Blue warehou in commercial catch are usually around 40-60 cm FL, although lengths up to 75 cm have been recorded.

663. Blue warehou feed on macroplanktonic organisms. Both at the Chatham Rise and Southland blue warehou stomach contents were dominated by tunicates (salps), with krill also observed in some stomachs sampled. No major differences in diet have been observed between different size classes of blue warehou[104].

664. Key predators are unknown although the Australian Fisheries Management Authority notes that there are records of blue warehou in the stomach contents of school sharks.

1.1.3 Management background

665. Blue warehou were introduced into the QMS in 1986, with an October fishing year (1 October – 30 September). At that time, only a TACC was required to be set and WAR 2 and WAR 8 TACCs were set relative to the highest catches on record. After some minor increases, the WAR 2 and WAR 8 TACCs have remained unchanged since 1992/93 and 1989/90 respectively.

1.2 Status of the stock

666. WAR 2 and WAR 8 are low knowledge stocks with no reliable estimates of biomass or yield. The status of the stocks in relation to default reference points[105] is unknown.

667. For stocks in which the maximum sustainable yield (MSY)[106] is not able to be reliably estimated using the best available information, section 13(2A) of the Act specifies that decisions to set or vary the TAC must not be inconsistent with the objective of maintaining the stock at or above, or moving the stock towards a level at or above, the level that can produce the MSY.

668. The May 2022 Fisheries Assessment Plenary report (the Plenary) states that it is not known if current catches or TACCs are sustainable, or at levels that will allow the stocks to move towards a size that will support the maximum sustainable yield.

669. The best available information used to monitor blue warehou stocks are trends in catch. Monitoring methods used for other stocks, such as trawl surveys, have proved unreliable for monitoring stock biomass due to highly variable catches. The age structure of sampled fish has varied year to year making it difficult to follow year classes.

670. There are no clear biological stocks for blue warehou in New Zealand. Previous study suggests there may be four tentative stocks based on seasonal landings and known spawning locations. Specifically, 1) a southern population mainly off Southland but perhaps extending into the Canterbury Bight; 2) a central eastern population, located on the northeast coast of the South

[104] Stevens, D W; Hurst, R J, Bagley, N W (2011) Feeding habits of New Zealand fishes: a literature review and summary of research trawl database records 1960 to 2000. NIWA. New Zealand Aquatic Environment and Biodiversity Report No. 8.
[105] Under the Harvest Strategy Standard, the default management target is 40% B_0 (unfished biomass), the soft limit is 20% B_0, and the hard Limit is 10% B_0.
[106] Maximum sustainable yield is the largest long-term average catch or yield that can be taken from a stock under prevailing ecological and environmental conditions, and the current selectivity patterns exhibited by fisheries. It is the maximum amount of fishing that a stock can sustain without impairing its renewability through natural growth and reproduction.

Island and the southeast coast of the North Island; 3) a southwestern population; and 4) a northwest population.

671. With no reliable estimates of biomass or yield there is uncertainty if either of these stocks are at a level that supports MSY.

2 Catch information and current settings within the TAC

2.1 WAR 2 commercial catch

672. Commercial catch history of WAR 2 is shown in Figure 2. Landings were around 200 tonnes when WAR 2 entered the QMS in 1986/87. They subsequently increased to a high of 560 tonnes in 1996/97 and have been trending downwards since that time.

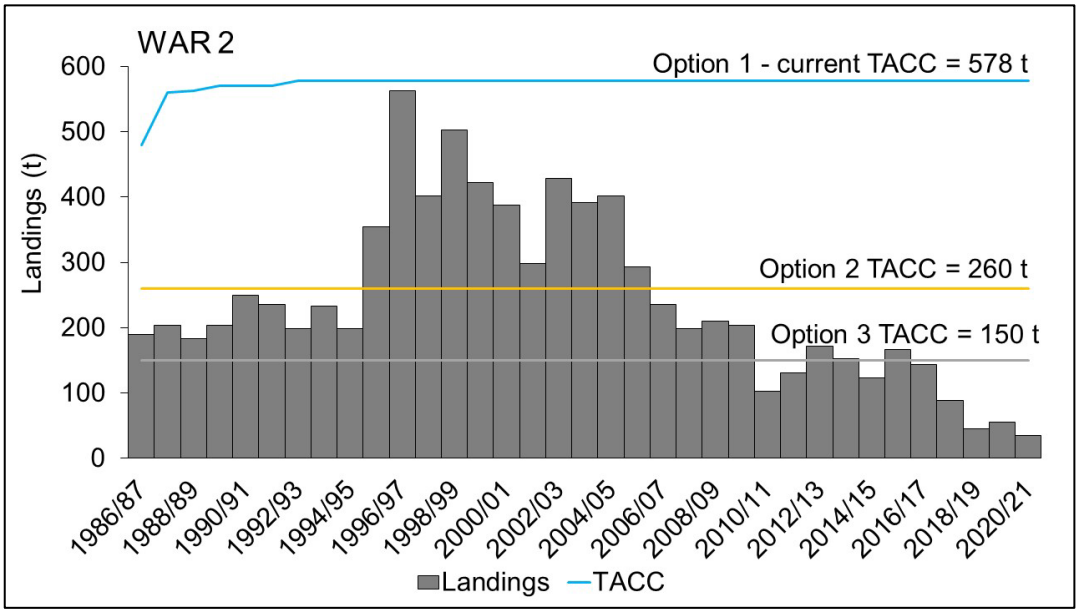


Figure 2: Annual commercial landings (in tonnes) of blue warehou in WAR 2 from 1986/87 to 2020/21 with the current TACC of 578 tonnes indicated by the blue line, the TACC for Option 2 indicated by the yellow line and the TACC for Option 3 indicated by the grey line.

673. Between 2011/12 and 2016/17, WAR 2 landings averaged approximately 150 tonnes. In the last five fishing years commercial landings have been declining, with average annual landings over this period being at 73 tonnes, 13% of the TACC.

674. There are various factors that can influence how much of a TACC is caught, and fishers are not obliged to catch their entitlement in full. Lower commercial landings can be related to a change in stock abundance but also to market factors (e.g., annual catch entitlement (ACE) availability, market demand).

675. Figure 3 shows more than 95% of WAR 2 catch is represented in eight target fisheries (including the blue warehou target fishery). Targeted catch of WAR 2 has been decreasing since 2012/13, and now represents only 25% of total WAR 2 catch.

676. Bottom trawl fisheries targeting tarakihi, blue moki and red gurnard have been responsible for the majority of WAR 2 bycatch. In the last fishing year, there was a slight increase in WAR 2 caught in set nets targeting school shark and rig, however, catches were still relatively small (approximately 2.1 tonnes).

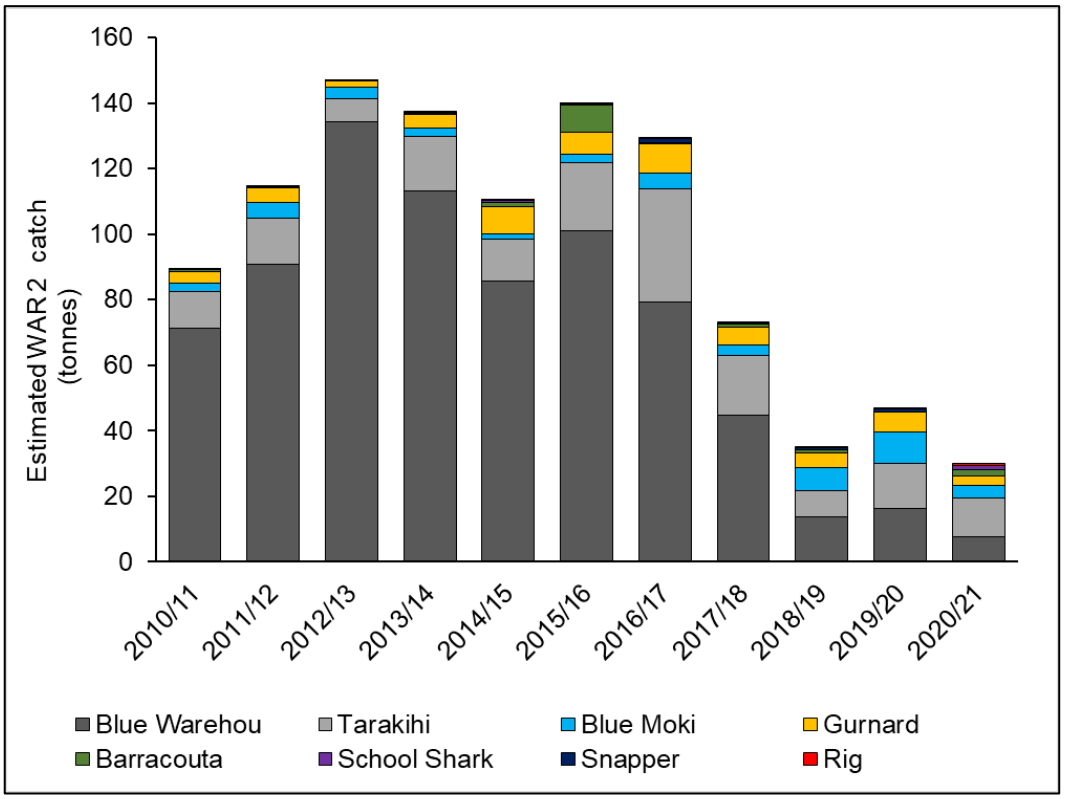


Figure 3: Estimated catch (in tonnes) of blue warehou in WAR 2 from 2010/11 to 2020/21 in eight target fisheries (including the WAR target fishery).

677. WAR 2 is typically targeted via set nets and bottom trawl. Targeted catch in both of these fisheries has decreased in line with a decrease in effort.

678. In the last five fishing years, bottom trawl targeted catch of WAR 2 decreased by 96%, the number of trawl events per year decreased by 85%, and trawl hours per year decreased by 78%.

679. From 2012/13 until the 2020/21 fishing year, set net targeted catch of WAR 2 decreased by 91%, the number of set net events per year decreased by 76%, and total time nets were set per year decreased by 76%.

680. Reasons for the decrease in effort in the WAR 2 target fishery are likely complex. A decrease in market price could disincentivise fishers from targeting WAR 2. Port price in 2011/12 was $2.6 per kg and dropped to $1.2 per kg in 2017/18. For the last five fishing years, the port price has fluctuated between $1.2 per kg and $1.5 per kg. Lower returns could explain the decreased effort in the WAR 2 target fishery.

681. It is believed blue warehou undergo seasonal coastal migration, based on seasonal landings. In the context of WAR 2, the Plenary notes that there is a winter/spring fishery in the north Wairarapa, and a summer/early autumn fishery off the coast of Wellington.

2.2 WAR 8 commercial catch

682. Commercial catch history of WAR 8 is shown in Figure 4. Landings were around 40 tonnes when WAR 8 entered the QMS in 1986/87. They subsequently increased to peak at 192 tonnes in 2002/03. Since the mid-2000s landings have generally declined, but have been variable with

some years having higher landings (such as 2013/14 and 2018/19).

683. Between 2011/12 and 2017/18, catch averaged approximately 105 tonnes. In the last five fishing years average annual landings were approximately 70 tonnes, 30% of the TACC.

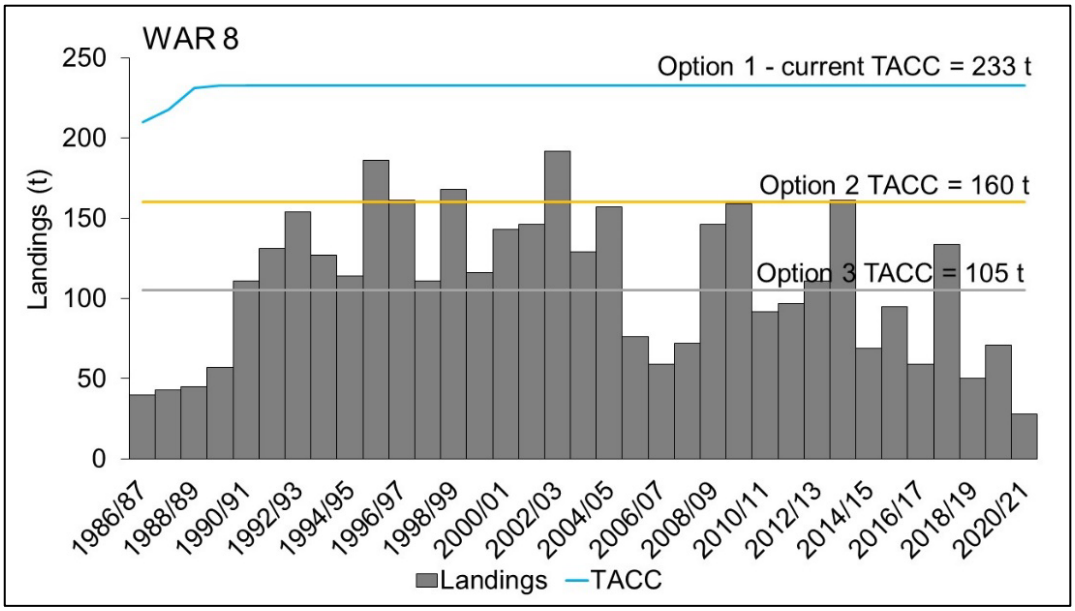


Figure 4: Annual commercial landings (in tonnes) of blue warehou in WAR 8 from 1986/87 to 2020/21 with the current TACC of 233 tonnes indicated by the blue line, the TACC for Option 2 indicated by the yellow line and the TACC for Option 3 indicated by the grey line.

684. Figure 5 shows that more than 95% of WAR 8 catch is represented in nine target fisheries (including the blue warehou target fishery). Targeted catch of WAR 8 has not shown the same downwards trend as targeted catch in WAR 2, however, the last three fishing years have recorded the lowest targeted catch in the last decade (less than 40 tonnes).

685. The amount of WAR 8 caught as bycatch has remained relatively steady over the past decade, fluctuating between 12 tonnes and 26 tonnes, and mostly from bottom trawl fisheries targeting tarakihi. More recently barracouta, and set net fisheries targeting school shark and rig, have been responsible for most of the WAR 8 bycatch.

686. WAR 8 is typically targeted via set nets (predominately around Taranaki) and bottom trawl (mostly in the southern areas of the QMA).

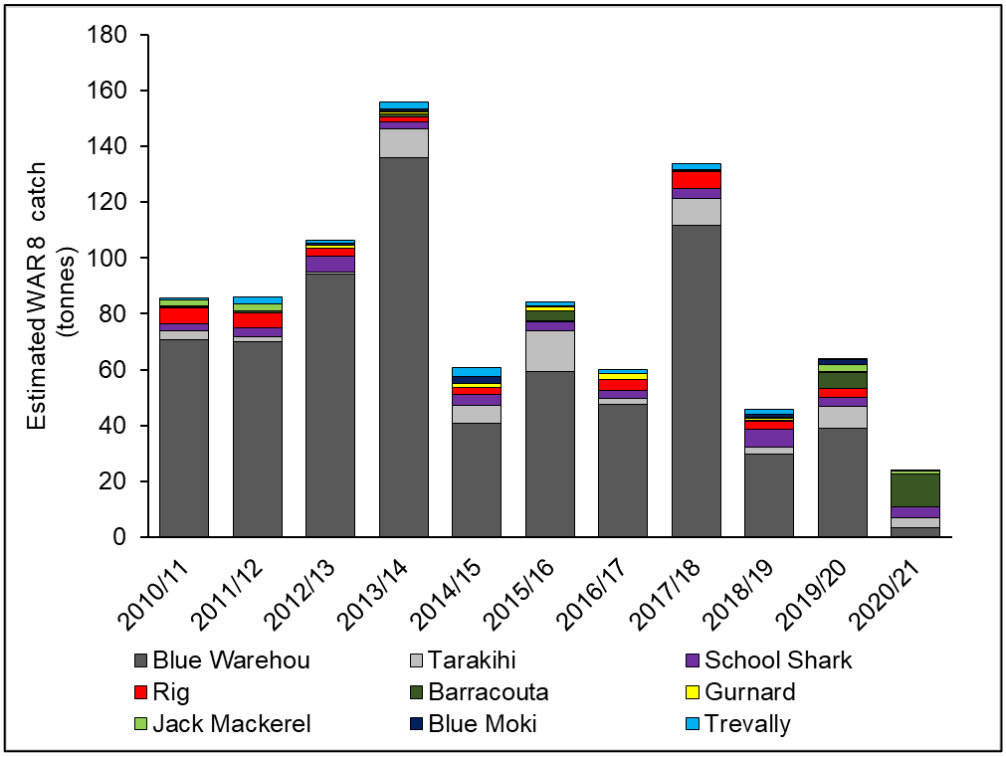


Figure 5: Estimated catch (in tonnes) of blue warehou in WAR 8 from 2010/11 to 2020/21 in nine target fisheries (including the WAR target fishery).

687. The WAR 8 targeted set net fishery has historically been a winter/spring fishery operating on the northern side of Taranaki (Cape Egmont to Bell Block), with the prime area for harvest considered to be 2-4 nautical miles off the coast.

688. Generally, targeted catch in both of these fisheries has decreased in line with a decrease in effort. From 2015/16 to 2020/21 bottom trawl targeted catch of WAR 8 decreased by 93%, the number of trawl events per year decreased by 82%, and trawl hours per year decreased by 90%.

689. Over the same period, set net targeted catch of WAR 8 decreased by 95%, the number of set net events per year decreased by 86%, and total time nets were set per year decreased by 89%. Target set net effort was significantly impacted by the set net fishing closures that took effect in July 2012, December 2013, and October 2020 for the protection of Māui and Hector's dolphins. The closures in 2012-2013, along with the requirement for any commercial set net vessel operating between 2 and 7 nautical miles offshore between Pariokariwa Point and Hawera to carry an observer had a significant impact on overall effort. It was estimated at the time the measures could potentially impact 18-54% of warehou catch. The set net closure in 2020 removed almost the entirety of the target warehou set net fishery.

690. As with WAR 2, a decrease in market price could disincentivise fishers from targeting WAR 8. Port price in 2011/12 was $1.1 per kg, increasing to $2.4 from 2013/14 to 2015/16 and subsequently dropping to $1.4 per kg in 2021/22. Lower returns may have contributed to decreased effort in the WAR 8 target fishery.

2.3 Customary Māori

691. There is currently no customary Māori allowance set for WAR 2 or WAR 8, and customary catch information for these stocks is highly uncertain.

692. Customary fishing activities along the lesser area of coastline spanning from Cape Palliser to Mahia coastline operate under the Kaimoana Regulations 1998 which require authorisation to be reported to MPI. However, customary fishing for much of WAR 2 and WAR 8 is authorised under provisions within the Fisheries (Amateur Fishing) Regulations 2013 and there is no requirement to report catch activity under this regulation.

693. Information supplied from customary fishing permit authorisations indicates that since 1999 no permits have been issued for customary harvests of warehou in WAR 2 and WAR 8.

694. FNZ promotes the implementation of the Customary Fishing Regulations across the WAR 2 and WAR 8 stocks, and strengthening the reporting capability of Kaitiaki authorising customary harvest.

2.4 Recreational

695. There is currently no recreational allowance set for WAR 2 or WAR 8. However, under the Fisheries (Amateur Fishing) Regulations 2013, blue warehou are included in the combined daily bag limit for finfish (20 finfish per fisher, excluding specified baitfish and freshwater eels) in Auckland/Kermadec, Central and Challenger recreational management areas.

696. The best available information on current recreational catch is from the 2017/18 National Panel Survey of Marine Recreational Fishers (NPS).

697. Recreational harvest estimates of blue warehou in WAR 2 and WAR 8 are shown in Table 2. Insufficient data on fish weights prevents converting fish numbers caught into tonnes.

Table 2: Recreational harvest estimates of blue warehou in WAR 2 and WAR 8 from 2011/12 and 2017/18 National Panel Surveys of Marine Recreational Fishers.

QMA	2011/12 Estimated harvest (Number of fish)	2017/18 Estimated harvest (Number of fish)
WAR 2	1485	265 (CV[107] = 100%)
WAR 8	0	568 (CV = 72%)

698. Based on an average weight of 4.062 kg[108], WAR 2 recreational harvest was estimated to be 6032 kg in 2011/12 and 1076 kg in 2017/18. WAR 8 recreational harvest was estimated to be 0 kg in 2011/12 and 2307 kg in 2017/18. However, it should be noted that there is a high level of uncertainty in these estimates.

2.5 Other sources of mortality caused by fishing

699. 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 WAR 2 or WAR 8.

700. Potential sources for other mortality for WAR 2 or WAR 8 could include, unreported and illegal catch, mortality associated with injury from contact with (but not capture by) fishing gear, and mortality associated with the accidental loss or damage of fishing gear and depredation by other predators.

[107] The coefficient of variation (CV) measures the extent of variability in relation to the mean (It is the ratio of the standard deviation to the mean).

[108] This is derived from observer collected warehou fork length data from the WAR 3 stock from the 2011/12 fishing year to date.

701. The main fishing methods capturing WAR 2 and WAR 8 are bottom trawl and set net, although in different proportions depending on the fishery. For inshore trawl fisheries with low levels of monitoring, there is generally more uncertainty in the other sources of fishing mortality, and in recognition of this, the other mortality allowance for those fisheries is generally set at a level equating to around 10% of the TACC.

702. Set nets are considered to be more selective and less likely to create unknown mortality events in comparison with trawl caught fish. Hence an allowance that equates to around 5% of the TACC is considered appropriate for stocks caught using set nets.

703. The planned camera rollout is likely to improve our understanding of other sources of mortality caused by fishing, which may provide an opportunity to review this setting in future.

3 Treaty of Waitangi Obligations

3.1 Input and participation of tangata whenua

704. 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.

705. Particular regard must be given to kaitiakitanga when making sustainability decisions.

706. WAR 2 and WAR 8 cover the rohe of Ngāti Porou, Mai Paritau tae atu ki Turakirae, Ngaa Hapuu o Te Uru o Tainui and Te Tai Hauāuru Fisheries Forums.

707. Table 3 provides a summary of engagement with these Iwi Fisheries Forums on the warehou proposals.

Table 3: Summary of engagement with Iwi Fisheries Forums.

Iwi Fisheries Forum	**Engagement on WAR 2**
Ngā Hapū o Ngāti Porou Management Trusts *(East cape)*	Ngā Hapū o Ngāti Porou Management Trusts Supplied a written response to consultation. The response noted that hapu currently have limited capacity and capability and hence these forums endorse the submission of Te Ohu Kaimoana and support Option 1 for WAR 2.
Mai Paritau tae atu ki Turakirae (*East Coast from Paritu to Turakirae)*	The last forum hui was held on 3 March when the longlist for stocks to be included in the October 2022 round was discussed. During consultation, further information stock proposals (including warehou) was sent to forum members via email. No specific feedback relating to WAR 2 was received.
Iwi Fisheries Forum	**Engagement on WAR 8**
Ngaa Hapuu o Te Uru o Tainui (Te Puaha ki Te Manuka to Waipingao) *(Waikato)*	A one-pager outlining the proposed options for WAR 8 was presented to the forum in a hui held on 14 June 2022. • A response from the forum to the proposal stated that WAR 8 should not be reviewed based on a decrease in landings. Landings would be negatively affected due to the decrease in set netting close to shore as a result of the TMP. • There is doubt as to whether this is a sustainability reason to propose decreases. • Reported that there appears to be an increase in WAR 8 abundance following the implementation of set net restrictions • The forum requested that FNZ conduct research into the ecosystem effects of TMP restrictions and include the forum in the research process.
Te Tai Hauāuru (*Taranaki to Titahi Bay)*	The forum has not been meeting regularly in 2022 so material was sent to forum members (via email) to ask for input. No feedback relating to WAR 8 was received.

3.2 Kaitiakitanga

708. Both Ngaa Hapuu o Te Uru o Tainui and Te Tai Hauāuru have an Iwi Fisheries Forum Plan. Ngaa Hapuu o Te Uru o Tainui's plan does not specifically reference blue warehou on the Forum's taonga species list, however, it is an important species to the Forum as all fish and shellfish species are acknowledged as taonga in the plan. The Te Tai Hauāuru Iwi Fisheries Plan provides specific objectives in respect of commercial fisheries, that commercial fisheries are sustainable and support economic well-being of their iwi, and that the value of ACE is stable or increasing.

709. FNZ considers that the proposed management options are in keeping with the objectives of the Iwi Fisheries Forum Plans which generally relate to active engagement with iwi and the maintenance of healthy and sustainable fisheries.

710. There are a number of customary fisheries management areas within WAR 2 and WAR 8. These include eight mātaitai reserves, two taiāpure and one temporary closure (Table 4). It is not anticipated that the options proposed would negatively impact the availability of blue warehou in these areas, however any positive impacts are unknown.

Table 4: Customary fisheries management areas in WAR 2 and WAR 8.

QMA	Customary Area	Management Type
WAR 2	Porangahau Taiāpure Palliser Bay Taiāpure	**Taiāpure** *All types of fishing are permitted within a Taiāpure. The management committee can recommend regulations for commercial, recreational and customary fishing.*
WAR 2	Waimārama Temporary Closure - *blackfoot pāua*	**S186A Temporary Closures** *Section 186A temporary closures are used to restrict or prohibit fishing of any species of fish, aquatic life or seaweed or the use of any fishing method.*
WAR 2	Te Kopa o Rongokānapa Mātaitai Hakihea Mātaitai Toka Tamure Mātaitai Horokaka Mātaitai Te Hoe Mātaitai Moremore Mātaitai (a) Moremore Mātaitai (b)	**Mātaitai Reserve** *Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.*
WAR 8	Marokopa Mātaitai	

4 Environmental and Sustainability Considerations

4.1 Environmental principles (section 9 of the Act)

711. The key environmental principles, which must be taken into account when considering sustainability measures for WAR 2 and WAR 8 are as follows:

a) Associated or dependent species should be maintained above a level that ensures their long-term viability (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).
b) Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and
c) Habitats of particular significance for fisheries management should be protected.

712. It is important to note that in some cases FNZ has made assumptions about environmental interactions based on fisher reported data that may not have been independently verified (for example, by an on-board FNZ Observer). Observer coverage on the west coast of the North Island has been moderate since 2014 to monitor for potential interactions with Māui and Hector's dolphins.

713. Average observer coverage over the last five fishing years has been 28% for the WAR 8 target fishery and less than 1% for the WAR 2 target fishery, based on event level data.[109] This difference is explained by the prioritisation to monitor protected species interactions in fisheries considered to be higher risk.

714. FNZ considers it highly unlikely that the options proposed in this paper will lead to increased environmental risk as all the options proposed involve maintaining or lowering the TACCs of both fish stocks.

4.1.1 Marine mammals

715. The WAR 8 stock and part of the WAR 2 stock are affected by fisheries measures that have been put in place under the Hector's and Māui dolphin Threat Management Plan (TMP).[110]

716. Within WAR 8, the TMP puts restrictions on trawling is prohibited within four nautical miles off the coast, from Tirua Point to the Waiwhakaiho River.

717. Within the whole of WAR 8, and part of WAR 2, there are extensive recreational and commercial set net fishing closures. Specifically, this prohibition is within twelve nautical miles of the shore from Tirua Point to Waiwhakaiho River, within seven nautical miles of the shore from Waiwhakaiho River to Hawera, and within four nautical miles of the shore from Hawera to Palmer Head.

718. Since October 2016 there were nine recorded interactions with New Zealand fur seals and four recorded interactions with common dolphins across all commercial fishing methods within the WAR 8 target fishery.

719. Over the same period no mammal interactions were recorded across all commercial fishing methods within the WAR 2 target fishery.

720. The northern portion of WAR 8 has been subject to extensive monitoring requirements under the TMP. For example:

- From July 2012 to October 2020, any commercial set net vessel that wanted to operate in the area from Pariokariwa Point (and later the Waiwhakaiho River) to Hawera between two and seven nautical miles offshore, was required to carry an observer.
- Since 2014, there have been observers on trawlers fishing in the core area of Māui dolphin distribution.
- Since November 2019, on-board cameras have been rolled out to most inshore trawlers and coastal set net vessels operating within the areas covered by the TMP. With the recent announcement of the nationwide rollout of on-board cameras on commercial fishing vessels all inshore trawlers and coastal set net vessels operating within WAR 8 are scheduled to have full camera coverage by the end of 2022.

[109] This coverage was calculated based on fishing events in which the fish stock was recorded as caught and an observer was on board. This metric does not reflect the overall level of monitoring in the fishery.

[110] Hector's and Māui dolphin Threat Management Plan, and North Island fisheries measures, 1 October 2020.

721. As the options proposed involve maintaining or lowering the TACCs of both fish stocks, they are not expected to lead to an increase in marine mammal interactions.

4.1.2 Seabirds

722. Management of seabird interactions with New Zealand's commercial fisheries is guided by the National Plan of Action – Seabirds 2020 (NPOA-Seabirds[111]). The NPOA-Seabirds sets out the New Zealand government's commitment to reducing fishing-related captures and associated mortality of seabirds. The vision of the NPOA-Seabirds is that New Zealanders work towards zero fishing-related seabird mortalities.

723. Management actions and research under the NPOA-Seabirds are guided and prioritised based on the seabird risk assessment that breaks down the risks to seabird populations by fishery groups. The most recent seabird risk assessment was published in 2020.[112]

724. New Zealand's inshore trawl fishery is considered responsible for a substantial portion of seabird capture risk.

725. There are a range of initiatives in place to reduce the risk of seabird captures in inshore trawl fisheries. These include work done by the black petrel working group and the development of Mitigation Standards to support fishers to identify the most effective mitigation techniques for their operations.

726. Since October 2016 there have been no seabird captures reported in both the WAR 2 and WAR 8 target fisheries.

727. As the options proposed involve either maintaining or lowering the TACCs of both fish stocks, they are not expected to increase the risk of seabird captures.

4.1.3 Fish bycatch

728. The species most commonly caught alongside blue warehou as bycatch in WAR 2 and WAR 8 are barracouta (WAR 2 & 8), blue moki and tarakihi (WAR 2), and school shark, snapper and trevally (WAR 8).

729. For most of these listed stocks there are no specific sustainability concerns, however, East Coast tarakihi stocks are currently being rebuilt due to low abundance. Options proposed for WAR 2 present a low risk to the rebuild of East coast tarakihi stocks as the options are unlikely to result in increased fishing effort that could lead to increased bycatch of these stocks.

730. Since October 2016 there have been four recorded interactions with white pointer sharks in the WAR 8 target fishery. These are the only recorded interactions with protected fish species in this fishery. Over the same period no protected fish species interactions were recorded in WAR 2.

4.1.4 Benthic impacts

731. In WAR 2, and more recently in WAR 8, blue warehou are principally caught as bycatch by bottom trawl, which can directly impact on the biological diversity of the benthic environment. However, the TAC settings proposed in this review are unlikely to increase trawl effort. Bottom trawling in this fishery is also typically confined to areas that have been consistently trawled over time (rather than areas of relatively undisturbed biodiversity).

[111] National Plan of Action – Seabirds 2020. Reducing the incidental mortality of seabirds in fisheries. Fisheries New Zealand.

[112] Assessment of the risk of commercial fisheries to New Zealand seabirds, 2006–07 to 2016–17.

732. Research has characterised both New Zealand's benthic environment and the level of benthic impact from fishing activity, which is summarised in the Aquatic Environment and Biodiversity Annual Review. [113] The environmental impacts of fishing are summarised annually by FNZ and we will continue to monitor the bottom trawl footprint of fisheries.

733. As the options proposed involve maintaining or lowering the TACCs of both fish stocks, they are not expected to increase benthic impacts.

4.1.5 Habitats of particular significance for fisheries management

734. Blue warehou are believed to migrate substantial distances to spawn. They appear to be primarily a spring spawner, with spawning activity starting in late winter and continuing through until late summer. Eggs have a pelagic phase lasting four days. [114]

735. Juveniles (less than a year) are often found in small schools in the shallow waters of harbours and bays (less than 75 m). Juveniles (one to two years) have similar distributions to their younger counterparts, extending slightly more offshore. They are also uncommon off the east central Coast and Southland.

736. FNZ considers that the options proposed are unlikely to pose a threat to the areas identified as potential habitats of significance. Table 5 summarises the available information on potential habitats of significance for WAR 2 and WAR 8, the threats faced, and the existing protection in place.

Table 5: Summary of information on potential habitats of particular significance for fisheries management for WAR 2 and WAR 8.

Fish Stock	WAR 2, WAR 8
Potential habitat of particular significance	• Water column - Hawkes Bay is a known spawning area. • Shallower (20-100m) inshore biogenic habitat
Attributes of habitat	• Water column: spawning and migration • Inshore biogenic habitat: likely to provide shelter, refuge from predation, and access to food for juveniles.
Reasons for particular significance	• Water column: ○ Spawning habitat. ○ Eggs are transported in the surface plankton. ○ Adult migration • Inshore biogenic habitat: ○ Potential juvenile nursery area. ○ Connectivity with spawning areas. ○ Successful growth/survival of juveniles is critical to maintaining the productivity of the stocks.
Risks/Threats	• Climate change can modify temperature regime of water column, affecting spawning and egg transport. • Mobile bottom-contact fishing methods can impact biogenic habitats, however the specific habitat attributes important for blue warehou are not well understood. • Inputs of pollutants and sediments from land-based sources, in turn leading to sedimentation and eutrophication.
Existing protection measures	• Several areas within the shallower inshore waters are closed to mobile bottom-contacting fishing methods and may provide some protection to potential nursery habitat[115]. Specifically: ○ Several areas within Hawkes Bay closed to both trawl and danish seine fishing.

[113] Aquatic environment and biodiversity annual review (AEBAR) – 2019/20 https://www.mpi.govt.nz/dmsdocument/40980-Aquatic-Environment-and-Biodiversity-Annual-Review-201920.
[114] Robertson, D A (1973). Planktonic eggs and larvae of some New Zealand marine teleosts. Unpublished. PhD thesis, University of Otago. Dunedin, New Zealand. 480 p.
[115] Fisheries (Central Area Commercial Fishing) Regulations 1986. SR 1986/217

	○ Prohibition of paired trawling along the North Island East Coast. ○ Trawl and set net restrictions along the North Island West Coast. ○ Prohibition of danish seining around the lower North Island. • Cook Strait Cable Protection Zone prohibits most fishing methods in this area. • Restricted areas around Taranaki, to protect petroleum installations, prohibits fishing in these areas. • The new National Policy Statement on Freshwater Management and the National Environmental Standards for Freshwater, which came into effect on 3 September 2020, should lead to improved water quality in shallow harbours and estuaries and other shallower inshore waters. • The Fisheries New Zealand Coastal Planning Team provides engagement with the RMA coastal planning processes to support marine management decisions that protect fisheries habitat.

4.2 Sustainability measures (section 11 of the Act)

737. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

738. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to WAR 2 and WAR 8, the natural variability of the stock concerned, and any relevant fisheries plans.

739. The following plans and strategies are relevant to WAR 2 and WAR 8.

4.2.1 Draft National Inshore Finfish Fisheries Plan

740. Although not yet approved under section 11A of the Act[116], the National Inshore Finfish Fisheries Plan (the Plan) provides guidance on management objectives and strategies for finfish species including warehou. The Plan will guide the operational management of inshore finfish fisheries for the next five years and is aimed at progressing New Zealand towards more ecosystem-based fisheries management.

741. Stocks are grouped within the Plan, with management approaches and objectives tailored accordingly for each group.

742. Blue warehou falls under Group 3, which recognises that FNZ intends to manage these stocks for lower levels of benefits and that less comprehensive information for management is required. The general approach is to minimise management costs by using catch trends as the key monitoring tool. WAR 2 and WAR 8 commercial landings in relation to the TACC are used as a trigger for further investigation and consideration for review.

4.2.2 Regional Plans – s11(2)(a)

743. There are six regional councils and a unitary authority that have coastline within WAR 2 and WAR 8 boundaries. These are Waikato, Taranaki, Manawatu-Wanganui, Greater Wellington, Hawke's Bay, Gisborne and Bay of Plenty. Each of these councils have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems and habitats.

744. The provisions of these various documents are, for the most part, of a general nature and focus mostly on land-based stressors on the marine environment. There is nothing specific to warehou stocks. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235).

[116] Therefore, under section 11(2A), you are not required to take it into account.

745. FNZ considers that the proposed management options presented are in keeping with the objectives of relevant regional plans.

746. The FNZ Coastal Planning Team engages with the RMA coastal planning processes (including regional authorities) to support marine management decisions to manage not only the fishing effects on the coastal environment but also land-based impacts on fisheries.

5 Submissions

747. There were five submissions on the proposed changes to WAR 2 and 10 submissions on the proposed changes to WAR 8. Table 6 summarises the submissions received and shows the support for each option.

Table 6: Written submissions and responses received for WAR 2 and WAR 8.

Submitter	Option Support						Comments/ other options supported
	WAR 2			WAR 8			
	1	2	3	1	2	3	
Environment and Conservation Organisations of New Zealand (ECO)			✓			✓	Supports Option 3 for both fish stocks as a cautious approach with the lowest risk to the stock and wider ecosystem.
Fisheries Inshore New Zealand (FINZ)		✓					Supports Option 2 for WAR 2, opposes Option 3 stating there is no evidence of a sustainability risk to WAR 2.
Iwi Collective Partnership (ICP)		✓			✓		Supports Option 2 for both fish stocks as the conservative middle ground noting the difficulties in assessing the state of the fisheries.
Southern Inshore Fishing Management Co.				✓			Supports Option 1 for WAR 8 stating that any reduction to the TACC would be premature.
Te Ohu Kaimoana Endorsed by: – Raukawa Asset Holding Company Ltd - Tama Asset Holding Company Ltd.	✓				✓		Notes 28N rights attached to WAR 2 and potential implications if catch limits are raised in the future. Considers Option 2 for WAR 8 a balanced approach given the uncertainty in stock status.
Maruehi Fisheries Ltd					✓		Supports Te Ohu Kaimoana's approach to WAR 8.
Ngaruahine Fisheries Ltd					✓		Supports Te Ohu Kaimoana's approach to WAR 8.
Ngā Hapū o Ngāti Porou Management Trusts	✓						Supports Te Ohu Kaimoana's approach to WAR 2.
Taranaki Iwi fisheries Ltd					✓		Supports Te Ohu Kaimoana's approach to WAR 8.
Te Atiawa (Taranaki) Holdings Ltd					✓		Supports Te Ohu Kaimoana's approach to WAR 8.
Te Pataka o Tangaroa Ltd					✓		Supports Te Ohu Kaimoana's approach to WAR 8.
Whanganui Iwi Fisheries Ltd					✓		Supports Te Ohu Kaimoana's approach to WAR 8.
Total	2	2	1	1	8	1	

6 Options and analysis

6.1 WAR 2 Options and Analysis

748. FNZ is proposing three options for the TAC, TACC and allowances for customary Māori, recreational and all other sources of mortality caused by fishing for WAR 2. WAR 2 is a low knowledge stock with no reliable estimate of biomass or yield. Therefore, there is a level of uncertainty that any of these options will maintain the stock at or above MSY. However, based on the available information FNZ considers that all of the presented options are consistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce MSY.

WAR 2					
Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Current settings	-	577.835	-	-	-
Option 1 *(modified Status quo)*	646.835	577.835	5	6	58
Option 2 (FNZ preferred)	297	260 ↓ (317.835 t)	5	6	26
Option 3	176	150 ↓ (427.835 t)	5	6	15

749. Option 1 (modified *status quo*) proposes to set at TAC for WAR 2 of 646.835 tonnes. This option provides for historical levels of utilisation and places the most weight on the assumption that declining trends in catch are driven by decreasing effort. This would also allow for higher utilisation in future.

750. Option 2 proposes to set at TAC for WAR 2 of 297 tonnes. This option adopts a more cautious approach than Option 1. It recognises that the existing TACC has never been reached but provides for a level of utilisation that is higher than existing levels of catch. This places some weight on the assumption that declining trends in catch are driven by decreasing effort. Option 2 would also provide more certainty than Option 1 that the stock is being maintained at or above, or moving the stock towards or above, a level that can produce MSY.

751. Option 3 proposes to set at TAC for WAR 2 of 176 tonnes. This option adopts the most cautious approach, given the lack of information available to guide management. It provides for a level of utilisation comparable to recent levels of catch, but places more weight on the assumption that declining trends in catch may in part be driven by decreasing abundance. Option 3 would also provide more certainty than Options 1 and 2 that the stock is being maintained at or above, or moving the stock towards or above, a level that can produce MSY.

Customary Māori allowance

752. There is little information available to guide the setting of the customary Māori allowance in WAR 2. The lack of customary reporting may reflect that parts of the North Island are not currently regulated under the Fisheries (Kaimoana Customary Fishing) Regulations 1998 and therefore customary catch may be occurring under the Fisheries (Amateur Fishing) Regulations 2013, for which there is no requirement to report catch.

753. A customary Māori allowance of 5 tonnes for WAR 2 is proposed under all options to accommodate customary harvest.

Recreational allowance

754. There is little information available to guide the setting of the recreational allowance in WAR 2. The best available information on recreational harvest comes from the 2011/12 and 2017/18 NPS. In the 2011/12 survey estimated 1485 blue warehou were caught by amateur fishers, and in the 2017/18 survey estimated 265 blue warehou were caught by amateur fishers in WAR 2.

755. Based on an average weight for blue warehou of approximately 4 kg, FNZ proposes a recreational allowance of 6 tonnes under all options. FNZ considers this an appropriate allowance in light of the NPS estimates of recreational harvest, and uncertainty in those estimates.

Other sources of fishing mortality allowance

756. The main fishing method that captures WAR 2 is bottom trawl, with a lower proportion taken by set nets. As part of decisions relating to the 2018 October sustainability round, the then Minister of Fisheries decided to set an allowance for all other sources of mortality caused by fishing at an equivalent of 10% of the TACC for predominantly trawl caught fisheries. This is considered an appropriate approach unless evidence suggests an alternative setting would be more suitable to the stock being reviewed.

757. An allowance for other mortality caused by fishing equating to 10% of the TACC is proposed for all options. Therefore, under Option 1 an allowance of 58 tonnes is proposed, under Option 2 an allowance of 26 tonnes is proposed, and under Option 3 an allowance of 15 tonnes is proposed.

Total allowable commercial catch

758. Option 1 proposes to maintain the existing TACC of 577.835 tonnes, a level consistent with the highest commercial landings on record. This assumes that decreased landings are due to decreased fishing effort rather than a decline in abundance.

759. Options 2 and 3 both propose a reduction to the TACC, recognising that the current TACC has never been reached and the assessment within the Plenary, which indicates that it is unknown whether the current TACCs are sustainable.

760. Option 2 proposes at TACC of 260 tonnes which allows for some expansion to current commercial catch levels. It is more precautionary than Option 1 but does assume that decreased landings are due to decreases in fishing effort.

761. Option 3 proposes a TACC of 150 tonnes which is consistent with average landings over a stable period in the last decade. It places more weight on the assumption that declining trends in catch may in part be driven by declining abundance.

Submissions

762. Two submissions (Te Ohu Kaimoana and Ngā Hapū o Ngāti Porou Management Trusts) supported Option 1 for WAR 2 noting that the stock has 28N rights attached and that, if the TACC was increased in the future, it would have the effect of reducing the proportion of settlement quota shares.[117] The Iwi Collective Partnership also noted their support for Te Ohu Kaimoana's submission regarding the impact of 28N right on settlement quota (although FNZ notes they supported a different option for the stock).

763. FNZ advises that the existence of 28N rights is not a reason for or against setting or varying the TAC, TACC, and allowances.

[117] There are 5.5 tonnes of preferential allocation rights (28N rights) in WAR 2. FNZ is not proposing options to increase the TACC of WAR 2, which means 28N rights would not be triggered by proposed changes in this round. However, if the TACC is increased in future, the distribution of 28N rights will be impacted (28N rights holders will gain the first right to the increase).

764. Two submissions (FINZ and The Iwi Collective Partnership) supported Option 2 for WAR 2.

765. FINZ supported Option 2 stating that decreased landings are due to changes to fishing effort that are driven by a number of factors including, 1) area restrictions introduced as part of the Hector's and Maui dolphin Threat Management Plan (TMP); 2) the loss of operators from the fishery; 3) changes to fleet dynamics and gear technology and; 4) the lack of available ACE for other FMA 2 stocks. They state that Option 2 allows for some increase in WAR 2 catch should constraints of fishing effort change in the future.

766. The Iwi Collective Partnership supported Option 2 for WAR 2 as the conservative middle ground noting that there is little information available to assess the true extent of the fishery.

767. One submission (ECO) was received in support of Option 3 for WAR 2 noting that this option is the most cautious resulting in the lowest risk to the stock and wider ecosystem yet still providing for utilisation that is greater than recent levels.

6.2 WAR 8 Options and Analysis

768. FNZ is proposing three options for the TAC, TACC and allowances for customary Māori, recreational and all other sources of mortality caused by fishing for WAR 8. WAR 8 is a low knowledge stock with no reliable estimate of biomass or yield. For this reason, there is a level of uncertainty that any of these options will maintain the stock at or above MSY. All options are considered consistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the maximum sustainable yield.

WAR 8					
Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Current settings	-	232.8	-	-	-
Option 1 *(modified Status quo)*	250.8	232.8	2	4	12
Option 2 (FNZ preferred)	174	160 ↓ (72.8 t)	2	4	8
Option 3	117	105 ↓ (127.8 t)	2	4	6

769. Option 1 (modified *status quo*) proposes to set at TAC for WAR 8 of 250.8 tonnes. This option provides for historical levels of utilisation and places the most weight on the assumption that declining trends in catch are driven by decreasing effort following set net closures (discussed under Heading 2.2 of this stock chapter). Option 1 would also allow for higher utilisation in future.

770. Option 2 proposes to set at TAC for WAR 8 of 174 tonnes. This option adopts a more cautious approach than Option 1, recognising that the existing TACC has never been reached but provides for a level of utilisation that is higher than existing levels. This option gives some acknowledgement that the recent lower landings are driven in part by decreasing effort following set net closures. Option 2 would also provide more certainty than Option 1 that the stock is being maintained at or above, or moving the stock towards or above, a level that can produce MSY.

771. Option 3 proposes to set at TAC for WAR 8 of 117 tonnes. This option adopts the most cautious approach given the lack of information available to guide management. It provides for a level of utilisation comparable to recent levels but places more weight on the assumption that recent lower landings may in part be driven by decreasing abundance. Option 3 would also

provide more certainty than Options 1 and 2 that the stock is being maintained at or above, or moving the stock towards or above, a level that can produce MSY.

Customary Māori allowance

772. There is little information available to guide the setting of the customary Māori allowance in WAR 8. The lack of customary reporting may reflect that parts of the North Island are not currently regulated under the Fisheries (Kaimoana Customary Fishing) Regulations 1998 and therefore customary catch may be occurring under the Fisheries (Amateur Fishing) Regulations 2013, for which there is no requirement to report catch.

773. A customary Māori allowance of 2 tonnes is proposed for WAR 8 under all options to accommodate customary harvest.

Recreational allowance

774. There is little information available to guide the setting of the recreational allowance in WAR 8. The best available information on recreational harvest comes from the 2017/18 National Panel Surveys which suggest that 568 blue warehou were caught by recreational fishers in WAR 8 that year.

775. Based on an average weight for blue warehou of approximately 4 kg, FNZ proposes a recreational allowance of 4 tonnes under all options. FNZ considers this an appropriate allowance in light of the NPS estimates of recreational harvest, and uncertainty in those estimates.

Other sources of fishing mortality allowance

776. The main fishing method that captures WAR 8 is set net with a smaller proportion taken by bottom trawl. Set nets are considered to be more selective and less likely to create unknown mortality events in comparison with trawl caught fish.

777. An allowance for other mortality caused by fishing equating to 5% of the TACC is proposed for all options. Therefore, under Option 1 an allowance of 12 tonnes is proposed, under Option 2 an allowance of 8 tonnes is proposed, and under Option 3 an allowance of 6 tonnes is proposed.

Total allowable commercial catch

778. Option 1 proposes to maintain the existing TACC of 232.8 tonnes, a level consistent with the highest commercial landings on record. This assumes that decreased landings are due to decreased fishing effort rather than a decline in abundance.

779. Options 2 and 3 both propose a reduction to the TACC, recognising that the current TACC has never been reached and the assessment within the Plenary, which indicates that it is unknown whether the current TACCs are sustainable.

780. Option 2 proposes at TACC of 160 tonnes which allows for some expansion to current commercial catch levels. It is more precautionary than Option 1 but acknowledges that decreased landings are likely due to decreased fishing effort.

781. Option 3 proposes a TACC of 105 tonnes which is consistent with average landings over a stable period in the last decade. It places more weight on the assumption that declining trends in catch may in part be driven by declining abundance.

Submissions

782. One submission (Southern Inshore Fisheries Management Co.) supported Option 1 for WAR 8 stating that a TAC should be set with no decrease to the TACC. They note a number of factors

that have contributed to lower landings of WAR 8 including method and area restrictions introduced as part of the Hector's and Maui dolphin Threat Management Plan (TMP), fisher's attempts to avoid snapper and an increase in costs changing fishing behaviour.

783. Eight submissions (Te Ohu Kaimoana and endorsing submissions, and The Iwi Collective Partnership) supported Option 2 for WAR 8. Te Ohu Kaimoana supported Option 2 for WAR 8 noting that it is a balanced approach to setting the TAC that acknowledges both decreasing effort and the potential that the stock is below the management target level.

784. The Iwi Collective Partnership supported Option 2 for WAR 8 as the conservative middle ground, noting that there is little information available to assess the true extent of the fishery.

785. One submission (ECO) supported Option 3 for WAR 8, noting that this option is the most cautious resulting in the lowest risk to the stock and wider ecosystem yet still providing for utilisation that is greater than recent levels.

6.3 Economic considerations

786. The economic impacts associated with the proposed options are likely to be minimal as TACCs have, historically, not been fully utilised. All TACC proposals are above the levels of current catch for both fisheries but the overall decrease to the TACCs associated with Options 1 and 2 will reduce the overall utilisation potential for the industry.

787. Provided recent catch trends continue, all options will provide for existing levels of utilisation. It is therefore unlikely that fishers would need to adjust their fishing behaviour in response to the proposed changes.

788. ACE is based on the proportion of quota shares held and the TACC. If the TACC is reduced, then the same proportion of shares will generate less ACE. At some level of reductions to the TACC, a previously economically viable quota package may become unviable.

7 Deemed values

789. The current deemed value rates for WAR 2 and WAR 8 are shown in Table 7.

Table 7: Current deemed value rates ($/kg) for WAR 2 and WAR 8.

Stock	Interim	Annual 100-120%	Differential rates ($/kg) of excess catch (% of ACE) 120-140%	140-160%	160-180%	180-200	200%+
WAR 2	0.98	1.09	1.31	1.53	1.74	1.96	2.18
WAR 8	0.98	1.09	1.31	1.53	1.74	1.96	2.18

790. The port price index and average ACE prices for both stocks are shown below in Figure 6. Since the 2010/11 fishing year, the average ACE price remained relatively constant in WAR 2 with a slight increase in the current fishing year. In WAR 8, no ACE transfers prices were recorded in 2015/16, 2017/18 to 2018/19 and 2020/21. Generally, port prices for WAR 2 and WAR 8 have decreased since the mid-2010s.

791. The current port price for both WAR 2 and WAR 8 is $1.48/kg[118]. The average price paid by fishers for ACE for the past five fishing years, was $0.37 kg in WAR 2 and WAR 8.

[118] Note that this port price has been updated from the value presented in the consultation paper ($1.42/kg), based on the most recently available port price data for 2022-23.

792. Figure 6 shows that the current annual deemed value rates of WAR 2 and WAR 8 are currently set above their average ACE prices. FNZ is satisfied that these existing deemed value rates are consistent with your mandatory statutory consideration under section 75(2)(a) in that they provide sufficient incentive for fishers to balance their catch with ACE. On that basis, FNZ is not recommending any changes to deemed value rates for these stocks at this time.

793. FNZ acknowledges that if the TACC is reduced, subsequent changes in fishing behaviour and the ACE market may result in the need for the deemed value to be re-evaluated in the future.

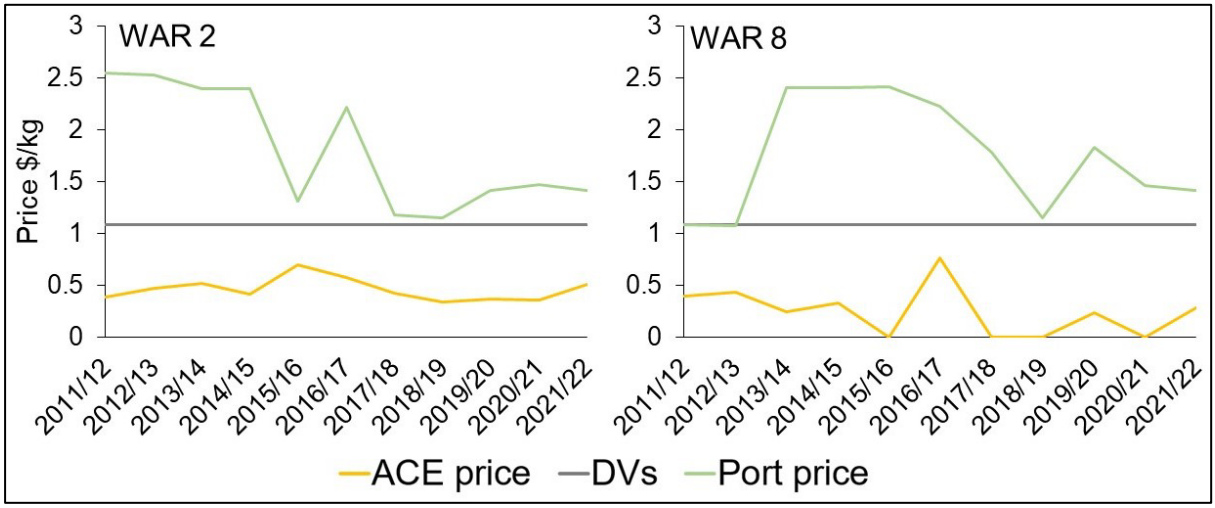


Figure 6: Average ACE price, average port price and deemed values (DVs) for WAR 2 and WAR 8 from 2010/11 to the current fishing year.

8 Conclusions and recommendations

794. WAR 2 and WAR 8 are low knowledge stocks with no estimates of their biomass or yield and the best available information to guide their management is catch history, which shows that both fish stocks are substantially under caught relative to their respective TACCs.

795. Current TACCs for WAR 2 and WAR 8 have never been reached and were set relative to the highest catches on record.

796. Targeted catch of WAR 2 has been decreasing since 2012/13.

797. Targeted catch of WAR 8 has not shown the same downwards trend as targeted catch in WAR 2, however, the last three fishing years have recorded the lowest targeted catch in the last decade. WAR 8 targeted set net effort has been significantly impacted by the set net fishing closures over the last decade for the protection of Māui and Hector's dolphins.

798. For both fish stocks, Option 2 is seen as a balanced approach to setting the TACs. This option recognises that decreasing effort and changing fisher behaviour are likely to be contributing to the decline in landings, but also acknowledges the lack of science information available to assess the status of the stocks.

799. FNZ recommends Option 2 for both WAR 2 and WAR 8. Using the best available information, this option would be consistent with the objective of maintaining the stock at or above or moving the stock towards a level that can produce the maximum sustainable yield.

9 Decision for Blue Warehou - WAR 2

Option 1

Agree to set the WAR 2 TAC at 646.835 tonnes and within the TAC:

i. Set the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Set the allowance for recreational fishing interests at 6 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 58 tonnes;
iv. Retain the WAR 2 TACC at 577.835 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 (*Fisheries New Zealand preferred option*)

Agree to set the WAR 2 TAC at 297 tonnes and within the TAC:

i. Set the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Set the allowance for recreational fishing interests at 6 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 26 tonnes;
iv. Decrease the WAR 2 TACC from 577.835 to 260 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

OR

Option 3

Agree to set the WAR 2 TAC at 176 tonnes and within the TAC:

i. Set the allowance for Māori customary non-commercial fishing interests at 5 tonnes;
ii. Set the allowance for recreational fishing interests at 6 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 15 tonnes;
iv. Decrease the WAR 2 TACC from 577.835 to 150 tonnes.

~~Agreed / Agreed as Amended /~~ Not Agreed

10 Decision for Blue Warehou - WAR 8

Option 1

Agree to set the WAR 8 TAC at 250.8 tonnes and within the TAC:

i. Set the allowance for Māori customary non-commercial fishing interests at 2 tonnes;
ii. Set the allowance for recreational fishing interests at 4 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 12 tonnes;
iv. Retain the WAR 8 TACC at 232.8 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 (*Fisheries New Zealand preferred option*)

Agree to set the WAR 8 TAC at 174 tonnes and within the TAC:

i. Set the allowance for Māori customary non-commercial fishing interests at 2 tonnes;
ii. Set the allowance for recreational fishing interests at 4 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 8 tonnes;
iv. Decrease the WAR 2 TACC from 232.8 to 160 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

OR

Option 3

Agree to set the WAR 8 TAC at 117 tonnes and within the TAC:

i. Set the allowance for Māori customary non-commercial fishing interests at 2 tonnes;
ii. Set the allowance for recreational fishing interests at 4 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 6 tonnes;
iv. Decrease the WAR 8 TACC from 232.8 to 105 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

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

Blue cod - *Parapercis colias*, Rāwaru

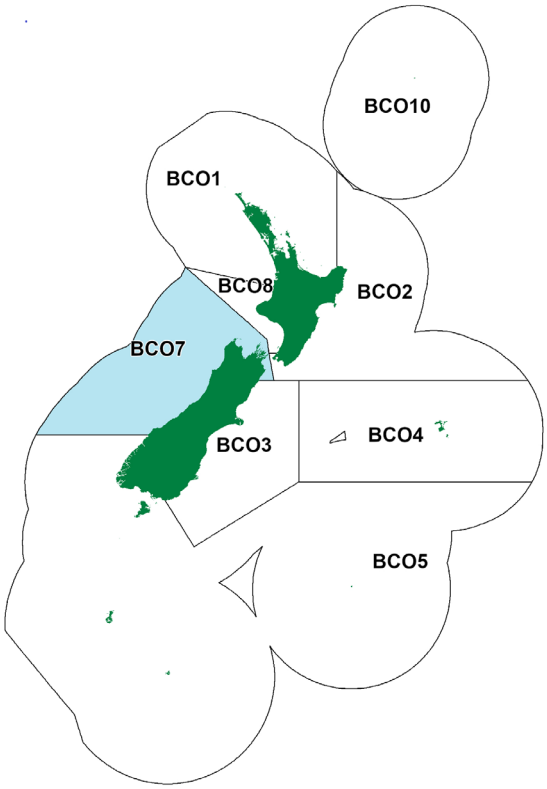


Figure 1: Quota Management Areas (QMAs) for blue cod, with BCO 7 highlighted.

Table 1: Summary of options proposed for BCO 7 from 1 October 2022. Figures are all in tonnes. The preferred option of Fisheries New Zealand is highlighted in blue.

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

In total 27 submissions were received on the proposed options.

1 Why are we proposing a review?

800. No TAC or allowances were set when BCO 7 was put in the QMS in 1986 under historical legislation which only provided for setting a TACC. The fishery has not been formally reviewed since then. Setting a TAC and allowances for BCO 7 is identified as a priority in the National Blue Cod Strategy.

801. FNZ consulted using information that fishing mortality in BCO 7 is likely to be high and the stock overfished. Other indicators also pointed to fishing pressure reducing the size and abundance of blue cod in the main fishing area of the Marlborough Sounds. A time series of potting surveys in the sounds indicated the fishery is stable, but at a low level, possibly below the target biomass (however this is unknown). Overall, available information suggested a reduction in fishing pressure is appropriate.

802. Since the Consultation Document release, further scientific reviews have been completed which confirm that the Marlborough Sounds part of BCO 7 is very likely to be overfished, possibly heavily. The status of BCO 7 as a whole in relation to target biomass or limits, however, remains unknown. FNZ is considering commissioning new research to help determine this and better characterise the fishery over the coming year.

1.1 About the stock

1.1.1 Fishery characteristics

803. 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.

804. There is limited access to small populations of blue cod on the west and east coasts, with the majority of recreational blue cod caught in the Marlborough Sounds (60%) and Tasman and Golden Bay (30%).

805. 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, around D'Urville Island and in 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.

1.1.2 Biology

806. 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.

807. Blue cod are diandric protogynous hermaphrodites where cod born female can transition into males. Transition is likely triggered by the removal or absence of large male cod. Blue cod males grow faster and are larger than females.

808. Blue cod are categorised as a low productivity species, on account of the complex sex change behaviour which results in heavily exploited populations having few females. They are 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 and a reduction of capacity for egg production as high fishing pressure stimulates sex transition resulting in fewer and smaller females in the stock.

809. In addition, sedimentation of habitat within the Sounds has been suggested as compromising and reducing juvenile blue cod habitat.

1.1.3 Management background

810. 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. No TAC or allowances were set under the 1983 Act. The TAC was reviewed in 2003 but was not published in the New Zealand *Gazette* as required by section 13 of the Fisheries Act 1996 and, consequently, there is no legal TAC or allowances for Māori customary non-commercial fishing, recreational fishing or all other mortality to the stock caused by fishing.

811. In 2020, under the National Blue Cod Strategy, recreational daily limits were set in accordance with a traffic light system which assigns a rating to fine scale areas in the South Island and the Chatham. The daily limit was reduced in all areas of BCO 7 except the Marlborough Sounds,

which already had a daily limit of two blue cod (the lowest 'red light' setting under the Strategy). Consequently, 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, while a limit of 15 applies to the main part of the West Coast.

812. Data from the NPS indicates almost 90% of the 63 tonnes[119] 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 in the Marlborough Sounds and Tasman and Golden Bay fisheries.

813. The minimum legal size was set at 33 cm across all of BCO 7 under the Strategy (up from 30 cm). Both recreational and commercial cod pots were also required to have a minimum mesh size of 54 mm to allow undersize blue cod to escape.

814. The Marlborough Sounds Area (Figure 2) is closed to both recreational and commercial fishing from 1 September to 19 December inclusive. The majority (50%-60%) of recreational fishing within the Marlborough Sounds occurs within a six-week period from 20 December until the end of January.

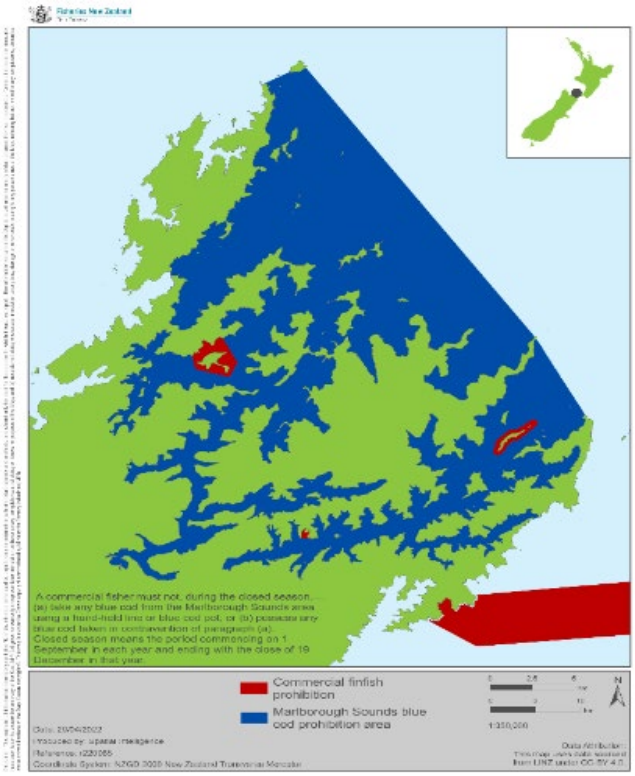


Figure 2: Map of the Marlborough Sounds Area to which a blue cod fishing closed season applies (1 September to 19 December inclusive). Red areas are permanently closed to all fishing.

1.2 Status of the stock

815. The best available information on the status of BCO 7 used for the Consultation Document was the May 2022 Fisheries Assessment Plenary report (the Plenary) along with the Marlborough Sounds potting survey series and catch information. The latest potting survey was undertaken in October 2021.

816. Monitoring the Marlborough Sounds fishery has been by way of four yearly potting surveys. These are primarily designed to monitor the recreational fishery, however, they also capture a large proportion of the commercial target fishery which is from the Cook Strait, outer Sounds

[119] This equates to around 50 000 individual daily limits each year from the "Top of the South".

and D'Urville strata (Figure 3). Surveys provide data that can be used to assess local relative abundance, size, age, and sex structure of the blue cod populations, and estimate fishing mortality.

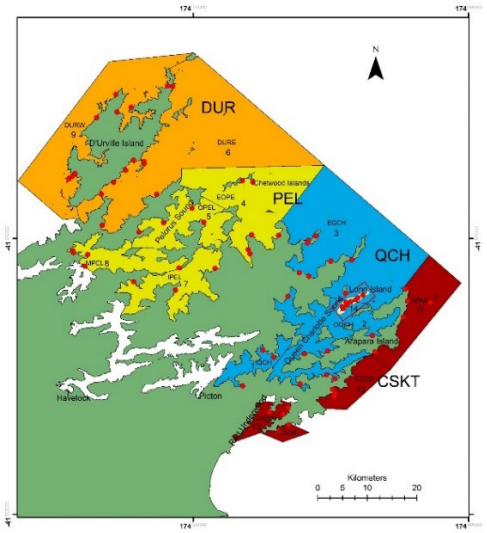


Figure 3: Map of the Marlborough Sounds survey area and 2021 surveyed random sites (n=66).

817. Results from the October 2021 potting survey show the catch rate of blue cod has remained stable (albeit at a very low level) since 2017, increasing slightly in Queen Charlotte Sound and declining slightly in Pelorus Sound (Figures 4 and 5). The catch rate in the outer Sounds, D'Urville Island and Cook Strait, where commercial fishing occurs, also appears stable at a low level.

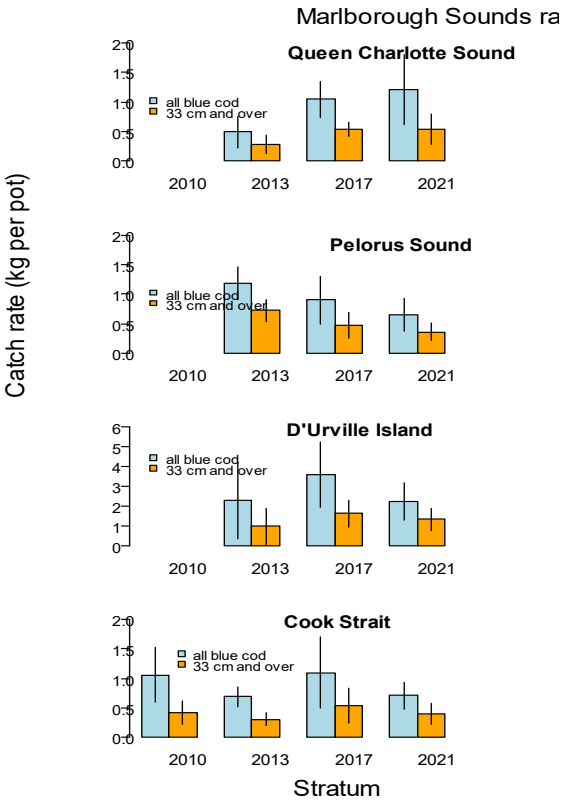


Figure 4: Marlborough Sounds random-site potting survey catch rates of all blue cod and recruited (above MLS) blue cod for each region by survey year. Error bars are 95% confidence intervals.

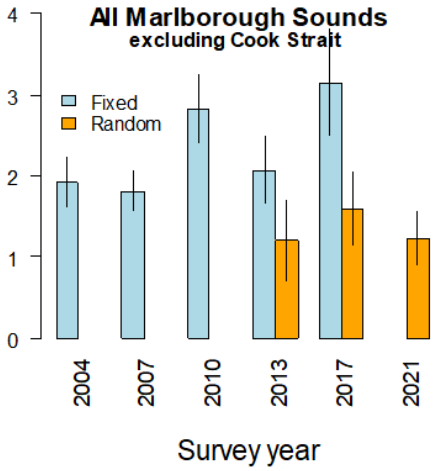


Figure 5: Marlborough Sounds fixed-site and random-site potting survey catch rates of all blue cod by survey year for all Marlborough Sounds from 2004 (excluding Cook Strait). Error bars are 95% confidence intervals.

818. Other data also indicates the fishery is being over exploited. There is a preponderance of male fish which, because of sex transition, is 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%.

819. 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, however, few female fish are attaining the minimum legal size.

820. 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 the wider Queen Charlotte Sound. This is a strong indication that fishing pressure has reduced the size and abundance of blue cod in the Marlborough Sounds. The sex ratio within the reserve was not able to be determined as fish were returned live.

821. Since the release of the Consultation Document, a special Plenary meeting was convened by FNZ in July 2022 to better define the status of BCO 7 using a 'spawner recruit ratio' approach ($F_{45\%SPR}$[1]). Unfortunately, it concluded this method is not appropriate and, therefore, the status of BCO 7 in relation to the biomass that will produce maximum sustainable yield (B_{MSY}) remains unknown.

822. The Plenary did, however, conclude that an 'overfishing threshold target' could be used to assess the Marlborough Sounds part of BCO 7. While this does not estimate stock status in relation to B_{MSY}, it does assess whether overfishing is occurring, with the higher the value of F above M the larger the amount of overfishing taking place. The fishing mortality for the Marlborough Sounds part of the fishery is estimated to be 0.48 which is well above the estimated overfishing threshold target of 0.15 ($F= 0.87M =0.15$).

823. All the above indicates exploitation is high with current catch very likely (>90%) to cause overfishing to continue in the Marlborough Sounds.

2 Catch information and current settings within the TAC

2.1 Commercial

824. From a low point in 2000–01 (26 t), commercial landings of BCO 7 have risen, averaging 63 tonnes over the previous ten years (Figure 6). Commercial landings have been declining over recent years.

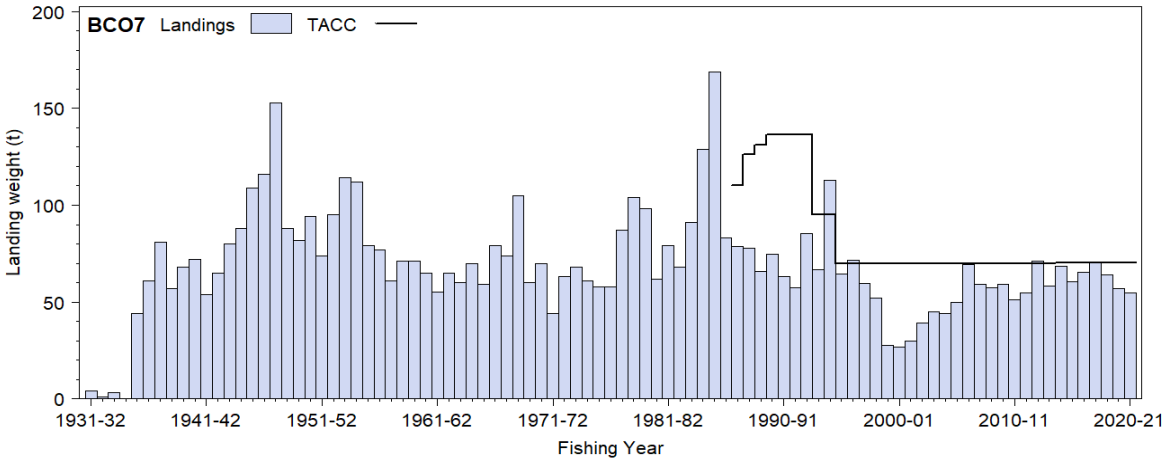


Figure 6: Annual Commercial Landings for BCO 7 (in tonnes).

825. Commercially landed blue cod in BCO 7 are mostly caught by target cod potting with only about 8-10% of catch is taken as a bycatch of the inshore trawl fishery. The majority (60%) of commercial catch is taken from Marlborough Sounds to Cape Campbell and the west coast of D'Urville Island. There is a small target fishery in South Westland.

2.2 Customary Māori

826. BCO 7 south of Kahurangi Point operates under the South Island Customary Fisheries Regulations 1999, which require reporting of authorisations and catch numbers. Customary fishing for the remainder of BCO 7 operates under regulation 50 of the Amateur Fishing Regulations 2013, which does not require reporting of authorisations or catch details. Therefore, customary catch for BCO 7 is uncertain.

827. In previous advice on BCO 7 to the Minister in 2003, an allowance of 27 tonnes was proposed for customary fishing (following consultation at that time).

2.3 Recreational

828. Blue cod is the third most common recreational species caught in New Zealand. The NPS estimated a total catch of 293 tonnes (nearly 600 000 fish) for the species nationally. With 21.5% of the total blue cod recreational catch, BCO 7 is the third largest recreational blue cod fishery.

829. 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 (Table 2) and, of that, 35 tonnes (56%) were caught in the Marlborough Sounds Area and 20 tonnes (31%) were taken from Golden and Tasman Bay. A small amount of recreational catch (one tonne) is taken under section 111[120] of the Act, giving an estimated total of 64 tonnes of recreational catch.

Table 2: Recreational harvest estimates for BCO 7.

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

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

830. Since the 2017/18 NPS there have been reductions in daily limits for blue cod in some areas of BCO 7, except the Marlborough Sounds, 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.

831. 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 are 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.

832. 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 33 cm.

2.4 All other mortality caused by fishing

833. 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.

834. Other mortality caused by fishing is uncertain. Potential sources 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.

835. The main fishing methods (target commercial potting and handlines) are more selective 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.

836. Since then, the minimum mesh size required for both commercial and recreational cod pots has 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.

3 Treaty of Waitangi Obligations

3.1 Input and participation of tangata whenua

837. 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.

838. Particular regard must be given to kaitiakitanga when making sustainability decisions.

839. Te Waka a Māui me Ōna Toka Iwi Forum (the forum) is the South Island iwi fisheries forum — it includes all nine Iwi of Te Wai Pounamu. At the March 2022 hui, FNZ sought the forum's input into a potential review of BCO 7. The forum supported the review but did not comment specifically on options for the review. The National Blue Cod Strategy, which cites setting a TAC for BCO 7 as a priority, is a forum-led initiative.

840. At the 12 July forum hui, the forum supported a decrease in the current catch within BCO 7 and extending the closed season over the busy/holiday period. Tangata whenua on the West Coast have also voiced concern about increasing blue cod catch in parts of the West Coast.

841. Subsequent to the 12 July forum hui, Ngati Koata, through Te Tau Ihu iwi forum [121] have stated they do not support a change in the TACC and propose another option (see below). They consider the commercial fishery to be stable and the decline in commercial catch to be the result of fishers leaving the fishery.

842. Ngati Koata propose a TAC of 177.005 tonnes that retains a TACC of 70.005 tonnes, sets a customary allowance of 27 tonnes, a recreational allowance of 64 tonnes and an allowance for other sources of fishing mortality of 16 tonnes. They submit that the TAC and allowances be reviewed every two years.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Ngati Koata preferred	177 t	70.005 t	27 t	64 t	16 t

843. Ngati Koata consider the commercial fishery is not putting pressure on stocks but that any stress on the fishery is coming from an expanding recreational sector. They contend they need good access to the blue cod fishery around Rangitoto ki te Tonga (D'Urville Island) to enable intergenerational fishing families to continue fishing and enable access for new generations. In this way, they can maintain a viable economic life and remain on the Island.

844. Ngati Koata also request a review of the effectiveness of the closed season, relative to the stress that it applies to the western side of Rangitoto ki te Tonga and to engage directly with FNZ on the Marlborough Sounds Fishery. They consider that by maintaining their fishing traditions their cultural values are maintained. Cultural values include but are not limited to:

- Supplying blue cod for tangi and hui.
- Retaining and passing on intergenerational protocols and practices.
- Giving cultural advice.
- Protecting the environment and the industry.
- Search and rescue.

845. As described later in this paper under the analysis of options, FNZ is concerned that a TAC based on the current TACC, as requested by Ngati Koata, may not be consistent with the Act. Overfishing appears to be occurring and commercial fishing is a significant component of catch in BCO 7.

846. FNZ met with representatives of Ngati Koata on the 2 August 2022 and discussed their proposed option, the closed season, fishery research, the recreational charter fishery and customary management mechanisms. Ngati Koata's concerns centre around Rangitoto ki te Tonga, however, we note the TAC and other settings apply to the entire BCO 7 quota management area. FNZ has undertaken to ensure Ngati Koata's input into the development of research proposals and management mechanisms to constrain fishing mortality around Rangitoto ki te Tonga and the wider BCO 7.

[121] Te Waka a Māui me Ōna Toka Iwi Forum comprises all South Island Iwi, while Te Tau Ihu iwi forum comprises the eight iwi from the Top of the South.

847. FNZ has also undertaken to assist Ngati Koata to examine the use of customary management tools that might better achieve the outcomes they seek.

3.2 Kaitiakitanga

848. Information provided by forums, and iwi views on the management of fisheries resources and fish stocks, as set out in Iwi Fisheries Plans, are one way that tangata whenua document kaitiakitanga in respect of fish stocks.

849. 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 the 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.

850. 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** *All types of fishing are permitted within a Taiāpure. The management committee can recommend regulations to manage commercial, recreational and customary fishing.*
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** *Commercial fishing is not permitted within mātaitai reserves unless bylawss state otherwise.*

851. There are also a number of further mātaitai reserve applications on the lower West Coast which are being proposed due, amongst other things, to concern about local stocks of blue cod.

852. 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 reserves. There are no regulations relating to blue cod in the Whakapuaka Taiāpure, or bylaws relating to blue cod in any of the mātaitai reserves.

4 Environmental and Sustainability Considerations

4.1 Environmental principles (section 9 of the Act)

853. The 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 (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).
- Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and
- Habitats of particular significance for fisheries management should be protected.

854. *Associated or dependent species* means any non-harvested species taken or otherwise affected by the taking of any harvested species. Over two thirds of BCO 7 commercial catches are taken by target cod-potting which has very little interaction with other species or impacts on the environment. Further, pots are only set for an hour or so with the fisher in proximity of the pots.

855. Observer coverage is, however, 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).

856. While removal of a proportion of the blue cod population through fishing could have some effect on non-harvested fish or invertebrates associated with blue cod, there are no known significant adverse impacts that would threaten the long-term viability of these species.

857. Potting as a method also has very limited benthic impacts. Cod pots rest on the seabed for an hour or so and are then removed. The bycatch component of the BCO 7 catch is taken in the inshore bottom trawl fishery operating in Golden and Tasman Bays targeting flatfish, snapper and gurnard. Given that trawling would occur whether blue cod was a bycatch or not, environmental interactions associated with targeting these species is primarily discussed when those target fisheries are reviewed.

858. Both options proposed in this review will either maintain or reduce current fishing effort, therefore, any possible impacts of cod potting on biodiversity or the benthos will be the same or less than current.

4.1.1 Marine mammals

859. 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.

4.1.2 Seabirds

860. 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.

4.1.3 Fish bycatch

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

4.1.4 Benthic impacts

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

4.1.5 Habitats of particular significance for fisheries management

863. 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 potentially be regarded as particularly significant to BCO 7 are discussed in Table 4.

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

Fish Stock	BCO 7
Potential habitat of particular significance	**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. **Juvenile**: Information suggests they inhabit ground that is complex such as shell or rubble, or cryptic habitat with epifauna (bryozoans, sponges, etc) which 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.
Attributes of habitat	Potential nursery ground – Chetwode Banks • Chetwode Banks provide a complex biogenic habitat structure in low silt conditions. • Patches of bryozoan fields and horse mussel bed.
Reasons for particular significance	• Juvenile habitats are likely to provide shelter and protection from predation and harvesting, and suitable food while growth and development proceeds. • 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	• 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. • Nutrient enrichment • Benthic impacting activities, such as trawling and dredging, could disrupt habitat
Existing protection measures	• Kahurangi, Punakaiki, Waiau 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. Top of the South Island nearshore areas protected by fisheries regulation. 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.

864. FNZ considers the risk of adverse effects from potting for BCO 7 on habitats of particular significance for blue cod in 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).

865. As blue cod thrive in cooler waters the greatest threats to blue cod recruitment are likely to be from climate change, particularly changes in water temperature and water circulation. Other threats include 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.

866. 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 are scheduled to identify important habitats in the top of the South Island.

867. FNZ is also currently consulting on draft guidelines for identification of habitats of particular significance for fisheries management and the operational proposals to support its application.

4.2 Sustainability measures (section 11 of the Act)

868. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

869. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to BCO 7, the natural variability of the stock concerned, and any relevant fisheries plans.

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

4.2.1 National Blue Cod Strategy – s11(2A)

871. 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 BCO 7 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).

872. 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.

4.2.2 Draft National Inshore Finfish Fisheries Plan

873. Although not yet approved under section 11A of the Act[122], the National Inshore Finfish Fisheries Plan (the Plan) provides guidance on FNZ's management strategies for inshore finfish stocks including blue cod. The Plan outlines the management objectives and strategies for finfish fisheries for the next five years and was consulted on in early 2020.

874. 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.

875. BCO 7 falls under Group 2, which recognises that FNZ intends 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.

4.2.3 Regional Plans – s11(2)(a)

876. There are five Regional Councils or Territorial Authorities that have coastline within the BCO 7 boundaries. These are West Coast, Tasman, Nelson, Marlborough and Canterbury. Each has multiple plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems and habitats.

877. 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. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235).

878. 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'[123]. 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.

5 Submissions

879. A total of 27 submissions were received. Of these, two submissions support Option 1, thirteen submissions support Option 2 (nine of these were in support of the Fish Mainland submission which endorsed Option 2). Twelve submissions support alternative options, including either no change to the TACC or that the review be deferred.

[122] Therefore, under section 11(2A), you are not required to take it into account.

[123] **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 trawling

Table 5: Written submissions and responses received for BCO 7.

Submitter	Option Support			
	1	2	Other	
C. Robertson		✓		Concerned that blue cod stocks are too low and need to recover
E. Jorgensen			✓	Supports the *status quo*.
Environment and Conservation Organisations of NZ Inc. (ECO)		✓		Cautious approach that results in the lowest risk to the stock, and wider ecosystem.
Fish Mainland		✓		Supports Option 2 as greater likelihood of rebuilding the stock
A. Crossland		✓		Supports Fish Mainland's submission
A. Reay		✓		Supports Fish Mainland's submission
B. Capill		✓		Supports Fish Mainland's submission
B. & G. Stewart		✓		Supports Fish Mainland's submission
B. Reay		✓		Supports Fish Mainland's submission
D. Broome		✓		Supports Fish Mainland's submission
G. McInnes		✓		Supports Fish Mainland's submission
M. Lamb		✓		Supports Fish Mainland's submission
R. Miekle		✓		Supports Fish Mainland's submission
G.Jarvie			✓	No change as has no confidence in information used
LegaSea Joint submission with NZ Sportfishing Council (NZSFC), NZ Underwater Association (NZUA) and NZ Angling and Casting Association (NZACA)			✓	Requests BCO 7 be withdrawn from the review round. Proposes alternative Option.
L. Elkington			✓	Need to reduce recreational fishing effort. Change closed season to 14 Sept to 4 Jan
L. Stevenson			✓	Disputes research because it doesn't take into account weather patterns, tidal flows etc,
Maris Fishing Ltd	✓			Concern about Recreational fishing pressure
Ngati Koata Iwi			✓	Does not support reducing the TACC and offers an alternative Option
R. Forrest		✓		It's obvious that the stock is under heavy pressure, continues to decline and there is a real sex ratio issue.
Rangitane Holdings Ltd			✓	17% TACC decrease and no change to customary or recreational allowances
Southern Inshore Fisheries (SIF) Endorsed by: – Fisheries Inshore New Zealand Ltd (FINZ)			✓	No justification to drop the TACC from 70t.
Kahurangi Shoals Sustainability Group			✓	Did not comment on proposed TAC options. Suggested bag limit reduction required for Kahurangi Shoals
S. Wilson			✓	Over 50 years has experienced degradation of the fishery to the point he no longer targets blue cod
T.& J. Robinson	✓			Stocks are holding out well, therefore no reduction is necessary
Te Ohu Kaimoana Endorsed by:			✓	Does not support a TACC decrease because of 28N rights.

– Maruehi Fisheries Ltd – Ngaruahine Fisheries Ltd – Raukawa Asset Holding Co Ltd – Taranaki Iwi Fisheries Ltd – Te Atiawa (Taranaki) Holdings Ltd – Te Paataka o Tangaroa Ltd – Whanganui Iwi Fisheries Ltd				
Tama Asset Holding Company			✓	Supports Te Ohu Kaimoana's submission. Concern about 28N rights; proposes shelving as a solution
Total	2	13	12	

6 Options and analysis

880. As BCO 7 is assessed using a partial quantitative stock assessment based on potting surveys in only one part of the fishery, the status of the stock in relation to a biomass target and limits is unknown. Available information cannot be reliably used to estimate *MSY* therefore the options place weight on the catch rate series from the potting surveys, the sex ratios and the overfishing threshold. Section 13(2A) of the Act is, therefore, relevant. Under this section you must set a total allowable catch that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the maximum sustainable yield.

881. In making a decision under section 13(2A) you must also have regard to the interdependence of stocks, the biological characteristics of the stock, and any environmental conditions affecting the stock. Of these, the biological characteristics of blue cod lend it to be classified as a low productivity species. This is largely on account of the sex transitioning which, when under heavy fishing pressure, can result in few and small females in a population, compromising egg production and recruitment into the fishery.

882. There is also some evidence that sedimentation in the Marlborough Sounds may be smothering the cobble habitat required by juvenile blue cod which could also affect recruitment.

6.1 Current settings

TAC: N/A	**TACC:** 70.005 t	**Customary**: N/A	**Recreational**: N/A	**Other mortality**: N/A

883. 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. Under the 1996 Act, you are required to set a TAC for each quota management stock.

884. As discussed earlier (under *1.2 Status of the stock*), further scientific assessment since the consultation document was released confirms that overfishing is very likely to be occurring in the main part of the fishery (the Marlborough Sounds) at the current levels of catch. Given this, FNZ is concerned a TAC based on the current TACC, which is requested by Ngati Koata and some submitters (see Option 1 below), may not be consistent with the Act. For this reason, we have not included it as an alternative in the options for you to consider.

6.2 Option 1

TAC: 169 t	**TACC:** 63 t (↓ 7.005 t)	**Customary**: 27 t	**Recreational**: 64 t	**Other mortality**: 15 t

885. Option 1 sets a TAC that is the sum of all known or estimated fishing mortality across the commercial, customary and recreational sectors. Of the two options proposed, it most closely

resembles the *status quo* with the least reduction to the TACC.

886. It takes into account that the potting survey catch rates from 2013 to 2021 appear relatively stable at current catch levels. It assumes that setting the TACC at the average of the last 10 years' commercial catch (which, at 63 tonnes, is 10% lower than the current TACC of 70 tonnes) and the measures already introduced under the National Blue Cod Strategy (e.g., increased pot mesh requirements for both recreational and commercial fishers and reduced recreational daily limits in some parts of BCO 7) will reduce overfishing and move the stock towards its target biomass.

887. Only two submitters support this option, with most supporting Option 2, or alternative options such as retaining the current TACC. in particular, Ngati Koata Iwi, SIF, FINZ, Te Ohu Kaimoana, Tama Asset Holding Co Ltd and E. Jorgensen all submit in favour of retaining the 70.005 tonne TACC. Further, E. Jorgensen, FINZ and SIF suggest the review be delayed until better information is available in 2024. SIF comments *It is more appropriate that further research is done (on these factors) that informs the overall assessment.*

888. In relation to these submissions, FNZ notes that uncertainty in information is not a reason to delay making a decision, which is to be made on the basis of best available information. We are concerned that retaining the current TACC does not address the information strongly indicating overfishing is very likely to be occurring in the main part of the fishery, the Marlborough Sounds.

889. Te Ohu Kaimoana and Tama Asset Holding Co Ltd oppose changing the TACC because of concerns around 28N rights (equivalent to 1.6 tonnes) that still exist in the fishery and the effect these may have on iwi fisheries settlements.[124]

890. FNZ advises that the presence of 28N rights is not in itself a reason for not setting a TAC and TACC in accordance with the Act.

891. G. Jarvie submits he has no confidence in any of the data used in the Consultation Document and, accordingly, does not support Option 1 or Option 2. FNZ notes the Act requires use of the best available information.

892. The combined submission from Legasea, NZSFC and NZ Underwater Association requests that BCO 7 be withdrawn from this TAC review due to confusion regarding the 2003 review. They point out that a TAC and allowances were [mistakenly] cited in FNZ Plenary documents over the past few years). Should you choose to proceed, they urge you to make precautionary decisions for BCO 7 and propose an alternative TAC and allowances that decrease the TACC by 25% while increasing the recreational allowance. This option is further discussed in this chapter under Heading 6.4 *Other options proposed by submitters.* They also note that since 2005 the combined aerial surveys and NPS show recreational catch has steadily decreased over time, mostly in the Marlborough Sounds. FNZ acknowledges there is some evidence that recreational catch in BCO 7 has declined.

893. On the other hand, Maris Fishing Ltd submit they have seen a steady increase in recreational fishing, quoting *it is not unusual to see 30 or 40 boats fishing Stephen's Island in the middle of the week.*

894. Ngati Koata notes that the Consultation Document describes the outer Sounds, D'Urville Island and Cook Strait, where commercial fishing occurs, appear to be stable, commenting that "*if the commercial fishery is stable, don't rock the boat*". However, FNZ notes the Consultation Document states this area is stable "…*at a very low level*" and that all indicators point to this

[124] There are 1.6 tonnes of preferential allocation rights (28N rights) in BCO 7. FNZ is not proposing options to increase the TACC of BCO 7, which means 28N rights would not be triggered by proposed changes in this round. However, if the TACC is increased in future, the distribution of 28N rights will be impacted (28N rights holders will gain the first right to the increase).

part of the stock being overfished.

895. E. Jorgensen submits that reducing the TACC is unfair to commercial fishers as any reduction in the allowances for recreational interests are measures that *'exist on paper only, they do nothing to reduce fishing pressure'* while on the other hand commercial fishing is constrained by a reduction in available ACE. SIF also supports retaining the current TACC and requests that the recreational sector be kept within their allowance.

896. FNZ notes that reductions in recreational daily limits have already occurred in the past two years in parts of BCO 7 outside of Marlborough Sounds. FNZ also requested feedback and information during consultation on how further reductions to recreational catch or other sources of mortality (such as predated returned fish) might be best achieved. This feedback is discussed later in this stock chapter under 6.6. *Other Matters Raised*.

897. Overall, Option 1 is not FNZ's preferred option. Under section 13(2A) of the Act, you are required to set a TAC that is consistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the maximum sustainable yield. While this level is not known for BCO 7, the Plenary has concluded that current catch is very likely (>90%) to be causing over-fishing in the Marlborough Sounds which is the main part of the fishery. Option 1 (which is based on current levels of catch) is unlikely, on its own, to be sufficient to address this concern.

6.3 Option 2 - Fisheries New Zealand's preferred option

TAC: 157 t	**TACC:** 58 t (↓ 12.005t)	**Customary**: 27 t	**Recreational**: 58 t	**Other mortality**: 14 t

898. 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 17%.

899. Option 2 takes into account that overfishing is very likely (>90%) occurring in the Marlborough Sounds part of the fishery (where the majority of catch is taken) with the current fishing mortality estimated to be well above the target fishing mortality. It notes the contrast in abundance and size of cod between the Long Island Marine Reserve and the rest of the Marlborough Sounds Area, and that the abundance of larger male cod may be declining.

900. Under Option 2 a lower allowance for recreational fishing would be set than for Option 1. Under the National Blue Cod Strategy recreational daily limits for blue cod have already been reduced in most parts of BCO 7 (except the Marlborough Sounds) since the last NPS estimate, however, FNZ would develop proposals to give effect to this lower allowance by reducing recreational catch in the Marlborough Sounds. These proposals would be developed in collaboration with iwi, recreational and other fishery representatives.

901. It uses the same rationale for setting the customary allowance and the allowance for all other sources of stock mortality caused by fishing as Option 1.

902. Fish Mainland and nine allied submitters support Option 2 as a more cautious option providing a greater likelihood of rebuilding the stock. R. Forrest also supports Option 2, as being a long-term fisher, he considers it is obvious the stock is under heavy pressure, continues to decline and there is a real sex ratio issue. S. Wilson, a recreational fisher in the Marlborough Sounds for 50 years, considers the fishery so degraded he no longer targets blue cod. C. Robertson submits it is difficult to catch legal sized blue cod without considerable effort and travel from popular boat launching ramps. He considers this indicates local depletion. ECO also supports Option 2 as it results in the lowest risk to the stock and ecosystem.

903. Overall, FNZ considers Option 2 better meets your obligations under section 13(2A) than Option 1. While the status of BCO 7 in relation to B_{MSY} is unknown, all indicators point to significant over-fishing of blue cod in the Marlborough Sounds. By reducing fishing pressure, Option 2 is more likely than Option 1 to increase fishery abundance and move the fishery towards the target consistent with section 13(2A) of the Act.

6.4 Other options proposed by submitters

904. Tama Asset Holding Co Ltd proposes shelving 12 tonnes of ACE each year as a solution to problems arising from there being 28N rights in the fishery. FNZ reiterates that the presence of 28N rights is not in itself a reason for not setting a TAC and TACC in accordance with the Act. Voluntary shelving of ACE is a voluntary measure implemented by quota holders.

905. Te Ohu Kaimoana, E. Jorgensen and SIF recommend forming a multi-stakeholder group to discuss and address the localised and seasonal issues affecting this stock in the Marlborough Sounds area. FNZ supports this approach and will re-convene the expert technical group established under the auspices of the national Blue Cod Strategy to develop options to address these issues.

906. Legasea, NZSFC and NZ Underwater Association support an alternative option with a TAC of 155.4 tonnes, a TACC of 54 tonnes, a recreational allowance of 69 tonnes, a customary allowance of 27 tonnes and 5.4 tonnes for other mortality. Under this option the TACC would be reduced by 25% while recreational access is slightly increased.

907. In relation to this submission, FNZ notes you have discretion in terms of how catch within a TAC is allocated between sectors. However, as set out in the *Introduction and Legal Overview* section of this decision document (Heading 2.5.2) the Supreme Court in *Kahawai*[125] has held that section 21 of the Act does not require that non-commercial fishing interests be given any substantive priority over commercial interests, and that, "[i]n particular, the allowance for recreational interests is to be made keeping commercial interests in mind".

908. Rangitane Holdings Limited propose a 17% TACC decrease and no change to customary or recreational allowances. FNZ notes there is currently no allowance set for the customary or recreational sectors. Option 2 most closely resembles this proposal.

6.5 Economic considerations

909. Based on a port price of $7.52/kg[126], Option 1 could result in a potential loss of commercial fishing revenue of approximately $53,000 spread across quota holders and fishers. However, given the TACC under Option 1 is based on recent catch levels there should be little economic impact relative to the *status quo*.

910. The cost is the annual loss in revenue (not profits) and does not take into account regional or flow on impacts, nor the longer-term benefits of rebuilding the stock.

911. Under Option 2, based on the port price of $7.52/kg, the landed value to the commercial fishery could reduce by approximately $90,000. 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 $38,000.

6.6 Other matters raised

912. Several submitters requested this TAC review be withdrawn and a new review be undertaken with updated information. FNZ notes section 10 of the Act provides guidance around

[125] *New Zealand Recreational Fishing Council Inc v Sanford Ltd* [2009] NZSC 54, [2009] 3 NZLR 438 [*Kahawai*].
[126] Note that this port price has been updated from the value presented in the consultation paper ($7.64/kg), based on the most recently available port price data for 2022-23.

Information Principles, including "*the absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act*".

913. Te Ohu Kaimoana recommends the Crown resolve outstanding issues pertaining to 28N rights with iwi to maintain the integrity of the Deed of Settlement.

914. A wide range of views were put forward on whether the blue cod closed season in the Marlborough Sounds should be extended to further constrain recreational catch, from extending the period into the holiday season to questioning the current utility of the closed period.

915. Te Ohu Kaimoana, E. Jorgensen, SIF and Fish Mainland recommend establishing an across sector advisory group to develop options to constrain recreational fishing catch in the Marlborough Sounds to the level required to rebuild the fishery, address issues with predation of returned fish and identify any other avenues available to improve the health of the environment and the stock status of the fishery.

916. FNZ supports this proposal and will be convening such a group under the auspices of the National Blue Cod Strategy to address these issues, including about the closed season. FNZ also agrees that further research and information is needed to guide future management of BCO 7. We are considering commissioning a new characterisation and CPUE analysis of the BCO 7 commercial fishery over the next year and note that the results from a new NPS starting on 1 October will become available next year. This new information will be available for consideration by this group, and as a basis for a further review of the fishery, if appropriate.

917. The Kahurangi Shoal Sustainability Group is concerned about increasing fishing pressure at the Kahurangi Shoals. They request the daily limit for blue cod in that area be reduced from 10 down to five blue cod per person per day. FNZ notes that under the National Blue Cod Strategy, the daily limit for blue cod in the Kahurangi Shoals was reduced from 20 down to 10 cod per day in 2020. Under the traffic light system, any further reduction would be down to two cod per day. This request can be considered alongside discussion by the working group on reducing fishing pressure in the Marlborough Sounds.

7 Deemed values

918. The deemed values for the BCO 7 commercial fishery were reviewed and adjusted in 2021.

919. The average ACE price from the last full fishing year is $0.75/kg, and the most recent port price index (2022/23) is $7.52/kg. The annual deemed value is set appropriately between these two figures (Table 6).

Table 6: Current deemed value rates ($/kg) for BCO 7.

Stock	Interim	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

920. FNZ is satisfied that the current deemed value rates of BCO 7 are consistent with your mandatory statutory consideration under section 75(2)(a) in that they provide sufficient incentive for fishers to balance their catch with ACE. On that basis, FNZ is not recommending any changes to deemed value rates for BCO 7 at this time.

8 Conclusions and recommendations

921. There is currently only a TACC for BCO 7. The stock is being reviewed for 1 October 2022 to set a TAC, appropriate non-commercial allowances, and a TACC.

922. Potting surveys suggest the Marlborough Sounds part of the fishery, where the majority of catch is taken, is stable at a low level. As BCO 7 is assessed using a partial quantitative stock assessment, we are unable to estimate current biomass in relation to B_{MSY}. However, further scientific assessment since consultation confirms that the Marlborough Sounds is very likely (>90%) to be overfished indicating a cautious approach to setting the TAC is justified, and that a reduction to the current level of catch is appropriate.

923. Given B_{MSY} is unable to be determined, section 13(2A) is the relevant section for setting a TAC. Under this section you must set a total allowable catch that is not inconsistent with the objective of maintaining the stock at or above, or moving the stock towards or above, a level that can produce the *MSY*. Option 1 is unlikely to address the concerns of overfishing as it is based on current catch across the sectors. FNZ considers that Option 2, which is more cautious, better meets your responsibilities under section 13(2A).

924. FNZ is considering commissioning a new characterisation of the commercial fishery which would be available at the end of the year. In tandem with new recreational catch information from the NPS over the next year, the results would be used to inform discussions by a multisector technical group which we will convene under the auspices of the National Blue Cod Strategy, and as a basis for considering whether a further review of the TAC is required.

9 Decision for Blue cod - BCO 7

Option 1

Agree to set the BCO 7 TAC at 169 tonnes and within the TAC:

i. Set the allowance for Māori customary non-commercial fishing interests at 27 tonnes;
ii. Set the allowance for recreational fishing interests at 64 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 15 tonnes;
iv. Decrease the BCO 7 TACC from 70.005 to 63 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 (*Fisheries New Zealand preferred option*)

Agree to set the BCO 7 TAC at 157 tonnes and within the TAC:

i. Set the allowance for Māori customary non-commercial fishing interests at 27 tonnes;
ii. Set the allowance for recreational fishing interests at 58 tonnes;
iii. Set the allowance for all other sources of mortality to the stock caused by fishing at 14 tonnes;
iv. Decrease the BCO 7 TACC from 70.005 to 58 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

Snapper (SNA 7), red gurnard (GUR 7) and **rig (SPO 7)** – West Coast and top of the South Island

Pagrus auratus, Snapper, Tamure, Kouarea

Chelidonichthys kumu, Red gurnard, kumukumu, pūwhaiau

Mustelus lenticulatus, Rig, pioke, makō, mango

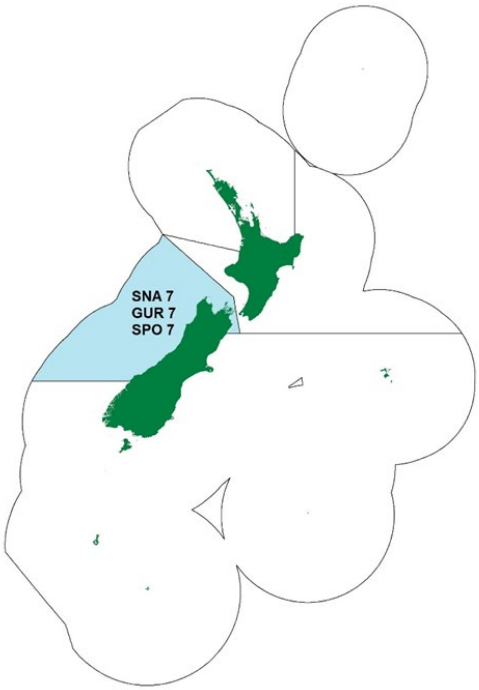


Figure 1: Fisheries Management Area 7 (FMA 7) for snapper (SNA 7), red gurnard (GUR 7) and rig (SPO 7) highlighted in blue.

Table 1: Summary of options proposed for SNA 7, GUR 7 and SPO 7 from 1 October 2022. Figures are all in tonnes. The preferred option of Fisheries New Zealand is highlighted in blue.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
SNA 7	**Option 1** *(Status quo)*	645	350	20	250	25
	Option 2	743 ↑ (98 t)	450 ↑ (100 t)	20	250	23 ↓ (2 t)
	Option 3 (new)	768 ↑ (123 t)	450 ↑ (100 t)	30 ↑ (10 t)	250	38 ↑ (13 t)
GUR 7	**Option 1** *(Status quo)*	1,422	1,298	17	42	65
	Option 2	1,582 ↑ (160 t)	1,450 ↑ (152 t)	17	42	73 ↑ (8 t)
SPO 7	**Option 1** *(Status quo)*	373	298	15	33	27
	Option 2	371 ↓ (2 t)	315 ↑ (17 t)	15	25 ↓ (8 t)	16 ↓ (11 t)

In total 24 submissions were received on the proposed options.

1 Why are we proposing a review?

925. Recent stock assessments and other information suggest that there is an opportunity to provide for greater utilisation of SNA 7 and GUR 7. Rig is caught as bycatch in these fisheries, so an adjustment to management settings of SPO 7 may also be appropriate in line with changes to utilisation of those stocks.

926. FNZ is proposing options to increase the TACs and TACCs of SNA 7 and GUR 7, and an option to adjust the TAC, allowances and TACC for SPO 7 in line with best available information on the fishery.

1.1 About the stocks

1.1.1 Fishery characteristics

927. Snapper, red gurnard and rig are species commonly caught together in the FMA 7 inshore mixed trawl fishery along with flatfish, tarakihi, and John dory. Trawling is the main commercial fishing method for these species in FMA 7. However, there is also some flatfish and rig target set netting, some commercial bottom longlining for snapper and Danish seine setting for flatfish and rig. Rod and line fishing is still the most preferred recreational fishing method in FMA 7, with some longlining and smaller amounts of other recreational methods (e.g., spear fishing).

Multi-species review approach

928. In 2019, FNZ undertook a multi-species approach to reviewing those stocks caught together in the FMA 7 trawl fishery. At that time, analysis of the interdependencies between the stocks identified three groups of interdependencies (where target catch influences bycatch):

- one with flatfish, snapper and red gurnard
- the second with red gurnard, snapper and John dory
- the third with rig and red gurnard.

929. FNZ continues to investigate new methods, with the help of the Sustainable Seas Challenge, to better manage stocks with different productivities and abundances caught together. For this review, the multi-species approach focused on the increase in abundance of snapper and red gurnard and the interdependences associated with these stocks.

930. Of the four other species (rig, tarakihi, John dory and flatfish) commonly caught with snapper and red gurnard in the fishery, rig is also being reviewed. Rig has increasing Catch Per Unit Effort (CPUE) in the commercial sector and it has interdependencies with snapper and red gurnard. FNZ considers changes to the management settings for snapper and red gurnard may increase bycatch of rig.

Other mixed trawl stocks not being reviewed

931. Tarakihi in TAR 7 has two discrete stocks: west coast South Island/Tasman Bay and the eastern Cook Strait. The eastern Cook Strait stock is considered part of the eastern tarakihi stock which is being reviewed this year in a separate sustainability paper. The west coast/Tasman Bay stock is associated with a different target catch mix (barracouta, red cod, stargazer and warehou) than the Tasman and Golden Bay fishery.

932. John dory is mostly a bycatch species in red gurnard and flatfish target trawls. Its recent (2022) stock status assessment determined it is being managed appropriately (about as likely as not to be at the target, and at the overfishing threshold), and there is no new information to suggest an adjustment to the TAC, TACC or allowances is required. However, given its interdependencies with red gurnard, consideration of the impact of the proposed options are discussed in this paper.

933. Flatfish in FLA 7 is also not being reviewed this year. Flatfish includes eight species within its generic species code, some with stock status information and some not. They have differing life spans and occur in localised populations across FLA 7 making managing them as a complex challenging. FNZ is considering management approaches for these species and will be engaging with iwi and stakeholders on a management strategy once options are further developed. However, given the interdependencies of flatfish to both snapper and red gurnard,

potential impacts from increasing the TAC and TACCs of snapper and red gurnard on flatfish are considered in this paper.

1.1.2 Biology

SNA 7

934. Snapper growth varies regionally but snapper can reach a maximum of 105 cm and live to a maximum age of 60 years. They reach maturity at 3-4 years and 20-28 cm. Snapper in SNA 7 have the fastest growth rate of snapper in New Zealand. They are serial spawners and release numerous batches of eggs throughout spring and summer.

935. Snapper are found in central and northern areas of New Zealand to depths of 200 m. They are one of the most abundant and widely distributed inshore fishes in New Zealand. Snapper feed on a range on invertebrates including crabs, worms and shellfish.

GUR 7

936. Red gurnard can grow to a maximum length of 55 cm with females growing faster and larger than males. They have a maximum age of 16 years and reach maturity at 23 cm in length and 2-3 years of age. Spawning occurs in spring-summer.

937. Red gurnard are found throughout New Zealand coastal waters at depths of 10-200 m. They feed on shellfish, crustaceans, and crabs.

SPO 7

938. Rig females grow larger than males and can reach a maximum length of 150 cm, compared to a maximum length of 125 cm for males. They have an estimated maximum age of 20 years. They reach maturity at 85-100 cm length or 4-8 years depending on region. They have a gestation period of 10-11 months and give birth in spring-summer.

939. Rig are found throughout New Zealand waters. They can make extensive migrations and move into shallow areas to give birth before returning to waters up to depths of 400 m in autumn. Farewell Spit is a known nursery ground for rig in Tasman and Golden Bay. Rig feed on a variety of benthic invertebrates, particularly crustaceans, echiurans and molluscs.

1.2 Status of the stock

SNA 7

940. In 2021 a new stock assessment was completed for SNA 7 which determined the stock is very likely (>90%) to be at or above the management target of 40% B_0 (see Figure 2). The stock status is also referenced against the Harvest Strategy Standard (HSS) default soft limit of 20% (which triggers a formal time-constrained rebuilding plan) and hard limit of 10% (where a closure of the fishery should be considered). Overfishing is very unlikely (<10%) to be occurring (see Figure 3).

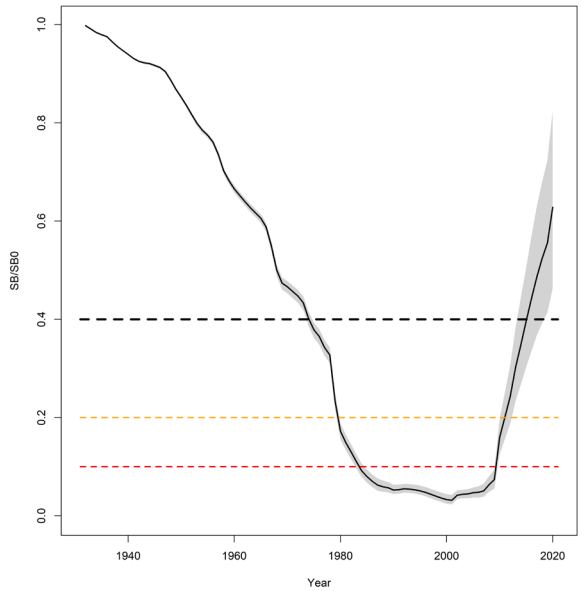


Figure 2: Annual trend in spawning biomass relative to the 40% B_0 management target. The solid black line represents the median and the shaded area represents the 95% probability. The black dashed line represents the 40% B_0 management target. The red and orange dashed lines represent the hard and soft limits, respectively.

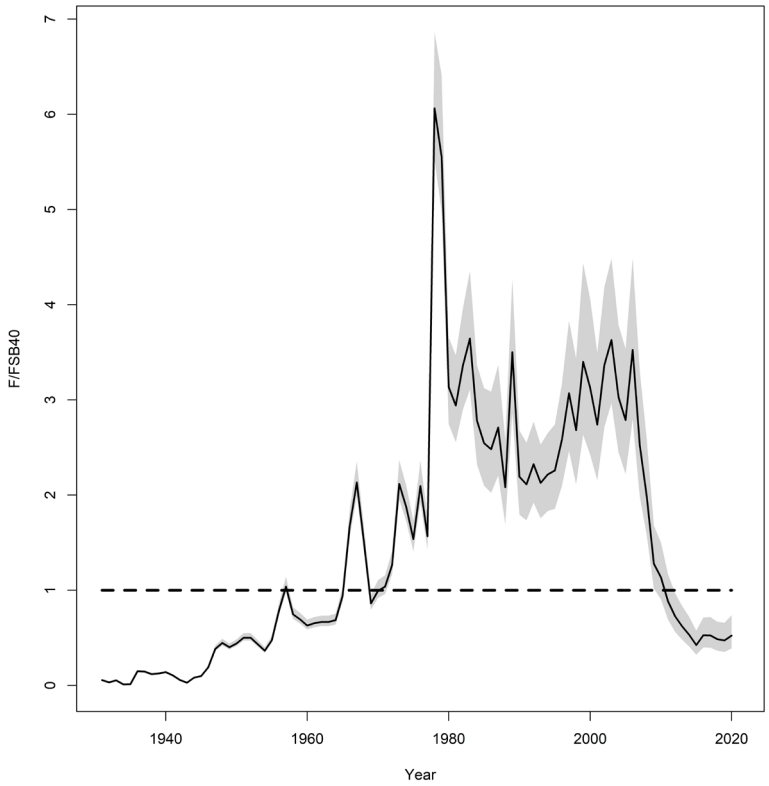


Figure 3: Annual trend in fishing mortality relative to the management target. The line represents the median and the shaded area represents the 95% probability. The dashed line represents the management target level.

941. Stock projections based on the long-term average recruitment, using both median and 25th percentiles, predict biomass will continue to increase at the level of the current TACC and

increasing recreational catch. Figure 2 shows that uncertainty in the biomass projections has increased in recent years due to the effect of West Coast South Island (WCSI) trawl survey biomass estimates for recruited snapper. These have shown large increases in relative abundance in the 2017 and 2018 year classes, which could result in overly optimistic stock projections. Therefore, a more precautionary metric was incorporated in the model (derived from the lower 25% quantile of the distribution of the projected stock biomass) to reflect a lower range of biomass and estimates of the recent recruits. Projections for both the base and more precautionary metric (lower 25th percentile) have been provided to support a range of projections.

GUR 7

942. The first fully quantitative stock assessment of GUR 7 was completed in 2022. Previous partial quantitative assessments were based on the WCSI Trawl survey series. The stock assessment was conducted using an age-structured population model. GUR 7 is virtually certain (>99%) to be at or above the default management target of 35% B_0 (Figure 4). The stock status is also referenced against the default HSS soft limit of 20% and hard limit of 10%. Overfishing is very unlikely (<10%) to be occurring (Figure 5).

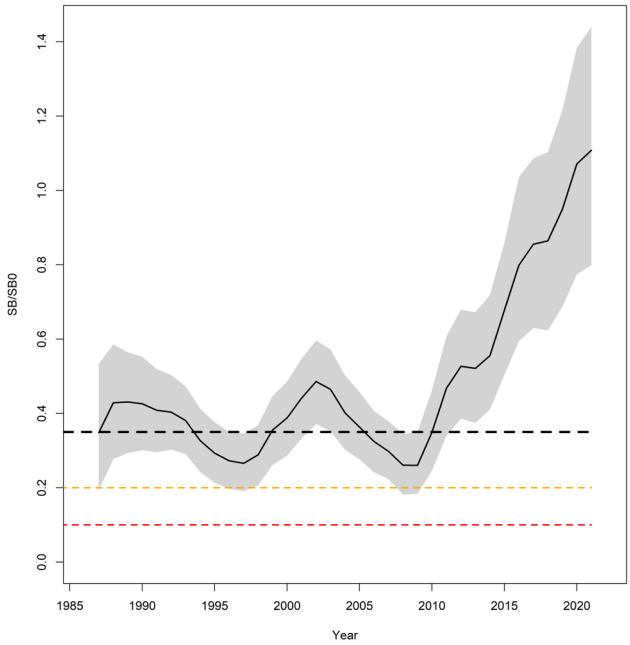


Figure 4: Annual trend in spawning biomass relative to the 35% B_0 management target biomass. The black line represents the median and the shaded area represents the 95% probability. The dashed black line represents the management target. The red and orange dashed lines represent the hard and soft biomass limits, respectively.

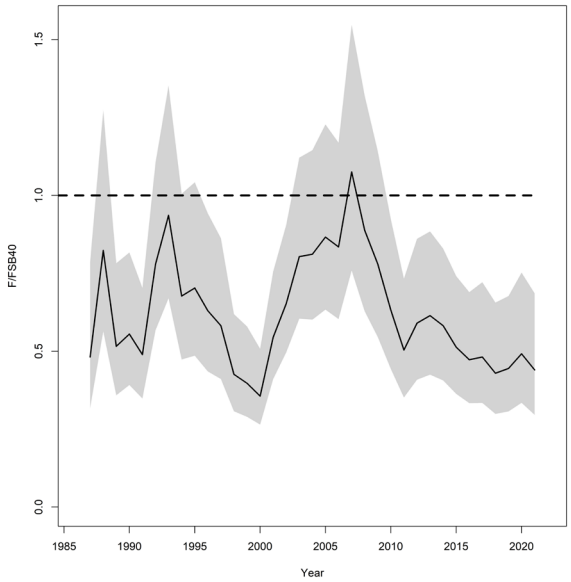


Figure 5: Annual fishing mortality compared to the 40% interim threshold fishing mortality level (dashed line). Grey shaded area represents 95% probability.

943. Stock projections suggest abundance is very likely to remain above the target biomass level over the next five years at current catch levels.

SPO 7

944. A recent stock assessment (May 2022) based on the WCSI trawl survey series and two standardised CPUE abundance indices has determined SPO 7 is about as likely as not (40-60%) to be at or above the proxy management target (Figure 6). Overfishing is also about as likely as not to be occurring.

945. Stock projections cannot be conducted based on current information, but the probability of the current catch or TACC causing overfishing to continue or to commence is unlikely (<40%).

946. There are some sources of uncertainty associated with the stock assessment including:

- The drop in the 2021 WCSI trawl survey index conflicts with the increasing trend seen in the two accepted CPUE series (bottom trawl (BT) and setnet (SN)).
- There is a lack of historical information on stock abundance during the 1970s-1980s when rig was heavily fished. Therefore, determining the stock status relative to early levels of abundance is difficult.
- The WCSI trawl survey and BT CPUE do not adequately sample large mature females (large rig tend to outswim BT gear).

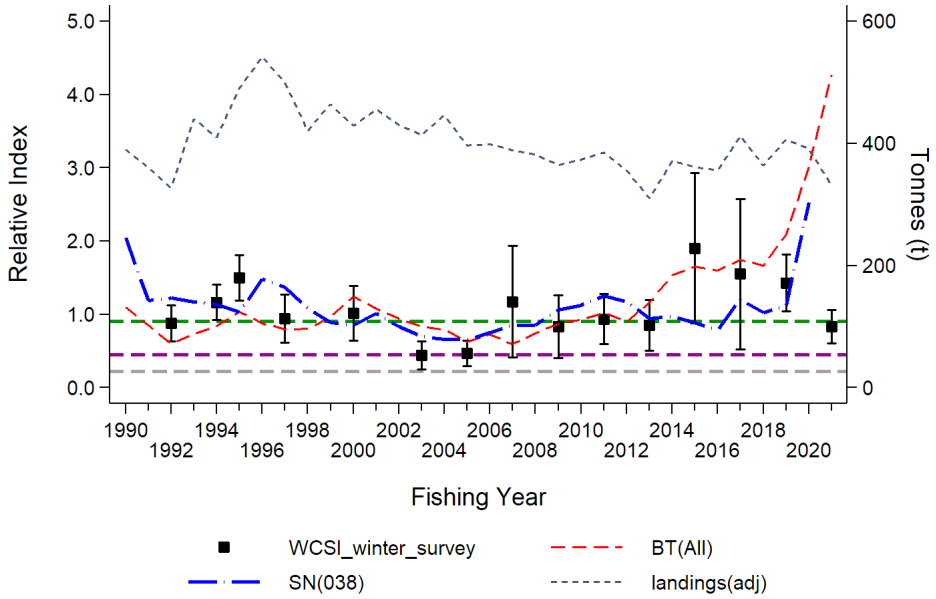


Figure 6: Comparison of the WCSI trawl survey and two accepted CPUE indices BT(All) and SN(038) with the adjusted reported landings for SPO 7. Adjustments were made to ensure that all catch values in every year are based on a common conversion factor. The agreed soft limit is the purple line, the management target is the green line, and the hard limit is the grey line.

2 Catch information and current settings within the TAC

2.1 Commercial

SNA 7

947. Commercial regulations set a minimum net mesh size for snapper of 100 mm and a minimum fish length of 25 cm.

948. Snapper fisheries are one of the largest and most valuable coastal fisheries in New Zealand. The commercial fisheries developed in the late 1800s and peaked in the 1970s following the introduction of pair trawling. With the introduction of the QMS, all snapper stocks were set at a level intended to allow for the stocks to rebuild.

949. Landings from SNA 7 remained below the TACC after introduction to the QMS, and in July 1990 the TACC was further reduced to 160 tonnes. In October 1997 the TACC for SNA 7 was increased to 200 tonnes within an overall TAC of 306 tonnes. In 2016, the TAC for SNA 7 was increased from 306 to 545 tonnes, including an increase in the TACC from 200 to 250 tonnes. The SNA 7 TACC was increased again in 2020 to 350 tonnes (Figure 7).

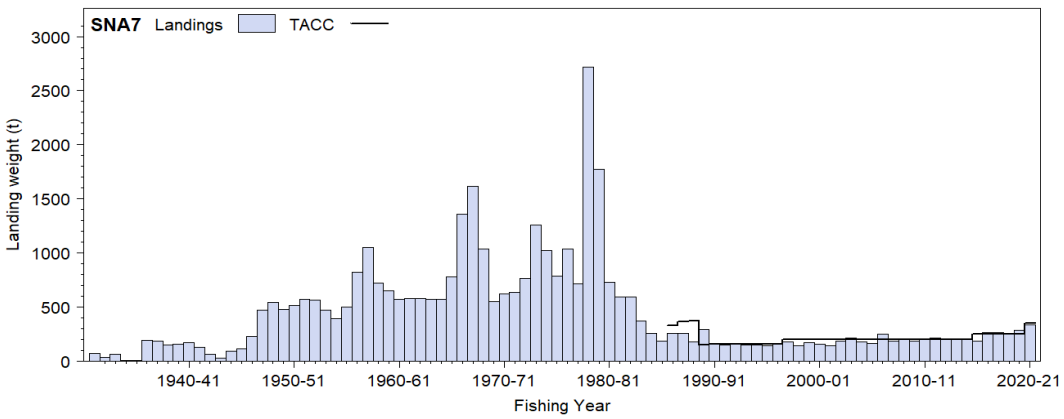


Figure 7: Reported commercial landings (in tonnes) and TACC for SNA 7.

950. Since 2016 commercial trawl fishers have reported difficulty in avoiding snapper and have progressively shifted to deeper water and reduced the headline height of trawl gear to minimise snapper catch. The seasonal distribution of snapper catch has expanded from October through to May in the last decade. Previously most snapper catch was taken during October to January.

GUR 7

951. Commercial regulations set the standard minimum net mesh size of 100 mm. There is no specified minimum fish length for red gurnard.

952. Red gurnard was introduced into the QMS in 1986. The 1986 TACC was based on 1983 landings for the region. Under the Adaptive Management Programme, which ended 30 September 2009, the TACC for GUR 7 was increased to 815 tonnes in 1991, and then was reduced to 678 tonnes in 1997, when a TAC and allowances were set for GUR 7. There have been numerous TACC incremental increases since then (Figure 8).

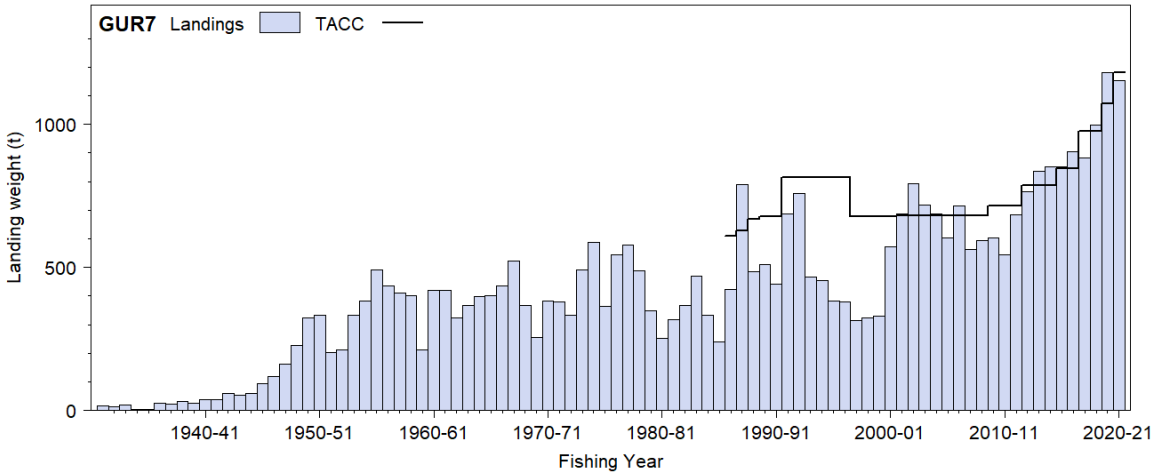


Figure 8: Reported commercial landings (in tonnes) and TACC for GUR 7.

SPO 7

953. Commercial regulations set a minimum net mesh size for rig of 150 mm. There is no specified minimum fish length. Rig is a Schedule 6[127] stock and can be returned to sea if it is likely to survive. Schedule 6 returns have varied over the last five fishing years ranging between approximately 7 tonnes in 2016-17 to 21 tonnes in 2017-18. Last year approximately 10 tonnes of rig in SPO 7 was returned under Schedule 6.

954. Rig was introduced into the QMS in 1986 with a TACC for SPO 7 set at 294 tonnes until it was further increased in 1991 to 350 tonnes. A TAC was set in October 2000 which retained the TACC at 350 tonnes and set allowances for customary and recreational catch. In 2006 the TAC was reviewed and the TACC was decreased to 221 tonnes, and the other sources of mortality allowance was also set at this time. The decision to reduce the TACC was considered necessary to move the stock back to B_{MSY} and was supported by an industry SPO 7 voluntary closure to commercial set netting and trawling around Farewell Spit. Since 2006 the TACC for rig has been increased a further three times with the latest being in 2019 (Figure 9).

[127] Schedule 6 of the Fisheries Act 1996 (Schedule 6) provides that a commercial fisher may return rig to the waters from which it was taken if (a) that rig is likely to survive on return; and (b) the return takes place as soon as practicable after the rig is taken.

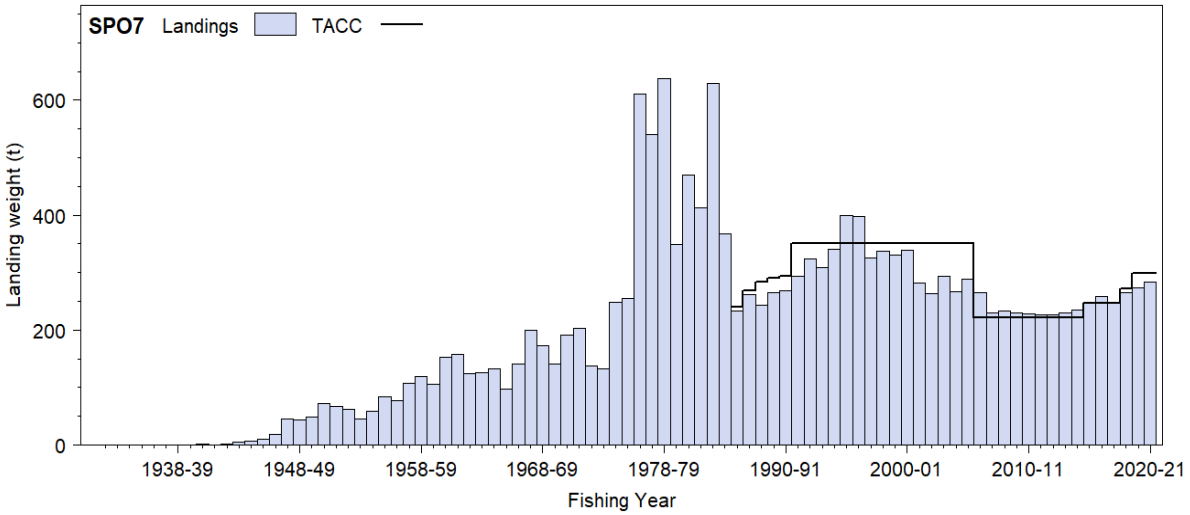


Figure 9: Reported commercial landings (in tonnes) and TACC for SPO 7.

955. For the last full fishing year (2020-21), SNA 7 was 96% caught, red gurnard was 97% caught and rig was 95% caught. COVID-19 has, however, impacted the fishing industry over the past two years, as have increasing fuel prices. Therefore, these catch rates may not reflect a typical operating environment.

2.2 Customary Māori

956. The current level of customary take for finfish in FMA 7 is uncertain. Under the Fisheries (South Island Customary Fishing) Regulations 1999, small amounts of tāmure (snapper), kumukumu (red gurnard) and mango (rig) have been reported as taken in FMA 7.

957. Also within FMA 7, tangata whenua north of Kahurangi Point and in the Marlborough Sounds and Tasman/Golden Bays area are still operating under regulation 50 of the Fisheries (Amateur Fishing) Regulations 2013, which do not require that customary permits or catches be reported. Therefore, the small amount of customary reporting likely reflects that tangata whenua are using recreational fishing regulations for their harvest.

958. The customary allowances for SNA 7, GUR 7 and SPO 7 were last reviewed as follows:

- SNA 7: in 2016 the customary allowance was increased from 16 tonnes to 20 tonnes.
- GUR 7: in 2021 the customary allowance was increased from 15 tonnes to 17 tonnes.
- SPO 7: in 2006 the customary allowance was decreased from 24 tonnes to 15 tonnes.

2.3 Recreational

959. The increasing abundance of snapper over the last decade in Tasman and Golden Bay has been very positive for the recreational sector. The availability of snapper has seen greater participation in the Tasman and Golden Bay recreational fishery, resulting in increases in catch of other recreational species such as red gurnard.

960. The most recent National Panel Survey of Marine Recreational Fishers (NPS; 2017/18) results are provided in Table 2 below. They show an increase in estimated recreational harvest for both snapper and red gurnard, and that rig harvest has declined slightly since the 2011/12 survey (Table 2).

Table 2: Latest recreational harvest estimates for SNA 7, GUR 7 and SPO 7 (rounded up).

Fish stock	2011/12 Estimated harvest (tonnes)	CV (tonnes)	2017/18 Estimated harvest (tonnes)	CV (tonnes)
SNA 7	89	± 15	147	± 24
GUR 7	12	± 3	38	± 7
SPO 7	21	± 5	19	± 5

961. The NPS estimates do not include recreational catch on commercial vessels under s111 (of the Fisheries Act 1996) general approvals. For the 2021 fishing year approximately 1,700 kg of SNA 7, 248 kg of red gurnard and 112 kg of rig was taken under s111 approvals. Snapper and red gurnard take was slightly higher than the previous year and rig was slightly down.

962. The recreational allowance for snapper was increased in 2016 from 90 tonnes to 250 tonnes based on a preliminary estimate of recreational catch (306 tonnes) from a survey that was underway at the time but not yet completed. When the survey was completed and analysed, the final estimate of recreational catch was much lower than the preliminary estimate. Regardless, the previous Minister of Fisheries retained this allowance when the fishery was subsequently reviewed in 2020 noting the steep trajectory for recreational catch in SNA 7 (estimated catch increased from 89 tonnes in 2011/12 to 147 tonnes in 2017/18 – refer Figure 10) suggested the allowance was within a reasonable range of estimates for recreational catch.

963. Recreational allowances have increased over time for red gurnard due to increasing recreational success and participation in GUR 7. FNZ considers recreational rig catch may decrease as fishers have more success targeting more popular species such as snapper and red gurnard, and due to the recent extension of the set net ban out to 4 nautical miles offshore within Tasman and Golden bays to protect Hector's dolphins.

964. Recreational fishers are subject to numerous method and area restrictions in FMA 7, including a minimum fish length of 25 cm for both snapper and red gurnard. A combined daily bag limit of 20 finfish per fisher (excluding baitfish and freshwater eels) also applies. There is an individual daily bag limit within the combined daily bag limit of 10 snapper per fisher outside of Marlborough Sounds and 3 snapper per fisher within the Marlborough Sounds.

965. In its consultation paper FNZ sought feedback, at the request of some recreational fishers, on whether the limit of 3 snapper for the Marlborough Sounds should be increased given increasing abundance of snapper in SNA 7. FNZ notes that Marlborough Sounds snapper is considered a different biological stock to the Tasman and Golden Bay fisheries, and there is less evidence that snapper in this part of the fishery has increased.

2.4 All other mortality caused by fishing

966. Other mortality caused by fishing targeting snapper, red gurnard and rig includes mortality from fish escaping fishing gear and discarding (both mandatory for sub minimum legal size and illegal). Previous sustainability measure decisions have acknowledged the improvements in commercial mixed-trawl fishing practices in FMA 7 (e.g., use of lighter gear, larger mesh size, and a reduction in headline height). This has resulted in retaining or moving the other mortality allowance toward 5% of the TACC (currently 7% for snapper, 5% for red gurnard and 9% for rig), unlike in other management areas where the allowance for inshore trawl caught stocks is generally set at a level that equates to 10% of the stocks TACC.

967. Little is known about fishing mortality from recreational fishing practices such as high grading in SNA 7, GUR 7 and SPO 7. FNZ has commissioned new research to investigate mortality from non-commercial fishing practices. In the interim, the best indicator of other mortality caused by fishing is commercial fishing information.

968. In 2018, the previous Minister of Fisheries increased the other mortality allowance for rig from 5% of the TACC to 9%. However, in 2020 new measures were introduced to prohibit the use of commercial and recreational set netting out to 4 nm offshore within Tasman and Golden bays to protect Hector's dolphins. Therefore, FNZ consulted on whether it is timely to align rig with other species caught in the mixed-trawl fishery. On this basis Option 2 in this paper would apply a standard allowance of 5% of the TACC for snapper, red gurnard and rig in FMA 7. The most significant reduction would relate to rig and assumes set net mortality in FMA 7 has been reduced by the implementation of the new set net restrictions, that rig is part of the mixed trawl fishery that has improved fishing practices, and that rig can be released alive if likely to survive under Schedule 6 of the Fisheries Act 1996.

3 Treaty of Waitangi Obligations

3.1 Input and participation of tangata whenua

969. 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.

970. Particular regard must be given to kaitiakitanga when making sustainability decisions.

971. Te Waka a Māui me Ōna Toka Iwi Forum is the Te Wai Pounamu (South Island) Iwi fisheries forum — it includes all nine tangata whenua iwi of Te Wai Pounamu: Ngāti Apa ki Ratō, Ngāti Kōata, Ngāti Kuia, Ngāti Rarua, Ngāti Tama, Ngāti Tōarangatira, Rangitāne ō Wairau, Te Ati Awa and Ngai Tahu. Their Iwi Fisheries Forum Plan is titled Te Waipounamu Iwi Forum Fisheries Plan.

972. At the March 2022 hui, FNZ sought input from forum members into the long list of potential stocks for review of October 2022. At that time, the multi-species review was advised dependent on the results of stock assessments. Forum members acknowledged the abundance of snapper, reflected on the Plant and Food snapper releases contributing to abundance and recommended a cautious management approach to this important species.

973. On 12 July 2022 and 25 July further hui were held with Te Waka a Māui and Te Tau Ihu Iwi Forums respectively. Table 3 below provides further input on the proposed options.

Table 3: Forum input into the proposed options.

Iwi Fisheries Forum	Input on SNA 7, GUR 7 & SPO 7
Te Waka a Māui me Ōna Toka Iwi Forum (*all of South Island*)	Supports anything *status quo* or less. Focus is to manage the fisheries for future generations. Customary allowance should be ~ 50% of recreational allowance for snapper similar to red gurnard and rig. Kaitiaki are encouraging customary authorisation holders not to also take their recreational catch allowance when fishing under a customary authorisation. This is so Kaitiaki can maintain a better record of catch. The customary allowance needs to provide flexibility for unknown number of events (tangi, hui) each year.
Te Tau Ihu Iwi Forum *(Top of the South Island eight iwi*)	SNA 7 – the forum's position is that if the research justifies an increase then a TAC increase should be considered. The forum agreed that snapper are more abundant than previously. It was noted that the forum had worked with Plant and Food to release 30,000 juvenile snapper into the fishery (acknowledging the work of John Morgan in particular). Demonstrating the forum's deep commitment to the fishery.

3.2 Kaitiakitanga

974. Tāmure (snapper), kumukumu (red gurnard) and mango (rig) are identified as a taonga species in Te Waipounamu Iwi Forum Fisheries Plan. 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 2:** South Island iwi are able to exercise kaitiakitanga;
- **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.

975. Customary tools utilised under the Fisheries (Kaimoana Customary Fishing) Regulations 1998 and the Fisheries Act 1996 (Act), provide for tangata whenua to manage local fisheries in ways that best fits local customary practices in the form of mātaitai, taiāpure and temporary closures.

976. There is one taiāpure and seven mātaitai reserves that fall within FMA 7 (Table 4).

Table 4: Customary fisheries management areas within FMA 7.

Name	Management type
Whakapuaka (Delaware Bay)	**Taiāpure** *All types of fishing are permitted within a Taiāpure. The management committee can recommend regulations for commercial, recreational and customary fishing.*
Okuru/Mussel Point Tauperikaka Mahitahi/Bruce Bay Manakaiaua/Hunts Beach Okarito Lagoon Te Tai Tapu (Anatori) Te Tai Tapu (Kaihoka)	**Mātaitai Reserve** *Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.*

977. FNZ considers the options to increase the TACs and TACCs proposed in this paper are unlikely to impact on, or be impacted by, the customary fisheries management areas in FMA 7. The large scale of the FMAs for these three stocks and the spatial distribution of the stocks in relation to the customary areas means the stocks can generally be caught elsewhere outside of the customary fisheries management areas. Furthermore, commercial fishing is prohibited in mātaitai reserves. There are no regulations relating to snapper, red gurnard and rig in the Whakapuaka Taiāpure, or bylaws relating to these three stocks in any of the mātaitai reserves.

4 Environmental and Sustainability Considerations

4.1 Environmental principles (section 9 of the Act)

978. The environmental principles, which must be taken into account when considering sustainability measures for SNA 7, GUR 7 and SPO 7 are as follows:

a) Associated or dependent species should be maintained above a level that ensures their long-term viability (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).

b) Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and

c) Habitats of particular significance for fisheries management should be protected.

979. Overall, FNZ considers the proposed options for all three fish stocks will have varying impacts on environmental interactions (discussed below). The options proposed to increase TACCs reflect the increased abundance of snapper and red gurnard and associated bycatch of rig. An increase in TACCs would allow for more efficient harvesting (less avoidance behaviour and less use of deemed values) rather than significantly increased fishing effort. However, given the quantities proposed it is likely that Options 2, and new Option 3 for snapper, will result in some increased fishing effort.

980. It is important to note in some cases FNZ has made some assumptions about environmental interactions based on fisher reported data that may not have been independently verified (e.g., by an on-board FNZ Observer). Observer coverage is negligible for SNA 7, GUR 7 and SPO 7, all averaging below 5% over the past 5 fishing years based on event level data[128]. Observer effort has been prioritised to monitor protected species interactions in fisheries considered to be higher risk.

981. Increased uptake of cameras onboard vessels in FMA 7 will enhance FNZ's abilities to monitor environmental interactions in these fisheries.

4.1.1 Marine Mammals

982. In general, trawl fisheries have been assessed as posing a substantially lesser risk to dolphins than commercial setnet fisheries. The Hector's and Māui dolphin Threat Management Plan guides management approaches for addressing both non-fishing and fishing related impacts on Hector's and Māui dolphins. The risk to the dolphins from trawling around the South Island, including for SNA 7, GUR 7 and SPO 7, is largely managed under the current trawl restrictions.

983. Sea lions are generally not found as far north as FMA 7.

984. Regardless, sometimes marine mammals are accidentally caught during commercial fishing. Commercial fishers must file daily reports about what they have caught. Catch and spatial reporting shows that since 2019 four fur seals have been caught and killed within the 12 nm range[129]. However, these captures are not associated with trips targeting snapper, red gurnard or rig.

4.1.2 Seabirds

985. The most recent Spatially Explicit Fisheries Risk Assessment ranks black petrel as the most at risk seabird, followed by the Salvin's albatross, Westland petrel, flesh-footed shearwater, southern Buller's albatross, and Gibson's albatross (AEBAR 2019-20).

986. Seabird interactions with New Zealand's commercial fisheries are managed under the National Plan of Action - Seabirds 2020. The NPOA – Seabirds, which focuses on education and ensuring fishers take all practicable steps to minimise risk to seabirds, will drive significant changes in fisher behaviour and help to ensure that fishing does not adversely impact on the health of seabird populations.

987. FNZ and the fishing industry have worked collaboratively for over a decade, more recently for the inshore fleet, to ensure vessels have, and follow, a Protected Species Risk Management Plan (PSRMP). A PSRMP specifies the measures that must be followed on board each vessel to reduce the risk of incidental seabird captures. While there is no legal requirement that fishers have a PSRMP, more than 90% of the full-time vessels that operate in the mixed trawl fishery

[128] This coverage was calculated based on fishing events in which the fish stock was recorded as caught and an observer was on board. This metric does not reflect the overall level of monitoring in the fishery.
[129] To 26 April 2022

have, and follow, one.

988. Like marine mammals, seabirds can accidentally get caught during commercial fishing and commercial fishers must file daily reports about what they have caught. Catch and spatial reporting shows that since 2019 that one unidentified petrel, prion or shearwater and one albatross (unidentified) have been caught and killed in the inshore mixed trawl fishery (within the 12 nm range) when targeting red gurnard.

4.1.3 Fish bycatch

989. Fish and invertebrate bycatch information in the mixed trawl fishery is primarily from research trawl surveys. Trawl surveys along the west coast of the South Island and in Tasman and Golden bays have captured more than 50 finfish species including spiny dogfish, red cod, barracouta, tarakihi, hake and Jack mackerel. Invertebrates captured included sponges, mussels, octopus and arrow squid.

990. Flatfish in FLA 7 is of particular interest as a bycatch species associated with target snapper and red gurnard catch in the FMA 7 mixed trawl fishery. With an increase in targeted snapper and red gurnard there is the potential that flatfish bycatch may also increase particularly if commercial fishers move further inshore.

991. From a commercial perspective, an increase in FLA 7 bycatch will not incur undue cost on fishers as the current TAC and TACC has substantial 'headroom' to allow for fluctuations in catch and abundance. However, as mentioned above there are eight flatfish species within the generic FLA 7 species code. Sand flounder is mostly taken from Tasman and Golden Bay and in 2022 was assessed to be about as likely as not to be at or above target and the overfishing threshold. Brill and turbot are mostly taken from the west coast portion of FLA 7 and are also about as likely as not to be at or above target and at the overfishing threshold. New Zealand sole is also taken mostly along the west coast but is unlikely to be at or above the target and it is likely that overfishing is occurring. These four species make up approximately 80% of FLA 7 catch. An increase catch of these species potentially moves them below their default target.

992. During the 2020 SNA 7 TAC review some concerns were raised that commercial fishers could move further inshore if the TACC is increased. While this concern was raised in the context of spatial conflict, it is also relevant to the risk of increasing the bycatch of flatfish. Through geospatial analysis FNZ can confirm this has not occurred, this is also validated in the stock assessment with evidence of a shift to targeting snapper in deeper waters. Furthermore, catch records show flatfish catch has been relatively stable for the past three years in response to previous increases to snapper and red gurnard TAC and TACC increases.

993. FNZ will continue to monitor electronic and geospatial position reporting and may review FLA 7 if action is required to address the risk to flatfish populations.

994. John dory is another bycatch species associated with red gurnard target trawls. An increase in the TACC of snapper and red gurnard could result in an increase in catch of John dory. However, catch records show that catch has been lower recently, despite increases in SNA 7 and GUR 7 TACCs. John dory has recently been assessed to be about is likely as not to be at target and at the overfishing threshold. FNZ will continue to monitor the impact of the proposed TAC and TACC changes on John dory catches.

995. Tarakihi in TAR 7 tends to be caught in the outer reaches of Golden Bay and down the west coast. The proposed increases to TAC and TACCs could result in a minor increase in bycatch of tarakihi. However, in the 2019-20 fishing year TAR 7 was only 88% caught and the 2020-21 fishing year it was 95% caught. TAR 7 is not subject to a rebuilding plan (unlike the east coast fishery) and is considered likely to be at or about the management target.

4.1.4 Benthic impacts

996. Tasman and Golden Bay in FMA 7 have historically been intensively fished, including by trawling. Trawling can directly impact on biological diversity of the benthic environment. However, with the implementation of the QMS the inshore fleet has consolidated, and gear technology has improved to create efficiencies and support mitigation of environmental impacts.

997. Research on the effects of bottom trawling and dredging has occurred in Tasman and Golden Bay including a gradient analysis to investigate the importance of the different factors affecting epifaunal and infaunal communities. Trawling and dredging have been identified as important factors in explaining the variance in some benthic community structure.

998. A characterisation of coastal marine habitats in FMA 7[130] indicates that Tasman and Golden Bay are predominately mud and sand, with gravel appearing more frequently on the west coast of the South Island. More biogenic habitats occur around estuaries (eg, saltmarshes) and nearshore areas such as bryozoan mounds and seagrass beds. Concerns have previously been expressed that increases in TACC (particularly for snapper) could see commercial fishers shifting effort closer to shore. However, spatial data since the last increase to SNA 7 TACC (2020) shows that this has not occurred. Stock assessment analysis also provides evidence that commercial fishers are fishing deeper. FNZ will continue to monitor the fishery to see if this risk does eventuate and consider management settings accordingly.

999. Furthermore, there are regulatory and non-regulatory (i.e., voluntary) closures that prohibit trawling in nearshore areas (e.g., the prohibition on fishing at Separation Point and Farewell Spit) and depth requirements for commercial vessels also mitigates/prevents fishing in shallow areas. In FMA 7 there are also several marine reserves (covering approximately 21,000 ha in total) and two mātaitai that exclude commercial fishing (Te Tai Tapu (Anatori) Mātaitai and Te Tai Tapu (Kaihoka) Mātaitai). These areas closed to fishing provide protection from benthic impact fishing methods.

4.1.5 Habitats of particular significance for fisheries management

1000. FNZ considers that habitats of particular significance for fisheries management are an area, or areas, of particular significance in supporting the productivity of fisheries resources.

1001. Tasman and Golden Bay are known to be areas of importance to snapper, red gurnard and rig (Table 5) and are considered a nursery area that supports the west coast South Island population[131]. As discussed above there are several long-standing regulatory and non-regulatory (voluntary) closures in place in Tasman and Golden Bay to protect important nursery and/or spawning areas for snapper and rig.

1002. The options proposed to increase the TAC and TACCs for snapper, red gurnard and rig may result in some increase in fishing effort. However, the likelihood of a shift in effort to new areas is low and existing fisheries restrictions and other no take areas help mitigate the impacts of bottom contact fishing methods on habitats. Given the existing protections and current fishing practices adopted by commercial fishers FNZ considers that any additional risk to the potential habitats of particular significance for fisheries management will be low. Based on available information FNZ has not identified any new areas of particular significance for fisheries management for snapper, red gurnard and rig in FMA 7 that require protection at this time.

[130] Department of Conservation and Ministry of Fisheries (2011). Coastal marine habitats and marine protected areas in the New Zealand Territorial Sea: a broad scale gap analysis.
[131] Morrison, M.A.; Jones, E.G.; Parsons, D.P.; Grant, C.M. (2014). Habitats and areas of particular significance for coastal finfish fisheries management in New Zealand: A review of concepts and life history knowledge, and suggestions for future research.

Table 5: Summary of information on potential habitats of particular significance for SNA 7, GUR 7 and SPO 7.

Stock	SNA 7
Potential habitat of particular significance	**Separation Point biogenic reef (bryozoan) – was considered an important nursery area for various fish species including snapper. However, its recently observed degraded state may mean it no longer provides this function.** **While literature notes the importance to snapper spawning in Tasman Bay it is relatively general and the exact location of other habitats of significance is not known.**
Attributes of habitat	Nursery ground • Structure important • Provides refugia (e.g., from predation, currents) and feeding opportunities Spawning habitat • Snapper have a short larval period where they occupy the middle of the water column. They feed visually and water temperature appears critical to the early life stages of snapper. Spawning occurs when water temperature reaches 14.8 to 16°C. The strength and direction of wind and its effect on water column mixing and productivity is also important to larval survival for providing food for snapper larvae.
Reasons for particular significance	• Nursery habitat - the habitats are likely to provide shelter, protection from predation and harvesting, and suitable food and temperature for larval and juvenile fish survival, growth and development. • Juveniles favour structured habitat types such as biogenic habitat then leave after and about 3-5 months and appear in shallow coastal environments. Therefore, connectivity to other habitats is important to other life stages
Risks/Threats	• Climatic factors and disturbance regimes such as increasing ocean temperature, decreased dissolved oxygen, ocean acidification, coastal erosion and sedimentation, altered precipitation, increased storm frequency and severity will impact on visibility within the water column, available food supply and composition, and larvae survival. • An increase in land-based sediment and nutrient runoff can be detrimental to structured habitats (as early indications suggest for Separation Point), which can result in a loss of habitat function (e.g., protection and shelter) for juvenile fish.
Existing protections	• Separation Point between Tasman and Golden bays was closed to fishing in 1980. This area was considered a nursery ground for snapper, tarakihi, cod, leatherjackets and other fish that hide and feed in the bryozoan colonies.
Stock	**GUR 7**
Potential habitat of particular significance	**Tasman and Golden Bay. Information is relatively general for red gurnard habitats in FMA 7 and while preferred habitat occurs in the bays the exact location is unknown.**
Attributes of habitat	Spawning • Egg and larval development take place in surface waters and recruitment may be influenced by surface water temperatures. Nursery ground • Juveniles prefer shallow enclosed embayments and their preferred temperature range is between 11-18°C. Diet consists mostly of crustaceans (galatheids and crabs) generally found in shallow muddy areas. This suggests that shallow, sheltered waters with the right temperature and rich food supply are key attributes for recruitment.
Reasons for particular significance	• The possible habitat of significance is likely to provide the right conditions for the growth and development of juveniles to support productivity of the stock.
Risks/Threats	• Bottom contact fishing method disturbance.

	• Changes in surface water temperature could affect egg and larvae development and survival. • Increased temperatures, ocean acidification, sedimentation and nutrient runoff might impact on the function of the habitat to support growth and development of red gurnard.
Existing protections	• There are no specific protections for habitats of significance for red gurnard in GUR 7. However, generic fishing restrictions provide indirect protection for red gurnard recruitment.
Stock	**SPO 7**
Potential habitat of particular significance	**'*The Banks*' inside Farewell Spit.**
Attributes of habitat	• Young are generally born live in shallow coastal waters (e.g., harbours and estuaries) during spring/summer. They grow rapidly over their first summer then move to deeper waters. • They have a broad temperature range of around 9 to 18°C and feed on benthic invertebrates such as crustaceans and worms[132]. This suggests that shallow coastal waters with the right temperature and rich food supply are key attributes for recruitment.
Reasons for particular significance	• The habitat of significance is likely to provide the right conditions for the growth and development of juveniles to support productivity of the stock.
Risks/Threats	• Bottom contact fishing method disturbance. • Changes in water temperature could affect season movements to current nursey habitat. • Increased temperatures and ocean acidification might impact on the abundances of food (particularly crabs). • Increased sedimentation and nutrient runoff could adversely impact the structure and function of the habitat.
Existing protections	• 'The Banks' inside Farewell Spit is an area of particular significance as a rig pupping and nursey ground. Under the SPO 7 Fishery Plan industry the area around Farewell Spit is closed to commercial trawling and setnet fishing. • Although not specific to SPO 7, existing fishing prohibitions provide protection from bottom impact methods and disturbance (e.g., trawling is prohibited from 1 November to 30 April in inner Golden Bay).

4.1.6 Climate related considerations

1003. Climate change may have significant impacts to snapper, red gurnard and rig habitats and recruitment, particularly changes in water temperature, water circulation and associated changes in food supply and sources, and increased storm events and land-based inputs into the marine ecosystem. For example, preliminary findings by NIWA, suggests the likely cause of degradation of Separation Point high-biodiversity bryozoan bed is sediment from cyclone Gita. Separation Point bryozoan beds have been protected from bottom impact methods since 1980.

1004. A recent literature review on the effects of ocean acidification on New Zealand snapper[133] illustrates the potential impacts of ocean acidification and warming sea temperatures on sensory development of snapper. Increased acidic conditions has been shown to reduce hearing frequencies of snapper which may affect recruitment to suitable habitat. Warming seas have also been shown to reduce snapper olfactory senses and result in reduced response to predatory cues. As ocean acidification and sea temperatures increase we may see lower

[132] Cummings, V.J.; Lundquist, C.J.; Dunn, M.R; Francis, M.; Horn, P.; Law, C.; Pinkerton, M.H.; Sutton, P.; Tracey, D.; Hansen, L.; Mielbrecht, E. (2021). Assessment of potential effects of climate-related changes in coastal and offshore waters on New Zealand's seafood sector.
[133] Parsons, D.M.; Allan, B.J.M.; Bian, R.; Herbert, N.A; Gublin, Y.; McKenzie, J.R.; McMahon, S.J.; McQueen, D.E.; Pan, H.; Pether, S.; Radford, C.; Setiawan, A.N.; Munday, P.L. (2021). Ocean acidification and elevated temperature effects on snapper.

recruitment survival and increased predation on snapper.

1005. Despite this, recruitment over the last decade has been exceptionally good for snapper and red gurnard in FMA 7, suggesting that environmental factors affecting egg and larval survival in the ocean have been favourable and have had a positive influence on the number of fertilised eggs surviving to adulthood.

4.2 Sustainability measures (section 11 of the Act)

1006. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

1007. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to SNA 7, GUR 7 and SPO 7, the natural variability of the stock concerned, and any relevant fisheries plans.

1008. The following plans and strategies are relevant for SNA 7, GUR 7 and SPO 7.

4.2.1 Draft National Inshore Finfish Fisheries Plan

1009. Although not yet approved under section 11A of the Act[134], the National Inshore Finfish Fisheries Plan (the Plan) provides guidance on FNZ's management strategies for inshore finfish stocks including SNA 7, GUR 7 and SPO 7. The Plan outlines the management objectives and strategies for finfish fisheries for the next five years and was consulted on in early 2020.

1010. 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.

1011. SNA 7 is categorised as a Group 1 stock in the Plan. Group 1 stocks are those that provide the greatest benefit and are highly desirable to all sectors. They are managed to maximise the level of use while mitigating the increased risk to their sustainability as a consequence of high levels of fishing pressure. Stock status is determined using fully quantitative stock assessments to provide high levels of information, certainty of stock status and assurance that the stocks are sustainably managed.

1012. GUR 7 and SPO 7 are Group 2 stocks, which recognises the need to manage to provide for moderate levels of use with moderate levels of information to monitor its stock status (e.g., a partial quantitative assessment based on trends in relative abundance and B_{MSY} proxy target levels based on accepted reference periods or less frequent fully quantitative stock assessments).

1013. The plan also identifies FNZ's five key focus areas that provide direction for the management of inshore fisheries. Those being: managing individual stocks, enhancing benefits for customary, commercial and recreational fisheries, enabling integrated multi-stock management, improving local fisheries, and improving environmental performance.

1014. The multi-species approach of this paper is a step towards multi-stock management whereby we have considered more explicitly the interdependences of these three stocks, and others, that are caught together.

[134] Therefore, under section 11(2A), you are not required to take it into account.

4.2.2 Regional Plans – s11(2)(a)

1015. There are two regional councils and three unitary authorities that have coastline within SNA 7, GUR 7 and SPO 7 boundaries. These are West Coast, Tasman, Nelson, Marlborough and Canterbury. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems and habitats.

1016. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235). FNZ considers that the proposed management options presented are in keeping with the objectives of relevant regional plans.

1017. Fishers are subject to the provisions in the plans (for example, small scale restrictions on fishing methods in the Marlborough Sounds[135]) which you are to have regard to under section 11 of the Act. FNZ considers that the small scale of the restrictions in relation to the large management areas of SNA 7, GUR 7 and SPO 7, and their location within existing trawl restrictions, means these rules do not, in general, stop fishers taking their catch from other areas within the QMA.

1018. The FNZ Coastal Planning Team engages with the RMA coastal planning processes (including regional authorities) to support marine management decisions to manage not only the fishing effects on the coastal environment but also land-based impacts on fisheries.

4.2.3 National Plan of Action for Sharks

1019. The National Plan of Action for Sharks (NPOA Sharks) is relevant to rig. As an elasmobranch (cartilaginous fish, including sharks, skates, and rays), rig is included in the NPOA Sharks. The NPOA Sharks considers the biological characteristics of rig in terms of its vulnerability to fishing pressure and the connectivity of rig stocks.

1020. One of the goals of the NPOA Sharks is to maintain the biodiversity and long-term viability of New Zealand shark populations, based on a risk assessment framework, including maintaining those species in the QMS at or above target.

5 Submissions

1021. There were 24 submissions and responses on the proposed changes to SNA 7, GUR 7 and SPO 7 (Table 6). Tangata whenua responses were mixed, as was feedback on the request from some recreational fishers to increase the snapper limit in the Marlborough Sounds. Recreational fishers generally supported the *status quo*, one organisation presented an alternative option for snapper. Commercial organisations supported Option 2 and environmental interests supported Option 1.

[135] A prohibition on dredge and trawl fishing methods in numerous marine sites of ecological significance.

Table 6: Written submissions and responses received for SNA 7, GUR 7 & SPO 7.

Submitter	Option Support			
	1	2	Other	
B. Sheehan			✓	Did not comment on TAC options. Does not support an increase in bag limit for snapper in the Marlborough Sounds.
C. Robertson	✓			Concerned that an increase in TACC may reduce the availability of snapper for recreational fishing and decrease the CPUE for commercial fishers. Considers the *status quo* provides best for social, economic and cultural wellbeing. Concerned that increased commercial effort could impact on the benthic environment. Does not support an increase in the recreational daily limit for snapper in the Marlborough Sounds. Noting 3 per person is enough for a feed
Environment and Conservation Organisations of NZ inc. (ECO)	✓			Supports a cautious approach with the lowest risk to the stock, and wider ecosystem (Option 1 for each of the stocks).
E. Jorgensen	✓	✓	✓	Supports Option 2 (with caution) for SNA 7. Notes a relatively high increase of TACC since October 2016 and recommends caution for any potential future increases due to re-distribution of finfish species throughout FMAs in response to climate change. Would like the proposed TAC to be long term to enable the fishery to 'settle'. Supports Option 2 for GUR 7 but questions the long-term sustainability of sustained incremental increases of GUR 7. Supports Option 1 for SPO 7. Noting an increase in abundance and recreational catch of rig on the East Coast of FMA 7 (Cape Campbell to Cape Jackson). Does not support an increase in snapper bag limit for the Marlborough Sounds.
Fish Mainland	✓			Acknowledge the importance of the species that make up the FMA 7 mixed trawl fishery. Notes these species are becoming increasingly more important for recreational fishers as blue cod restrictions increase. Questions why there has not been an increase in recreational catch with the last two TAC and TACC increases.
A. Crossland	✓			Supports Fish Mainland's submission
A. Reay	✓			Supports Fish Mainland's submission
B. Capill	✓			Supports Fish Mainland's submission
B. & G. Stewart	✓			Supports Fish Mainland's submission
B. Reay	✓			Supports Fish Mainland's submission
D. Broome	✓			Supports Fish Mainland's submission
G. McInnes	✓			Supports Fish Mainland's submission
M. Lamb	✓			Supports Fish Mainland's submission
R. A. Meikle	✓			Supports Fish Mainland's submission
L. Brewer	✓			Supports *status quo*. Is concerned about lack of large fish in the trawl survey, and that the projections are based on 2017 and 2018 year classes which are too small to be targeted by both commercial and recreational fishers and should not be included in the biomass that can be caught. Suggests closing the top end of Tasman Bay (the voluntary no trawl line) for commercial trawling and recreational longlining – noting this would also protect marine mammals and birds, and fish spawning. Notes it is an important part of New Zealand's culture for New Zealanders to be able to catch a meal.
Rangitāne Holdings Limited	✓			Support reductions in TACC where applicable otherwise support *status quo*
R. Rolston			✓	Does not support an increase in snapper recreational daily limit in the Marlborough Sounds. Many local fishers agree that 3 per person for the Marlborough Sounds is adequate.
R. Withel			✓	Does not support an increase in snapper limit in the Marlborough Sounds. While snapper is improving it is prudent to keep it at 3 per fisher at this time.

Royale Portage Bay Boating Club			✓	Does not support an increase in daily limit for snapper in the Marlborough Sounds. Several annual snapper fishing competitions shows more fish are being caught in the last 5 years, but they are of small size. Would like to see fishery continue to rebuild and considers 3 fish per person adequate.
Southern Inshore Fisheries Management Company (SIF) Endorsed by: Fisheries Inshore New Zealand		✓		Agree with interdependencies between certain stocks but notes these can be fluid so should not remain prescriptive. Encourages reviews of all abundant stocks. Agrees with Option 2 for all stocks and notes the snapper rebuild is supported by science-based evidence. Notes, Fishers have moved from 100mm to 150mm codends to assist with the selectivity away from smaller fish and other fishstocks, and that vessel numbers have reduced by two-thirds. Advises that fishers are still struggling to avoid snapper. Option 2 allows for increased utilisation opportunities in a fishery that has increasing biomass across multiple species.
Te Ohu Kaimoana Endorsed by: –Maruehi Fisheries Ltd –Ngaruahine Fisheries Ltd –Raukawa Asset Holding Co Ltd –Taranaki Iwi Fisheries Ltd –Te Atiawa (Taranaki) Holdings Ltd –Te Paataka o Tangaroa Ltd –Whanganui Iwi Fisheries Ltd		✓		Supports Option 2 for all stocks but notes caution and continued monitoring of rig to ensure its sustainability.
Tama Asset Holding Company Ltd		✓		Supports Te Ohu Kaimoana's approach for all three stocks.
The New Zealand Sport Fishing Council (LegaSea, NZ Angling & Casting and NZ Underwater)	✓		✓	Supports *status quo* for red gurnard and rig. Recommended an alternative option for snapper with a lower TAC and TACC, and higher recreational allowance (see under Heading 6.4 of this chapter below for more details on this proposed option). Would like changes to the individual recreational daily limits applying in FMA 7 (see under Heading 6.5 *Other matters raised* for more details).
T. Robinson	✓			Considers the stocks have not recovered enough to warrant any increase but notes they are holding out well therefore no reduction is needed either. Would like a longer time period to make a more informed decision.
Total	17	4	6	

6 Options and analysis

1022. There are no alternative management targets for SNA 7, GUR 7 and SPO 7, therefore, the HSS default target applies to these stocks. As SNA 7 is very likely to be at or above target, and GUR 7 is virtually certain to be at or above target the options provided below for snapper and red gurnard are being considered under section 13(2)(c) of the Act. As SPO 7 is about a likely as not to be at or above target section 13(2)(a) applies.

1023. The following options provide different ways and rates of managing the three stocks at or above Maximum Sustainable Yield.

6.1 Option 1 – *status quo*

Stock	TAC	TACC	Customary	Recreational	Other mortality
SNA 7	645 t	350 t	20 t	250 t	25 t
GUR 7	1,422 t	1,298 t	17 t	42 t	65 t
SPO 7	373 t	298 t	15 t	33 t	27 t

1024. Option 1 for all three stocks retains the current TAC and other settings. This option manages snapper and red gurnard at much higher abundance levels than the default HSS management targets (40% B_0 and 35% B_0 respectively) and has a greater likelihood of maintaining rig at its default management target.

1025. Option 1 maintains the other mortality allowances at various proportions of the TACC (refer to Heading 2.4). Further consideration of setting an appropriate other mortality allowance could occur once further research and the landings and discards policy being considered through the Fisheries Amendment Bill process is completed. ECO in its submission has commented it looks forward to a review of other mortality in inshore fisheries, noting that the default figure needs to consider both seen and unseen mortality.

1026. Te Waka a Māui me Ōna Toka Iwi Forum and Rangitāne Holdings Limited support options that are the *status quo* or less to provide for future generations. ECO supports the *status quo* for each of the stocks as a cautious approach with the lowest risk to the stock, and wider ecosystem. Fish Mainland along with the support of nine individuals also supports the *status quo* on the basis that these species are becoming more important for recreational fishers as blue cod restrictions increase.

1027. The New Zealand Sports Fishing Council supports the *status quo* as a precautionary approach for red gurnard and rig. It considers that the proposed increases to TACC risk over catch of other species taken in the mixed trawl (e.g., tarakihi, John dory and flatfish). The *status quo* for rig was also the preferred option from E. Jorgensen who has observed, and been advised by others, that rig abundance has continued to increase on the east coast of FMA 7 (Cape Campbell to Cape Jackson area).

SNA 7

1028. Snapper in SNA 7 is experiencing a period of high productivity with successive strong recruitment pulses. Maintaining the *status quo* for SNA 7 is likely to significantly constrain commercial catch and result in a loss of utilisation opportunity. Bycatch of snapper will increase, but without a corresponding increase in the TACC commercial fishers will likely incur significant deemed values costs to cover this catch; due to inability to avoid given snappers high abundance.

1029. Under the *status quo* (with no increase to the TACC) recreational catch will continue to increase further as the sector will likely benefit from the fish staying in the water longer, increasing in size and being more accessible (this may also, however, occur under Options 2 and 3 for snapper as the stock is expected to also remain well above target under these options).

1030. Fish Mainland has questioned in its submission why the recreational allowance for snapper was not increased with the last two increases to the TACC. FNZ notes that the recreational allowance set by the Minister in 2020 took into account that recreational catch is rapidly increasing (Figure 10) and set an allowance of 250 tonnes which was well above the NPS estimate of 147 tonnes. On this basis FNZ does not consider a further increase to the allowance is appropriate.

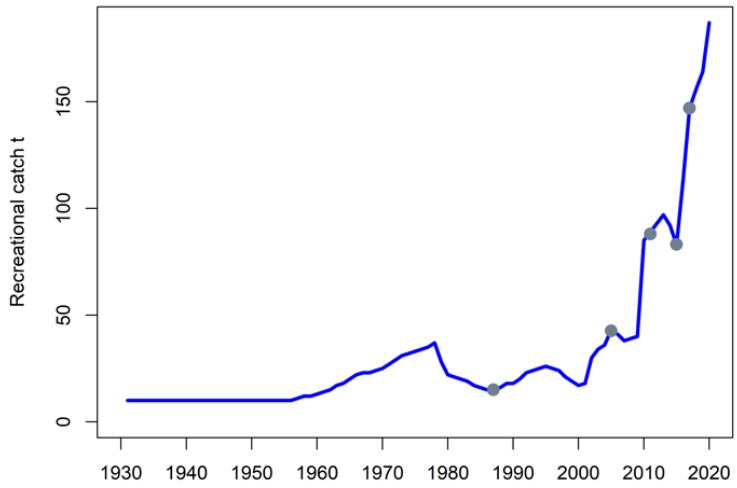


Figure 10: Recreational catch histories for SNA 7 (in tonnes) included in the stock assessment models. The grey points represent the survey estimates of recreational catch.

1031. In 2021, you signalled your interest in managing the SNA 8 snapper fishery at a higher level of abundance (e.g., above B_{MSY}), but did not choose a particular management target. The most recent (2021) stock assessment estimates SNA 7 is at 63% B_0 which is projected to continue to increase over the next five years under the current TACC and projected increasing recreational catch. All options in this paper are expected to maintain SNA 7 at a high level of abundance to differing degrees.

GUR 7

1032. Like snapper, red gurnard in GUR 7 is experiencing a period of high productivity with successive recruitment pulses. Maintaining the current management settings will constrain catch, forego a utilisation opportunity and likely incur significant costs to the fishing industry. Unlike snapper, red gurnard has a high turnover of generations (e.g., shorter life span and higher natural mortality[136]). This means they are less likely to remain in the fishery for future use for an extended period and maintaining the *status quo* will result in the loss of a utilisation.

1033. Retaining the *status quo* does, however, reduce the likelihood of increased bycatch of snapper and rig in FMA 7. It will also provide benefits to the recreational sector from more fish in the water and greater accessibility.

SPO 7

1034. Rig are a low productivity species and are more vulnerable to overfishing than red gurnard and snapper. New Zealand has international obligations under the NPOA Sharks to maintain elasmobranchs at or above target. The NPOA Sharks sets goals and objectives for maintaining the biodiversity and long-term viability of New Zealand shark populations.

1035. Under Option 1, there is a greater likelihood that SPO 7 will be maintained at or move above its default management target, in part because the recreational allowance will remain higher than actual catch. ECO submits that the default management targets are too low for shark species, including rig.

1036. If you decide it is appropriate to increase the TAC and TACC for one of the other stocks under review (particularly red gurnard) it is likely that bycatch of rig will increase. Fishers can return rig back to sea provided they are likely to survive rather than pay deemed values. Southern Inshore Fisheries Management Company (SIF) considers if the TACC is set appropriately such

[136] 31% for GUR 7 compared with 7.5% for SNA 7.

a mechanism should not be required. Fishers report the rig fishery is strong and CPUE is increasing and note the trawl survey does not fully sample rig in SPO 7 (it does not capture large females). SIF is concerned that rig could become a 'choke' species that will cause economic impacts through the need to pay deemed values.

6.2 Option 2

1037. Option 2 provides an increase to the TAC and the TACC of snapper and red gurnard, and slightly reduces the TAC for rig (but within this TAC increases the TACC and reduces the recreational allowance). It standardises the other mortality allowance to 5% of the TACC for each stock reflecting improved fishing practices and new restrictions on setnet use out to 4 nm.

1038. Te Tau Ihu Iwi Forum considers if the research justifies an increase, then a TAC increase should be considered. Te Ohu Kaimoana, E. Jorgensen, Tama Asset Holding Company, SIF and Fisheries Inshore New Zealand all support Option 2. These organisations acknowledge the health and abundance of the snapper and red gurnard fisheries (and to a lesser extent rig) provides a utilisation opportunity.

Stock	TAC	TACC	Customary	Recreational	Other mortality
SNA 7	743 t (↑ 98 t)	450 t (↑ 100 t)	20 t –	250 t –	23 t (↓ 2 t)
GUR 7	1,582 t (↑ 160 t)	1,450 t (↑ 152 t)	17 t –	42 t –	73 t (↑ 8 t)
SPO 7	371 t (↓ 2 t)	315 t (↑ 17 t)	15 t –	25 t (↓ 8 t)	16 t (↓ 11 t)

SNA 7

1039. Option 2 takes into account the new stock assessment for SNA 7 and that its status is very likely (>90%) to be at or above target. It provides a utilisation opportunity for commercial fishers in a time of high abundance of snapper in SNA 7. Even under the most precautionary stock projection, the TAC increase proposed under Option 2 is expected to maintain the biomass of SNA 7 well above its management target until at least 2025.

1040. Given the importance of the SNA 7 fishery to all sectors, FNZ brought local fishing sector representatives together in the lead up to this review. All sectors noted the challenges currently faced by industry in avoiding snapper given its high abundance, the success of the recreational sector resulting from higher abundance of snapper in this rebuilt fishery, and the high quality of the science that informs management decisions. There is a strong commitment from FNZ and sector representatives to continue discussions on management targets for SNA 7 in this mixed fishery. ECO does not support management targets below 50% B_0. The additional 100 tonne TACC proposed under this option has been analysed through the SNA 7 stock assessment model[137]. FNZ notes even at the lower and more precautionary range of biomass estimates (25th percentile), the proposed increase is expected to retain the stock above 70% B_0 (see Table 7). This is well above both the default management target of 40% B_0 and ECO's preferred 50% B_0.

Table 7: Projections showing with an increase of 100 t (+10% unreported) to the TACC SNA 7 biomass is estimated to remain at least 70% of B_0 until at least 2025/26.

Model option	SB_{2025}/B_0	$Pr(SB_{2025} > X\% B_0)$		
		40%	45%	50%
Base	0.883	1.00	1.00	1.00
Lower 25% Quantile	0.719	1.00	0.99	0.98

[137] The projections followed the same method as that for the projections at current catch other than retaining the current level of TACC for the first year and increasing the TACC from 2022-23 and subsequent years.

1041. Based on the 2022/23 port prices[138], the proposed increases in TACC under Option 2 for snapper will generate a further $483,000 per year in commercial fishing revenue. It is important to note that port price is an average of what commercial fishers receive across a QMA, not what the fish is worth at market (which is higher). Nor does it reflect the income for Licensed Fish Receivers (including, wholesalers and/or processors) and retailers.

1042. FNZ considers that Option 2 is consistent with the Te Waipounamu Iwi Fisheries Forum Plan management objectives; particularly Objective 3 for SNA 7, to support environmentally responsible, productive, sustainable and culturally appropriate commercial fisheries that create long term commercial benefits and economic development opportunities for South Island Iwi. The proposed increase under Option 2 is responsive to current levels of abundance for snapper while still managing the stock to higher abundance. Managing to higher abundance provides for greater resilience of the stock and aligns with Te Waka a Māui me Ōna Toka Iwi Forum objective to provide for future generations.

1043. Option 2 also retains the current recreational allowance. The stock assessment projections show that recreational catch has significantly increased over the last few years and will likely continue to do so in response to availability and fisher success. As noted, however, FNZ considers the current recreational allowance is a reasonable estimate of recreational catch that takes this into account.

GUR 7

1044. The recent stock assessment for GUR 7 estimates the stock is virtually certain (>99%) to be at or above the management target (the spawning stock biomass is estimated to be at least 100% B_0).

1045. Option 2 provides a utilisation opportunity for commercial fishers in a time of high abundance of GUR 7. Projections are not available for GUR 7 that incorporate the proposed additional TACC, however, the stock's status suggests the risk of the stock moving below its management target before the next stock assessment (2025) is very low.

1046. Based on the 2022/23 port prices, the proposed increase in TACC for red gurnard will generate a further $354,000 per year in commercial fishing revenue to the commercial fisher. As noted, this is not what the fish is worth at market (which is higher) nor does it include revenue of wholesalers, processors and retailers.

1047. Option 2 proposes to retain the current recreational allowance for GUR 7. FNZ acknowledges that recreational catch has likely increased over the last few years and will likely continue to do so in response to availability and recreational fisher success. Recent increases to the recreational allowance have taken this into account and no further changes to the allowance for GUR 7 are proposed at this time.

1048. Te Waka a Māui me Ōna Toka Iwi Forum and Te Tahihu Iwi Forum have not provided any new information to suggest an increase to the customary allowance is needed. Option 2 is consistent with the Te Waipounamu Iwi Fisheries Forum Plan management objectives; particularly Objective 3 for GUR 7, to support environmentally responsible, productive, sustainable and culturally appropriate commercial fisheries that create long term commercial benefits and economic development opportunities for South Island Iwi.

[138] Port prices have been updated from the values presented in the consultation paper, based on the most recently available port price data for 2022-23.

SPO 7

1049. Option 2 slightly reduces the TAC for rig, and within this TAC reduces the recreational allowance to align it with the NPS estimate of recreational catch. It also reduces the other mortality allowance to take into account improved fishing practices and new restrictions on setnet use in FMA 7 by setting it at a standardised 5% of the TACC which is also used for SNA 7 and GUR 7. It would result in a small (5%) increase to the TACC.

1050. The recent stock assessment suggests SPO 7 is about as likely as not to be at or above the management target, which suggests the current TAC is set appropriately. There are sources of uncertainty associated with this assessment (the trawl survey results conflict with CPUE trends and lack of information on rig abundance during historic periods of heavy fishing). This uncertainty goes both ways (i.e., it could mean that stock status is underestimated or that it is overestimated). In addition, anecdotal feedback during consultation suggests that rig abundance has continued to increase on the east coast of FMA 7.

1051. Option 2 places weight on recreational catch declining in real terms because of recent set net bans and a preference by recreational fishers to target other species such as snapper and red gurnard. If this reduction does not eventuate, there is a greater likelihood of the TAC being exceeded under this option due to the proposed increase in the TACC. While this increase is modest this option carries a greater risk of moving SPO 7 below its target than Option 1. This is particularly relevant given rig's low productivity, its susceptibility to overfishing, and New Zealand's obligations under the NPOA Sharks.

1052. Rig is monitored by the biennial independent trawl survey, therefore, if a decline in abundance is observed in 2024 further management action could be considered to ensure rig remains at its target level.

1053. Option 2 would provide a small opportunity for commercial fishers to balance any increase in bycatch associated with increases in the TACC for snapper and red gurnard with ACE. The interdependencies between rig and red gurnard suggest that an increase in the red gurnard TACC may increase the bycatch of rig. However, there is limited scope to provide any increase to the TAC as the new stock assessment suggests SPO 7 is being managed appropriately at the current exploitation rate.

1054. Based on the 2022/23 port prices, the proposed increase in TACC for rig will generate a further $62,000 per year in commercial fishing revenue. As noted, this is not what the fish is worth at market (which is higher) nor does it include revenue of wholesalers, processors and retailers.

1055. Rig are a taonga species in the Te Waipounamu Iwi Fisheries Forum Plan. As a less cautious approach Option 2 for rig will support some but not all objectives of the Te Waipounamu Iwi Fisheries Forum Plan.

1056. Several submitters requested caution with managing this species and the need to continue monitoring of the fishery to ensure its sustainability.

6.3 Option 3 – new option for SNA 7

1057. Option 3 has been developed following further input from Te Waka a Māui and Te Tau Ihu Iwi Forums and submissions received during consultation.

Stock	TAC	TACC	Customary	Recreational	Other mortality
SNA 7	768 t (↑ 123 t)	450 t (↑ 100 t)	30 t (↑ 10 t)	250 t –	38 t (↑ 13 t)

1058. Te Waka a Māui Iwi forum generally supports the *status quo* for these stocks, including for SNA 7, emphasising the need to provide for future generations. It also advised the customary allowance should be around 50% of the recreational allowance on the basis it cannot anticipate the whanau need for any given year but requires flexibility to be able to provide as needed. It advised that Kaitiaki are encouraging customary authorisation holders not to take their recreational allowance when fishing under a customary authorisation to maintain a better record of catch. On the other hand, Te Tau Ihu Iwi forum advised that if the research justifies an increase in the TAC for SNA 7 then it should be considered.

1059. The combined submission from the New Zealand Sports Fishing Council put forward an alternative option for snapper (discussed further under Heading 6.4 below) on the basis that FNZ's consultation proposal to reduce the other mortality allowance is illogical and that it should be set at a minimum of 10% of the TACC. They refer to the Heron report (2016) which suggested significant unreported discarding and also the stock assessment's use of a 10% allowance for other mortality for SNA 7. E. Jorgensen also raises concern that the other mortality allowance is applied as a percentage of the TACC when there is mortality associated with the recreational sector, such as the return of under-sized fish, high grading that needs to be accounted for.

1060. FNZ has considered the views of tangata whenua and all submitters and has included Option 3. This modifies Option 2 by increasing the customary allowance by 10 tonnes, and the other mortality allowance by 13 tonnes to approximately 5% of the TAC (8.4% of the TACC).

1061. FNZ notes the level of customary harvest is uncertain in FMA 7, but that Te Waka a Māui Iwi forum has not provided any information that it is currently at a level that would justify setting it at 50% of the recreational allowance as they have requested. We note the allowance does not limit the amount of catch which kaitiaki can authorise to provide for their increased need.

1062. The increase to the other mortality allowance acknowledges that recreational mortality does occur (FNZ is also aware of the catch and release of trophy fish[139]). It also takes into account, however, that there have been changes to gear and fishing practises in commercial fishing in SNA 7 including larger cod-end mesh, and fishing deeper to avoid unwanted catch. In terms of the 10% allowance used in the stock assessment model this relates to assumed under-reporting of the total landed catch for the period 1987-2020[140]. It does not represent an estimate of current mortality given recent improvements in fishing gear and practises. Option 3, therefore, provides an intermediate approach until further research is completed and the conclusion of the Fisheries Amendment Bill process.

6.4 Other options proposed by submitters

1063. The New Zealand Sports Fishing Council questioned in its submissions why only two options were proposed for the three stocks being reviewed and not a range of options. FNZ provided these on the basis that they provided a reasonable range of potential options, which could be modified for your consideration by new information provided in submissions.

1064. The New Zealand Sport Fishing Council proposed the following alternative option for SNA 7.

Stock	TAC	TACC	Customary	Recreational	Other mortality
SNA 7	688 t ↑ (43 t)	380 t ↑ (30 t)	20 t –	250 t –	38 t ↑ (13 t)

[139] Trophy fish are those large fish that fishers photograph then release but their survivability is unknown and dependant on handling practices.
[140] Pre-QMS unreported landings was considered about 20%.

1065. This option would provide a smaller utilisation opportunity for the commercial sector, with potentially greater benefit to the recreational sector through managing the stock at even higher abundance than Option 2. As noted, FNZ has included the other mortality component of this option in the new Option 3 for SNA.

6.5 Other matters raised

Proposal to increase Marlborough Sounds snapper recreational daily limit

1066. During consultation, FNZ sought wider feedback on the Marlborough Recreational Fishers Association (MRFA) proposal to increase the snapper recreational daily limit for the Marlborough Sounds area from 3 per fisher per day to 6 per fisher per day. MRFA also requested in its proposal that the rest of SNA 7 (including Tasman and Golden bays) have a decrease in bag limit from 10 to 6 per fisher.

1067. Feedback on this proposal was mixed. The New Zealand Sports Fishing Council supported the MFRA's proposal in its entirety[141]. However, some local fishers and the Royale Portage Bay Boating Club (also located in the Marlborough Sounds) do not support the proposed increase noting that while snapper appears to be improving, they remain small in size and they would like to see the fishery continue to rebuild. They also consider that 3 fish per day is adequate for the table.

1068. FNZ notes this mixed support for the proposed bag limit increase and also that:

- snapper in the Marlborough Sounds is considered a separate biological stock to that in Tasman and Golden Bay;
- less is known about the Marlborough Sounds population;
- the extent of range expansion from the increase in biomass in Tasman and Golden Bay and SNA 8 (western North Island) into the Marlborough Sounds is uncertain; and
- the mixed views received during consultation.

1069. Given this we consider there is inadequate information on the status of the Marlborough Sounds population to support a regulation review at this time. Boat ramp data, while only providing partial coverage of snapper in this area, suggests catch weight is still low for the Marlborough Sounds. FNZ is exploring ways to improve sampling of snapper recreational catch in the Marlborough Sounds to inform future regulatory decisions and will seek to discuss how this might occur with MRFA.

Climate change influences and management strategies

1070. E. Jorgensen notes the impacts of climate change and marine heatwaves on the movement and potential distribution shifts of finfish species throughout different FMA's. They consider it is becoming less appropriate to consider SNA 7 alone and consideration needs to be given to the impacts on snapper populations on the entire West Coast.

1071. New Zealand Sports Fishing Council considers it is impractical to maximise catch in a mixed species fishery when the availability and productivity of the species are so dissimilar. It considers in these circumstances it will always be necessary to leave a dominant species (such as snapper) in the water in order to protect more vulnerable/ lower productivity species from depletion.

1072. FNZ acknowledges this challenge. The draft Inshore Finfish Fisheries Plan sets out how FNZ proposes to advance multi-stock management of complexes where several different stocks are

[141] Both the increase for the Marlborough Sounds and a decrease for the rest of SNA 7, including Tasman and Golden bays and the west coast of the South Island.

caught together. Through FNZ's research services and sector engagement FNZ will continue to develop this approach.

Facilitate the transition from bulk harvesting methods

1073. New Zealand Sports Fishing Council supports the shift toward more holistic management of our oceans. It recommends the transition of snapper and rig fisheries in FMA 7 to commercial bottom longlining. It acknowledges some fishers are actively trying to reduce their environmental impact from trawling but considers a transition is necessary for a decarbonised fishing industry under the New Zealand Emissions Reduction Plan (2022). ECO and some individuals also raise concerns of bottom trawling on the environment.

7 Deemed values

1074. FNZ did not propose a change in the deemed values for SNA 7, GUR 7 and SPO 7 during consultation. Southern Inshore Fisheries Management Company raised concerns about the deemed values that could be incurred for rig if there is not an increase in TACC given the increase in CPUE commercial fishers are experiencing in this fishery. The deemed value rates of SNA 7 are shown in Table 8. GUR 7 and SPO 7 are in Table 9.

Table 8: Standard deemed value rates ($/kg) for SNA 7.

Stock	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)								
		100-110%	110-120%	120-130%	130-140%	140-150%	150-160%	160-170%	170-180%	180%+
SNA 7	5.40	6.00	6.75	7.50	8.25	9.00	9.75	10.50	11.25	12.00

Table 9: Standard deemed value rates ($/kg) for GUR 7 and SPO 7.

Stock	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	200%+
GUR 7	1.53	1.70	2.04	2.38	2.72	3.06	3.40
SPO 7	2.70	3.00	3.60	4.20	4.80	5.40	6.00

1075. The average price paid by fishers during the 2020/21 fishing year for one kilogram of ACE for SNA 7 was $3.49, GUR 7 was $0.75 per kg, and SPO 7 was $2.09. The 2022/23 port price index for SNA 7 was $4.83, GUR 7 is $2.33 per kg, and SPO 7 is $3.65.

1076. As the current deemed value rates are set above the average ACE price and FNZ is satisfied that these deemed value rates are consistent with your mandatory statutory consideration under section 75(2)(a) of the Act (in that they provide sufficient incentive for fishers to balance their catch with ACE), FNZ is not proposing a change in the deemed values at this time.

1077. FNZ will, however, monitor the impact of your decision for rig in relation to deemed value costs and review in the future if necessary.

8 Conclusions and recommendations

1078. SNA 7 is very likely to be at or above target, GUR 7 is virtually certain to be at or above target, and SPO 7 is about as likely as not to be at or above target. All options provided in this paper provide different ways and rates of managing these stocks at or towards Maximum Sustainable Yield.

1079. Feedback was mixed with tangata whenua and each sector advocating different management approaches.

1080. Option 1 maintains the *status quo* for all three stocks and takes a very cautious management approach for SNA 7 and GUR 7. Option 1 forgoes a commercial utilisation opportunity and manages snapper and red gurnard at very high levels of abundance that are likely to be well above the management target. It provides the greatest likelihood of maintaining SPO 7 at or above target (primarily because recreational allowance is greater than actual catch) and of New Zealand meeting its international obligations under the NPOA sharks.

1081. Option 2 provides a utilisation opportunity for the commercial sector while still maintaining snapper and red gurnard well above their respective management targets. It acknowledges that with an increase in TACC of snapper and red gurnard bycatch of rig is likely to increase. It is FNZ's preferred option for SNA 7 and GUR 7.

1082. This option is likely to represent a less cautious approach to the management of rig, however, as it increases the TACC and reduces the recreational allowance and other sources of mortality allowance. Because rig has been assessed to be about as likely as not to be at or above target there is a risk that any additional take (which is more certain by the commercial sector and noting the recreational allowance is likely greater than actual catch) could move the stock below target. However, this is a well monitored fishery and if the risk eventuates immediate management action can be taken after the next WCSI trawl survey in 2023.

1083. New Option 3 for snapper in SNA 7 takes into account tangata whenua's commitment to the fishery and their desirability to provide for unpredictable whanau need within a given year. It would set a higher allowance for other sources mortality caused by fishing, in response to submitter's feedback, pending further research and the implementation of landings and discard policy being considered through the Fisheries Amendment Bill process.

1084. The proposed options for the three fish stocks will have varying environmental effects. They would generally allow for more efficient harvesting (less avoidance behaviour and less use of deemed values), rather than significantly increasing fishing effort.

9 Decision for Snapper - SNA 7

Option 1

Agree to set the SNA 7 TAC at 645 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Retain the allowance for recreational fishing interests at 250 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 25 tonnes;
iv. Retain the SNA 7 TACC at 350 tonnes.

~~Agreed / Agreed as Amended~~ / **Not Agreed**

OR

Option 2

Agree to set the SNA 7 TAC at 743 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Retain the allowance for recreational fishing interests at 250 tonnes;
iii. Decrease the allowance for all other sources of mortality to the stock caused by fishing from 25 to 23 tonnes;
iv. Increase the SNA 7 TACC from 350 to 450 tonnes.

~~Agreed / Agreed as Amended~~ / **Not Agreed**

OR

Option 3 *(Fisheries New Zealand preferred option)*

Agree to set the SNA 7 TAC at 768 tonnes and within the TAC:

i. Increase the allowance for Māori customary non-commercial fishing interests from 20 tonnes to 30 tonnes;
ii. Retain the allowance for recreational fishing interests at 250 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 25 to 38 tonnes;
iv. Increase the SNA 7 TACC from 350 to 450 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

10 Decision for Red Gurnard - GUR 7

Option 1

Agree to set the GUR 7 TAC at 1,422 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 17 tonnes;
ii. Retain the allowance for recreational fishing interests at 42 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 65 tonnes;
iv. Retain the GUR 7 TACC at 1,298 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(Fisheries New Zealand preferred option)*

Agree to set the GUR 7 TAC at 1,582 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 17 tonnes;
ii. Retain the allowance for recreational fishing interests at 42 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 65 to 73 tonnes;
iv. Increase the GUR 7 TACC from 1,298 to 1,450 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

11 Decision for Rig - SPO 7

Option 1 *(Fisheries New Zealand preferred option)*

Agree to set the SPO 7 TAC at 373 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 15 tonnes;
ii. Retain the allowance for recreational fishing interests at 33 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 27 tonnes;
iv. Retain the SPO 7 TACC at 298 tonnes.

Agreed / ~~Agreed as Amended~~ / ~~Not Agreed~~

OR

Option 2

Agree to set the SPO 7 TAC at 371 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 15 tonnes;
ii. Decrease the allowance for recreational fishing interests from 33 to 25 tonnes;
iii. Decrease the allowance for all other sources of mortality to the stock caused by fishing from 27 to 16 tonnes;
iv. Increase the SPO 7 TACC from 298 to 315 tonnes.

~~Agreed~~ / ~~Agreed as Amended~~ / Not Agreed

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

Red gurnard (GUR 3) - East Coast South Island, Chatham Rise, Sub-Antarctic, Southland, Rakiura and Fiordland

Chelidonichthys kumu, kumukumu, pūwhaiau

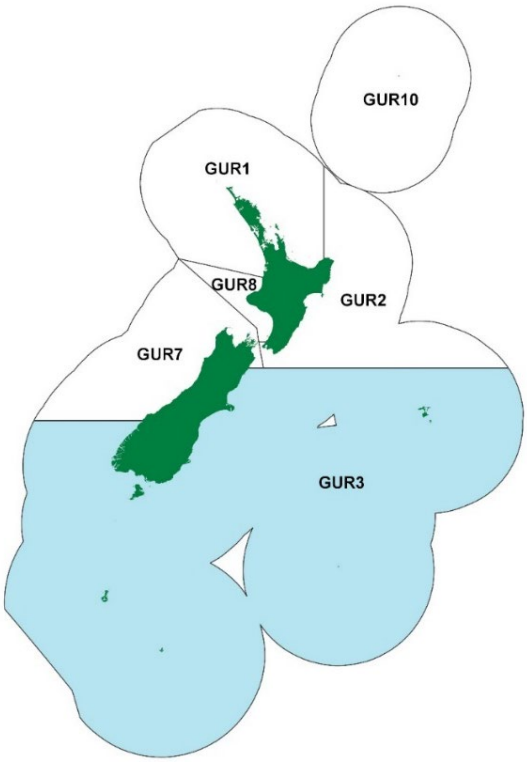


Figure 1: Quota Management Areas (QMAs) for Red Gurnard (GUR 3), with GUR 3 highlighted in blue.

Table 1: Summary of options proposed for GUR 3 from 1 October 2022. Figures are all in tonnes. The preferred option of Fisheries New Zealand is highlighted in blue.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 *(Status quo)*	1614	1500	3	6	105
Option 2	1695 ↑ (81 t)	1575 ↑ (75 t)	3	6	111 ↑ (6 t)
Option 3 (new)	1774 ↑ (160 t)	1650 ↑ (150 t)	3	6	115 ↑ (10 t)

In total 16 submissions were received on the proposed options.

1 Why are we proposing a review?

1085. A recent stock assessment and anecdotal information suggest that there is a utilisation opportunity for GUR 3. In May 2022, GUR 3 had its first fully quantitative stock assessment which has been reviewed by FNZ inshore science working group. This determined GUR 3 is virtually certain (>99%) to be at or above the target biomass and that overfishing is very unlikely (<10%) to be occurring.

1086. FNZ is advising on options to either retain the *status quo* or to increase the TAC, allowances, and the TACC to provide a utilisation opportunity for this stock currently experiencing a period of high productivity.

1.1 About the stock

1.1.1 Fishery characteristics

1087. Red gurnard is a common species predominately caught in the Fisheries Management Area 3 (FMA 3) inshore mixed species trawl fishery along with flatfish, elephant fish, red cod, tarakihi, blue moki, rig, barracouta, and leather jacket. Trawling is the main commercial method for red gurnard, there is also some Danish seining. Some gurnard is also taken in the offshore target tarakihi and giant stargazer bottom trawl fisheries. The level of targeting within the East Coast South Island (ECSI) multi species trawl fishery was historically low, averaging less than 10% but has increased to approximately 25% since 2017–18.

1088. Rod and line fishing is the preferred recreational fishing method in FMA 3, with some longlining and smaller amounts of other recreational methods (e.g., spear fishing).

1.1.2 Biology

1089. Red gurnard grow to a maximum length of 55 cm with females growing faster and larger than males. They have a maximum age of 16 years and reach maturity at 23 cm in length and 2-3 years of age. Spawning occurs in spring-summer.

1090. Red gurnard is found throughout New Zealand coastal waters at depths of 10-200 m. They feed mainly on shellfish, crustaceans, and crabs.

1.1.3 Management background

1091. GUR 3 entered the Quota Management System (QMS) in 1986 with a TACC of 480 tonnes. Through quota appeals the TACC was increased to 900 tonnes in 1996 and then decreased in 2001 to 800 tonnes. In 2012, the TAC and TACC were reviewed, and allowances were set. There have been three reviews and amendments to the management settings since then (2015, 2018 and 2020). Following the most recent review in 2020, the TAC and TACC were increased to 1614 tonnes and 1500 tonnes, respectively. There is a commercial preference for red gurnard over 27 cm with issues being identified with discarding of small red gurnard in the commercial inshore trawl fishery.

1.2 Status of the stock

1092. The first fully quantitative stock assessment of GUR 3 was completed in May 2022. Previously, GUR 3 was assessed using partial quantitative stock assessments based on standardised Catch Per Unit Effort (CPUE) indices. CPUE trends and the results of the fishery independent East Coast South Island (ECSI) trawl survey show an increase in abundance since 2000 with large confidence intervals (Figure 2). Abundance trends are also reflected in CPUE indices from Southland and Otago (Figure 3).

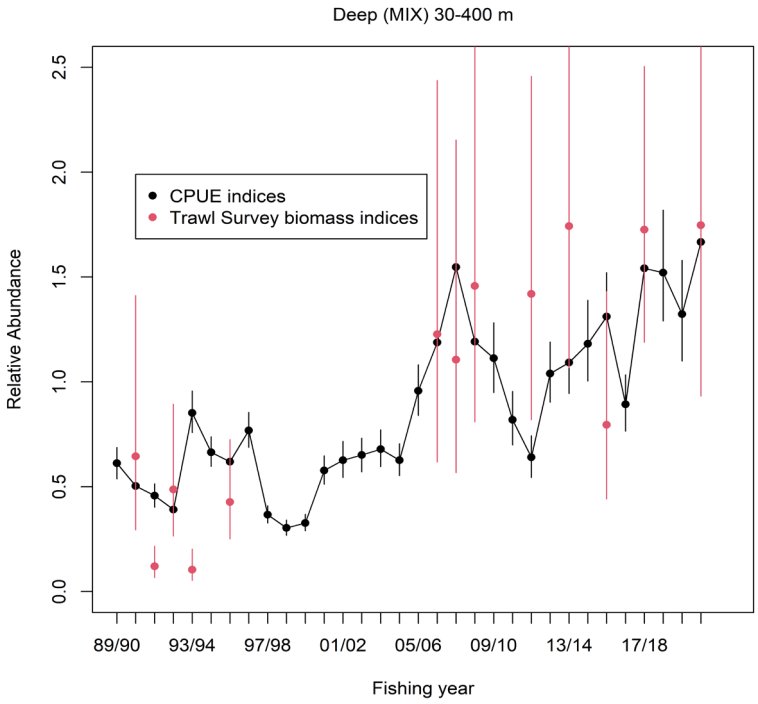


Figure 2: Standardised bottom trawl-mix CPUE indices and the east coast trawl survey biomass estimates for red gurnard from the 30–400 m depth range. Error bars show ±95% confidence intervals.

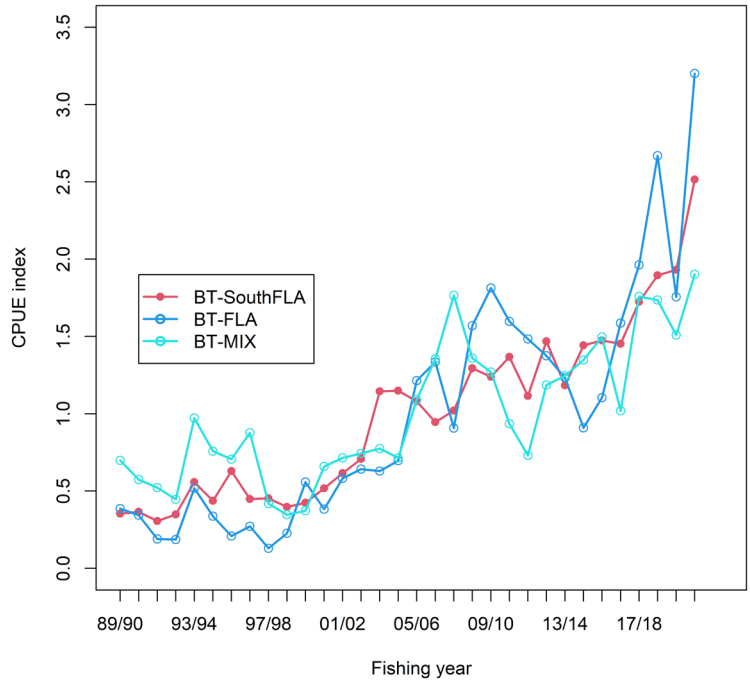


Figure 3: A comparison of the standardised red gurnard CPUE indices for bottom trawl mix (light blue), bottom trawl flatfish (dark blue) and Southland/Otago flatfish (red line) from 1989 to 2021.

1093. The 2022 quantitative stock assessment indicates that GUR 3 is very likely (>90%) to be above the target level of 35% of B_0. The stock status is also referenced against the default Harvest Strategy Standard soft limit of 20% and hard limit of 10%. Overfishing is very unlikely (<10%) to be occurring.

1094. GUR 3 is very unlikely (<10%) to be below the soft limit and exceptionally unlikely (<1%) to be below the hard limit. At current TAC settings, GUR 3 abundance is very likely (> 90%) to remain above the target biomass level over the next five years. The stock assessment was conducted using an age-structured population model. The assessment model estimates an upward trajectory in the stock above the interim target level (Figure 4).

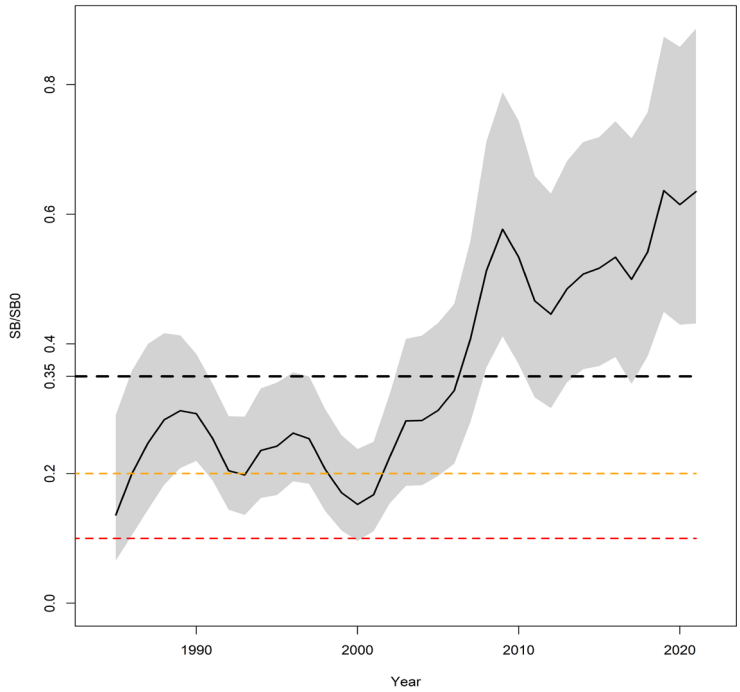


Figure 4: Annual biomass trend by year for GUR 3. The black solid line represents the median and the shaded area represents the 95% credible interval. The dashed line represents the interim target level (35% SB_0). The red and orange dashed lines represent the hard and soft biomass limits, respectively.

2 Catch information and current settings within the TAC

2.1 Commercial

1095. GUR 3 landings regularly exceeded the TACC between 1988–89 and 1995–96. Ageing of fish collected during the ECSI trawl surveys at this time suggests relatively strong recruitment year classes moving through the fishery. However, from the 1996–97 fishing year, landings declined. In 2002–03, the TACC for GUR 3 was reduced to 800 tonnes. Since 2000 catch has steadily increased and has been consistently overcaught since 2004 reaching catch levels previously attained in the 1960s (Figure 5).

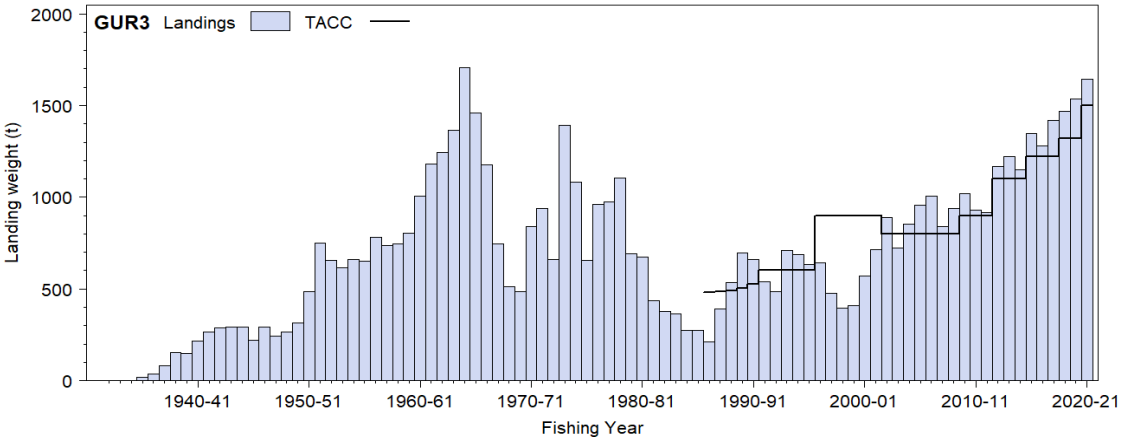


Figure 5: Reported commercial landings (in tonnes) and TACCs for GUR 3 (south east coast).

1096. Commercial fishing stakeholder groups (Southern Inshore Fisheries, and Fisheries Inshore New Zealand) have advised that commercial fishers find it difficult to avoid catching red gurnard in GUR 3 and that its abundance has increased over the last several years, especially along the East Coast of the South Island.

2.2 Customary Māori

1097. Under the Fisheries (South Island Customary Fishing) Regulations 1999, red gurnard (kumukumu, pūwhaiau) has been reported as taken in small amounts for GUR 3. The small amount of customary reporting may reflect that tangata whenua are using recreational fishing regulations for their harvest.

1098. The customary allowance for GUR 3 is currently set at three tonnes based on available information taken from annual reporting of customary authorisations.

2.3 Recreational

1099. Red gurnard is a popular recreational fish species across New Zealand. The main recreational fishing method is rod and line, and the recreational daily bag limit for red gurnard in GUR 3 is 30 per person per day as part of the mixed species daily limit. The recreational allowance for GUR 3 is currently set at 6 tonnes.

1100. Based on the National Panel Survey of Marine Recreational Fishers (NPS) (2017/18) catch decreased slightly between 2011/12 and 2017/18 surveys (Table 2) and is relatively low. Most fishers target blue cod or other species, usually in areas where red gurnard is not abundant.

Table 2: Summary of the National Panel Survey of Marine Recreational Fishers results from GUR 3 for red gurnard.

Fish stock	2011/12 Estimated harvest (tonnes)	CV (tonnes)	2017/18 Estimated harvest (tonnes)	CV (tonnes)
GUR 3	2.01	± 1.24	1.7	± 0.7

1101. The NPS is, however, a snapshot of fishing activity over a fishing year, and it is not appropriate to draw robust conclusions around increases or reductions in recreational harvest solely from this information. Factors such as weather, wind, swell, water temperature and fuel prices all determine how much fishing occurs in any given year.

2.4 All other mortality caused by fishing

1102. The allowance for other sources of mortality caused by fishing includes mortality associated with the requirement to return fish below the minimum legal size to sea and other mortality from fish escaping fishing gear, or illegal discarding.

1103. In 2020, the then Minister of Fisheries decreased the other mortality allowance for GUR 3 from a level equivalent to 20% of its TACC to a level equivalent to 7% of the TACC (264 to 105 tonnes). The decision noted the improvements in commercial fishing practices in FMA 3 (e.g., use of lighter gear and larger mesh size).

1104. There is no new information available to quantify all other mortality to the stock caused by fishing for GUR 3. As such, FNZ proposes to retain the allowance for other mortality at a level equivalent to 7% of the TACC.

3 Treaty of Waitangi Obligations

3.1 Input and participation of tangata whenua

1105. 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.

1106. Particular regard must be given to kaitiakitanga when making sustainability decisions.

1107. GUR 3 falls within the rohe of Te Waka a Māui me Ōna Toka Iwi Forum, the South Island iwi fisheries forum — it includes all nine Iwi of Te Wai Pounamu.

1108. Te Waka a Māui held a hui on 12 July 2022 and FNZ presented one-pagers at the hui for the South Island stocks under review, including GUR 3. There was no formal view from the forum on the proposal for GUR 3. The forum noted that it would support a submission from Ngai Tahu Seafoods (if deemed necessary by Ngai Tahu), but Ngai Tahu did not provide a submission on GUR 3.

3.2 Kaitiakitanga

1109. Kumukumu (red gurnard) is identified as a taonga species in the Te Waipounamu Iwi Forum Fisheries Plan. 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 2:** South Island Iwi are able to exercise kaitiakitanga;
- **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.

1110. FNZ considers the options proposed in this paper will not impact on, or be impacted by, the customary fisheries management areas in GUR 3. Commercial fishing for red gurnard is prohibited in mātaitai in GUR 3. There are no regulations relating to red gurnard in taiāpure.

1111. There was no specific feedback from tangata whenua on how the proposed options for GUR 3 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.

4 Environmental and Sustainability Considerations

4.1 Environmental principles (section 9 of the Act)

1112. The key environmental principles, which must be considered when considering sustainability measures for GUR 3 are as follows:

a) Associated or dependent species should be maintained above a level that ensures their long-term viability (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).

b) Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and

c) Habitats of particular significance for fisheries management should be protected.

1113. It is important to note that in some cases FNZ has made assumptions about environmental interactions based on fisher reported data that may not have been independently verified (for example by an on-board FNZ Observer). Observer coverage in GUR 3 has averaged below 5% in the past 5 fishing years based on event level data, with observer effort prioritised to monitor protected species interactions in fisheries considered to be higher risk.

1114. Increased uptake of cameras onboard vessels in GUR 3 will enhance FNZ's abilities to monitor environmental interactions in the fishery.

4.1.1 Marine mammals

1115. Marine mammals are sometimes accidentally caught during commercial fishing targeting red gurnard. Commercial fishers must file daily reports about what they have caught. FNZ is now releasing these reports quarterly (from the 2019/20 fishing year).

1116. In general, trawl fisheries have been assessed as posing a substantially lesser risk to dolphins than commercial set-net fisheries. The Hector's and Māui dolphin Threat Management Plan guides management approaches for addressing both non-fishing and fishing related impacts on Hector's and Māui dolphins. The risk to the dolphins from trawling around the South Island, including for GUR 3, is largely managed under the current trawl restrictions.

1117. Trawl gear is restricted outside 2 nautical miles from the coast between Cape Jackson in the Marlborough Sounds and Slope Point in the Catlin's – only trawl nets with defined low headline heights may be used. Existing restrictions along the east coast of the South Island are presented in the Table 3 below.

Table 3: Existing trawl restrictions along the east coast South Island.

East coast South Island	Method	Existing measures
Pegasus Bay	Trawl	Low headline height required on trawl vessels operating within 2 nm of shore.
Banks Peninsula to Timaru	Trawl	Low headline height required on trawl vessels operating within 2 nm of shore.

1118. New Zealand sea lions, New Zealand fur seals, common dolphins and other marine mammals inhabit the marine environment where gurnard are caught in GUR 3. These species periodically interact with trawl vessels. For inshore trawl vessels in 2019/20 three New Zealand Fur Seal deaths were reported by commercial fishers or observed by FNZ Observers in the GUR 3 area (see East Coast South Island). However, only around 6% of inshore trawls were observed, so the total number of interactions is uncertain.

1119. FNZ considers the number of incidental marine mammal captures is unlikely to increase under the options proposed in this paper as it is not expected that the amount of trawling or set netting will increase significantly.

4.1.2 Seabirds

1120. The most recent Spatially Explicit Fisheries Risk Assessment ranks black petrel as the most at risk seabird, followed by the Salvin's albatross, Westland petrel, flesh-footed shearwater, southern Buller's albatross, and Gibson's albatross[142].

1121. Seabird interactions with New Zealand's commercial fisheries are managed under the National Plan of Action (NPOA) - Seabirds 2020. The NPOA – Seabirds, with its focus on education and ensuring fishers take all practicable steps to minimise risk to seabirds, will drive significant

[142] Baird, S J., Mules, R (2021). Extent of bottom contact by commercial trawling and dredging in New Zealand waters, 1989–90 to 2018–19. New Zealand Aquatic Environment and Biodiversity Report No. 260.161

changes in fisher behaviour and help to ensure that fishing does not adversely impact on the health of seabird populations.

1122. FNZ and the fishing industry have worked collaboratively for over a decade, more recently for the inshore fleet, to ensure vessels have, and follow, a Protected Species Risk Management Plan (PSRMP). A PSRMP specifies the measures that must be followed on board each vessel to reduce the risk of incidental seabird captures. While there is no legal requirement that fishers have a PSRMP, more than 90% of the full-time vessels that operate in the GUR 3 trawl fishery have, and follow, one.

1123. For the inshore trawl fishery in 2019/20 for the East Coast South Island 12 seabird interactions (seven deaths, five released alive) were reported or observed. However, as described elsewhere, only a small proportion of trawls are observed by FNZ observers.

1124. FNZ considers the number of incidental seabird captures is unlikely to increase under the options as it is not expected that the amount of trawling or set netting will increase significantly.

4.1.3 Fish bycatch

1125. Fish and invertebrate bycatch information in the mixed trawl fishery is primarily from trawl surveys. Trawl surveys along the east coast of the South Island have captured more than 50 finfish species including spiny dogfish, red cod, barracouta, tarakihi, hake and Jack Mackerel. Invertebrates captured included sponges, mussels, octopus, and arrow squid.

1126. Increases to catch limits for GUR 3 will increase the ability of fishers to target this species and may allow them to avoid bycatch of other less abundant species with overlapping depth profiles. This is of particular importance for East Coast tarakihi as it is currently undergoing a rebuild due to low abundance. Tarakihi has a wide depth profile that includes many species including gurnard. Increasing the TACC for GUR 3 will allow fishers to move into shallower waters, away from traditional tarakihi habitat and undertake more targeted fishing.

4.1.4 Benthic impacts

1127. Bottom trawling can damage the marine environment; particularly where trawling occurs on biodiverse habitats. However, the proposed increase is modest and is not likely to significantly increase trawl effort as it reflects increased fish abundance and CPUE. Trawling in this fishery is also typically confined to areas that have been consistently fished over time (i.e., not areas of high biodiversity).

1128. Concerns have been raised about catch being taken in “hay paddocks” on the South east continental shelf. These are polychaete worm beds that are biologically sensitive, habitat forming areas and maybe vulnerable to disturbance from fishing. FNZ does not expect increases to the amount or location of bottom trawling. FNZ will closely monitor any increase in targeted fishing, by activity and location, and if an increase in fishing activity does occur, we can look at appropriate measures such as excluding fishing activity from the area to manage any issue that may arise.

1129. Aquatic Environment and Biodiversity research has characterised both New Zealand’s benthic environment and the level of benthic impact from fisheries activity (Aquatic Environment and Biodiversity Annual Review 2018). The environmental impacts of fishing are summarised annually by FNZ. FNZ will continue to monitor the bottom trawl footprint of fisheries.

1130. Overall, FNZ considers the increase to the catch limit proposed reflects increased fish abundance and CPUE and, therefore, is unlikely to increase impact on the benthic habitat.

4.1.5 Habitats of particular significance for fisheries management

1131. Red gurnard is broadly distributed in FMA 3 and 5 and there is limited information regarding what specific areas of habitat are of particular significance to the stocks. Some general habitats that could be regarded as particularly significant to GUR 3 are discussed in the table below.

Table 4: Summary of information on potential habitats of particular significance for GUR 3.

Stock	GUR 3
Habitat	Spawning areas are widespread throughout much of New Zealand, including in GUR 3. Running ripe gurnard are found throughout the fishery, however, general areas where spawning occurs include the Canterbury Bight and Pegasus Bay where high catches of juveniles suggest bays may be a spawning and nursery area which might supply the east coast of the South Island.
Attributes of habitat	Spawning areas are widespread throughout much of New Zealand, including in GUR 3. Most commonly in shallow coastal waters (inner and central shelf) over muddy or sandy bottoms. Egg and larval development occur in surface waters and it takes about 8 days before the larvae start to feed. Juvenile: Information suggests they prefer rough or weed covered ground in shallow embayment's.
Reasons for particular significance	• Successful spawning and development through juvenile stages is critical to supporting the productivity of the stock and ensuring juveniles recruit into the fishery. • Juvenile habitats are likely to provide shelter and protection from predation and harvesting, and suitable food while growth and development proceeds.
Risks/Threats	• Changes in water temperature and water circulation could impact spawning and egg/larval development. • Bottom contact fishing methods impacting biogenic habitats inshore. • Land-based impacts, for example sedimentation, on habitats with benthic structure and aquatic plants that provide juvenile habitat.

4.2 Sustainability measures (section 11 of the Act)

1132. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

1133. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to GUR 3, the natural variability of the stock concerned, and any relevant fisheries plans.

1134. The following plans and strategies are relevant for GUR 3.

4.2.1 Draft National Inshore Finfish Fisheries Plan

1135. Although not yet approved under section 11A of the Act[143], the National Inshore Finfish Fisheries Plan (the Plan) provides guidance on FNZ's management strategies for inshore finfish stocks including red gurnard. The Plan outlines the management objectives and strategies for finfish fisheries including GUR 3 for the next five years and was consulted on in early 2020.

1136. 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.

[143] Therefore, under section 11(2A), you are not required to take it into account.

1137. GUR 3 falls into Group 2, which recognises the FNZ intend to manage it to provide for moderate levels of use with moderate levels of information to monitor its stock status (i.e., a partial quantitative assessment comparing against trends over time). Given the importance of GUR 3 in the east coast mixed trawl fishery, a proposal by industry to manage GUR 3 as a Group 1 stock has been made and is being considered by fisheries management and science.

4.2.2 Regional Plans – s11(2)(a)

1138. Under the Resource Management Act 1991, there are several regional plans in place within GUR 3 to address the cumulative effects of activities in the coastal marine area, and the adverse impacts from land-based activities on the marine environment. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235). Councils with responsibilities in GUR 3 include Environment Canterbury, Otago Regional Council, Environment Southland, and the Chatham Islands.

1139. Fishers are subject to the rules in the plans (for example, small scale restrictions on fishing methods in Fiordland). FNZ considers that the small scale of the restrictions in relation to the large area of GUR 3 means these rules do not, in general, stop fishers taking their catch from other areas within GUR 3.

1140. The FNZ Coastal Planning Team engages with the RMA coastal planning processes (including regional authorities) to support marine management decisions to manage not only the fishing effects on the coastal environment but also land-based impacts on fisheries.

5 Submissions

1141. There were 16 submissions on the proposed changes to GUR 3 (Table 5). Eleven submissions supported Option 1 (*status quo*), three supported Option 2, and two proposed alternative options.

Table 5: Written submissions and responses received for GUR 3.

Submitter	Option Support			
	1	2	Other	
Chatham Islands Quota Holding Co.		✓		Support Option 2, Chatham Islands Quota Holding Co. have no concerns over the health of the GUR 3 fishery and believe the proposed increase presents no risk to the fish stock.
Environment and Conservation Organisations of NZ Inc. (ECO)	✓			Supports a cautious approach with the lowest risk to the stock, and wider ecosystem (Option 1).
Fish Mainland	✓			Supports Option 1. Nine other individual recreational submissions received supported Fish Mainland's position (below).
A. Crossland	✓			Supports Fish Mainland's submission
A. Reay	✓			Supports Fish Mainland's submission
B. Capill	✓			Supports Fish Mainland's submission
B. & G. Stewart	✓			Supports Fish Mainland's submission
B. Reay	✓			Supports Fish Mainland's submission
D. Broome	✓			Supports Fish Mainland's submission
G. McInnes	✓			Supports Fish Mainland's submission
M. Lamb	✓			Supports Fish Mainland's submission
R. A. Meikle	✓			Supports Fish Mainland's submission
Ngati Mutunga O Wharekauri Asset Holding Co Ltd.		✓		Submission supports Option 2 – 81mt increase to the TAC with a 75mt increase to the TACC and a 6mt increase to other mortality allowance.

-NZ Sport Fishing Council joint -LegaSea, -NZ Angling & Casting Association, and -NZ Underwater Association			✓	Supports a precautionary decision for the future management of GUR 3 as there is a predicted decline in spawning stock biomass over the next five years.
Southern Inshore Fisheries (SIF) Endorsed by: Fisheries Inshore New Zealand Ltd (FINZ)			✓	SIF agrees with a TACC increase for GUR 3 but proposes a higher TACC of 1650 t, with a further review after the next ECSI trawl survey in 2024, noting that 1650 t is in line with recent stock assessment projects.
Te Ohu Kaimoana Endorsed by: –Maruehi Fisheries Ltd –Ngaruahine Fisheries Ltd –Raukawa Asset Holding Co Ltd –Tama Asset Holding Co Ltd –Taranaki Iwi Fisheries Ltd –Te Atiawa (Taranaki) Holdings Ltd –Te Paataka o Tangaroa Ltd –Whanganui Iwi Fisheries Ltd		✓		Support Option 2 based on the information indicating a healthy and increasing gurnard fishery.
Total	11	3	2	

6 Options and analysis

1142. There are no alternative management targets for GUR 3, therefore, the HSS default target applies to this stock. As GUR 3 is very likely (>90%) to be above the target level of 35% of B_0 the options provided below are being considered under section 13(2)(c) of the Act.

6.1 Option 1 - *status quo*

TAC: 1614 t	**TACC:** 1500 t	**Customary**: 3 t	**Recreational**: 6 t	**Other mortality**: 105 t

1143. Option 1 is to retain the current TAC and other settings (*status quo*). This option notes the uncertainty associated with the ECSI trawl survey biomass estimates and that current fishing effort is high relative to the commercial catch data time series which dates from the 1960s.

1144. The status quo does not provide for additional utilisation opportunity and will constrain commercial catch given GUR 3's increasing abundance as reflected in the May 2022 stock assessment and increasing CPUE indices. This potentially constrains the catch of other species caught with red gurnard, given the difficulty fishers are experiencing avoiding this species.

1145. Eleven submissions were received in support of Option 1 for GUR 3 with recreational fishers and environmental interests supporting this option. The joint submission from the NZ Sport Fishing Council, LegaSea, NZ Underwater Association and NZ Angling & Casting Association proposes a modified Option 1 with an increase to the allowance for other mortality caused by fishing from 105 to 150 tonnes (10% of the TACC).

1146. Generally, these submitters noted the increasing importance of GUR 3 as a recreational fishery and requested caution on the basis that the effects of the 2020 TAC increase for GUR 3 may not have been realised yet and concern about the impact of trawling on associated species and the benthos. Some submitted that they prefer we monitor the stock longer before increasing the TAC for any stocks. A new ECSI trawl survey is taking place in 2022, with results due in late 2023. This information will provide additional information on the status of the stock.

6.2 Option 2 – *Fisheries New Zealand's preferred option*

TAC: 1695 t (↑ 81 t)	**TACC:** 1575 t (↑ 75 t)	**Customary**: 3 t –	**Recreational**: 6 t –	**Other mortality**: 111 t (↑ 6 t)

1147. Option 2 increases the TAC by 81 tonnes, the TACC by 75 tonnes and the allowance for other mortality caused by fishing by 6 tonnes. No change is proposed for customary and recreational allowances. This considers both the results of the 2022 full GUR 3 stock assessment, biomass estimates from the ECSI trawl survey and increasing trends in CPUE indices.

1148. This option provides benefits in terms of the overall value of GUR 3, and increased utilisation opportunity for commercial fishers in line with the increase in abundance. This applies not only in relation to GUR 3, but also in relation to catch of other stocks caught together with gurnard such as rig in the ECSI mixed species trawl fishery.

1149. It assumes that with an increase in abundance the success and levels of harvest of customary and recreational fishing will also likely increase. However, given recreational and customary catch estimates are below the limits, based on customary returns and NPS 2017/18 estimates, no increase is proposed.

1150. Te Ohu Kaimoana and commercial iwi interests support Option 2 in reflection of red gurnard's abundance in GUR 3. Option 2 is consistent with the Te Waipounamu Iwi Fisheries Forum Plan management objectives; particularly Objective 3, to support environmentally responsible, productive, sustainable, and culturally appropriate commercial fisheries that create long term commercial benefits and economic development opportunities for South Island iwi.

1151. FNZ notes several submitters raised concerns about the impact of fishing on the environment from the proposed increase in TACC under Option 2. FNZ does not expect an increase in trawl footprint or interactions with associated or dependent species from the proposed increase to TAC and TACC such a rig and elephant fish. The proposed increase reflects the abundance of red gurnard and its associated catchability rather than increased fishing effort.

6.3 Option 3 (new)

TAC: 1774 t (↑ 160 t)	**TACC:** 1650 t (↑ 150 t)	**Customary**: 3 t –	**Recreational**: 6 t –	**Other mortality**: 115 t (↑ 10 t)

1152. Option 3 was proposed by SIF and FINZ as better reflecting red gurnard's abundance in GUR 3. SIF states the fishery is consistently playing catch up with TACC settings lagging behind abundance increases incurring significant deemed value costs. SIF has promoted a stepwise approach to TACC increase proposals for a number of years in-line with ECSI trawl survey results. SIF proposes the TACC be increased to 1650 tonnes with a further review after the next ECSI trawl survey in 2024.

1153. This higher TACC considers recent stock assessment projections, that the fishery is well above Harvest Sustainability Standard of target levels of 35% SB_0 and the desirability of allowing for some 'headroom' for continued access and to minimise DVs being incurred until the next review. SIF notes there is no evidence that catch of other species that are of sustainability concern will increase (for example TAR 3) due to an increase in GUR 3. They support more active management for GUR 3 to ensure the TACC reflects current catch and abundance.

1154. Under this option, the allowance for other sources of mortality would be set at 115 tonnes (a 10 tonne increase from the current level), which aligns with the Minster's 2020 decision of 7% of the TACC.

1155. FNZ agrees that there is scope for increase of the TACC to better align with current projections, however, FNZ is concerned that the TACC under this option is approaching the highest level of historical landings for GUR 3 in the 1960s, after which the abundance of GUR 3 declined. Red gurnard is caught in a multi species trawl fishery in which some species are not as abundant as red gurnard an increase in fishing effort to this level could also have flow on effects to other species in the fishery.

1156. Overall, our preferred approach is Option 2 with a further review of the stock once results from the ECSI trawl survey are available in early 2024. We consider, however, that you have discretion to consider a higher TACC, including one that is intermediate between Option 2 and Option 3.

6.4 Other options proposed by submitters

1157. The joint submission from the NZ Sport Fishing Council, LegaSea, NZ Underwater Association and NZ Angling & Casting Association recommends the following decisions for GUR 3: increase the TAC from 1614 to 1659 tonnes, retain the TACC at 1500 tonnes, retain the tonnage set aside to allow for customary interests at 3 tonnes, retain the tonnage set aside to allow for recreational fishing interests at 6 tonnes, and increase the allowance set aside for other mortality caused by fishing from 105 to 150 tonnes (10% of the TACC).

1158. FNZ notes this option is most similar to Option 1 and does not provide for increased utilisation to reflect the evidence of increased abundance of gurnard. While it would likely result in higher stock abundance, we note this is already well above the target (at approximately 60% of B_0). We consider the increased allowance for other sources of mortality from 7% to 10% of the TACC does not consider the improvements to gear and practises that have occurred in the last few years in FMA 3.

6.5 Economic considerations

1159. Based on the 2022/23 port price[144], the proposed increases in TACC under Option 2 for red gurnard will generate a further $214,000 per year in commercial fishing revenue. Option 3 has a commercial revenue value of $428,000.

1160. It is important to note that port price is an average of what commercial fishers receive across a QMA, not what the fish is worth at market (which is higher). Nor does it reflect the income for Licensed Fish Receivers (including, wholesalers and/or processors) and retailers.

7 Deemed values

1161. The deemed value rates for GUR 3 are shown in Table 6.

Table 6: Standard deemed value rates ($/kg) for GUR 3.

	Interim Rate	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
	($/kg)	100-120%	120-140%	140-160%	160-180%	180-200%	200%+
GUR 3 status quo	1.53	1.70	2.04	2.38	2.72	3.06	3.40

1162. The average price paid by fishers during the 2020/21 fishing year for one kilogram of GUR 3 ACE was $1.06. The 2022/23 port price for GUR 3 is $2.85/kg.

1163. The current deemed value rates for GUR 3 are set slightly above the average ACE price and FNZ is satisfied that they are consistent with your mandatory statutory consideration under section 75(2)(a) in that they provide sufficient incentive for fishers to balance their catch with

[144] Note that port price has been updated from the value presented in the consultation paper ($2.71/kg) based on the most recently available port price data for 2022-23.

ACE. FNZ is therefore not recommending any changes to deemed value rates for GUR 3 at this time.

1164. FNZ acknowledges that if the TACC is increased, subsequent changes in fishing behaviour and the ACE market may result in the need for the deemed value to be re-evaluated in the future.

8 Conclusions and recommendations

1165. The stock status of GUR 3 is estimated to be very likely at or above target. Furthermore, recent research trawl survey results are the highest in the time series, suggesting there is a utilisation opportunity for this fishery.

1166. FNZ received 16 submissions on the proposed changes to GUR 3. Submissions varied depending on sector with most recreational and environmental interests preferring the *status quo*, and one suggesting an alternative option. Southern Inshore and FINZ representing commercial interests propose Option 3 a new option outside that which was consulted on.

1167. Option 1 (*status quo*) places weight on the preliminary nature of estimated increase in relative abundance from the ECSI trawl survey (e.g., it has not been fully reviewed). However, all indicators point to GUR 3 going through a phase of greater recruitment to the fishery and the *status quo* may also significantly constrain commercial catch of this, and other species caught together in this mixed trawl fishery.

1168. Option 2 provides benefits in terms of the overall value of GUR 3. It considers that there is some uncertainty in estimates from the ECSI trawl survey but acknowledges that estimates are generally robust. Option 2 takes into account the 2022 stock assessment which projects an increasing trend in stock biomass at current exploitation rates and provides for a utilisation opportunity for commercial fishers.

1169. Option 3 is proposed by industry, provides for greater utilisation opportunity, and reduces the risk of deemed value costs to the industry. FNZ agrees that there is scope for a further increase of the TACC to better align with current projections but prefers a more precautionary approach where the stock is reviewed again when results from the ECSI trawl survey are obtained in early 2024.

1170. FNZ does not expect an increase in trawl footprint or interactions with associated or dependent species from the proposed increase to TAC and TACC. The proposed increase reflects the abundance of red gurnard and its catchability rather than increased fishing effort.

9 Decision for Red Gurnard - GUR 3

Option 1

Agree to retain the GUR 3 TAC at 1614 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 3 tonnes;
ii. Retain the allowance for recreational fishing interests at 6 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 105 tonnes;
iv. Retain the GUR 3 TACC at 1500 tonnes.

Agreed / Agreed as Amended / Not Agreed

OR

Option 2 *(Fisheries New Zealand preferred option)*

Agree to set the GUR 3 TAC at 1695 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 3 tonnes;
ii. Retain the allowance for recreational fishing interests at 6 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 105 to 111 tonnes;
iv. Increase the GUR 3 TACC from 1500 to 1575 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

OR

Option 3

Agree to set the GUR 3 TAC at 1774 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 3 tonnes;
ii. Retain the allowance for recreational fishing interests at 6 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 105 to 115 tonnes;
iv. Increase the GUR 3 TACC from 1500 to 1650 tonnes.

~~Agreed / Agreed as Amended~~ / Not Agreed

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

Rig (SPO 3) - East Coast South Island, Chatham Rise, Southland, Sub-Antarctic, Rakiura and Fiordland

Mustelus lenticulatus, rig, pioke, makō, mango

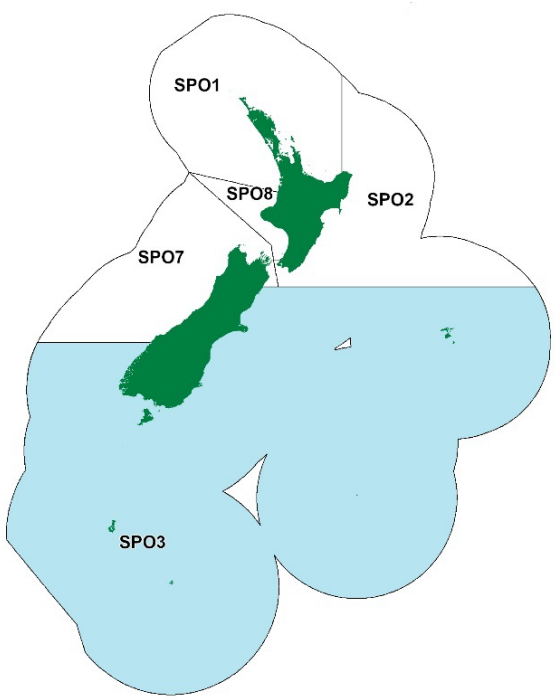


Figure 1: Quota Management Areas (QMAs) for rig (SPO 3), with SPO 3 highlighted in blue.

Table 1: Summary of options proposed for SPO 3 from 1 October 2022. Figures are all in tonnes. The preferred option of Fisheries New Zealand is highlighted in blue.

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 *(Status quo)*	766	660	20	20	66
Option 2	802 ↑ (36 t)	693 ↑ (33 t)	20	20	69 ↑ (3 t)

In total 14 submissions were received on the proposed options.

1 Why are we proposing a review?

1171. A May 2022 stock assessment based on both the 2021 East Coast South Island (ECSI) winter trawl survey series and updated standardised Catch Per Unit Effort (CPUE) abundance indices determined that SPO 3 is as likely as not (40-60%) to be at or above the target biomass, above the soft and hard limits, and that overfishing is about as likely as not (40-60%) to be occurring.

1172. This information suggests the current TAC is set appropriately, however, given increasing CPUE indices and anecdotal reports of increased abundance over the last few years FNZ sought feedback during consultation on whether a modest increase the TAC, allowances, and the TACC may be warranted.

1173. Deemed value rates for SPO 3 are low compared to similar rig stocks such as SPO 7 and SPO 2. Therefore, FNZ also consulted on whether an increase in deemed value rates to align with other stocks is appropriate.

1.1 About the stock

1.1.1 Fishery characteristics

1174. Rig in SPO 3 is taken as a target and bycatch in both set net and inshore mixed species trawl fisheries along the east and south coasts of the South Island. Associated non-target fisheries include set net, bottom trawl and bottom longline fisheries for school shark, flatfish, red cod, spiny dogfish, red gurnard, tarakihi, giant star gazer, barracouta, and elephant fish. Additional small amounts are landed by Danish seine vessels around Banks Peninsula.

1175. Rig are also a Schedule 6 species with fishers able to release rig back to the ocean, provided they are likely to survive. Commercial reports show that approximately 10% of catch is released annually in SPO 3 using Schedule 6 exemptions.

1176. Rod and line fishing is the preferred recreational fishing method in SPO 3, with some longlining and, to a lesser extent, methods such as spear fishing.

1.1.2 Biology

1177. Rig females grow larger than males and reach a maximum length of 150 cm, compared to a maximum length of 125 cm for males. They have an estimated maximum age of 20 years and reach maturity at 85-100 cm length or 4-8 years, depending on the region. They have a gestation period of 10-11 months and give birth to live young in spring-summer.

1178. Rig are found throughout New Zealand waters and move up and down the East Coast of the South Island. They move into shallow areas to give birth before returning to waters up to 400 m deep in autumn. The Canterbury Bight and Pegasus Bay are known nursery grounds for rig. Rig diet consists mainly of benthic fauna, especially crabs and shellfish.

1.1.3 Management background

1179. SPO 3 entered the Quota Management System (QMS) on 1 October 1986 with an October fishing year. The last time the TAC was reviewed was in 2020, at which time the TAC was increased from 710 to 766 tonnes. This was due to increases observed in both the CPUE and ECSI trawl survey results in 2018.

1180. New Zealand has international obligations under the National Plan of Action for Sharks (NPOA Sharks) to maintain elasmobranchs such as rig at or above target. The NPOA Sharks sets goals and objectives for maintaining the biodiversity and long-term viability of New Zealand shark populations. Rig is one of the main inshore shark species taken along with school shark and elephant fish in inshore trawl and set net fisheries. It makes up approximately 30% of all sharks caught in New Zealand.

1.2 Status of the stock

1181. The best available information on the status of SPO 3 can be found within the May 2022 Fisheries Assessment Plenary report.

1182. The latest SPO 3 stock assessment was completed in 2022. For this assessment the SPO 3 QMA was split between the East Coast South Island and Foveaux Strait to better reflect stocks and fishing methods. The East Coast assessment is based on the ECSI trawl survey series and standardised bottom trawl and set net CPUE abundance indices. This assessment determined the ECSI portion of SPO 3 is about a likely as not (40-60%) to be at or above the default management target[145] (Figure 2), and that overfishing is about as likely as not (40-60%) to be occurring.

[145] Under the Harvest Strategy Standard, the default management target is 40% B_0 (unfished biomass), the soft limit is 20% B_0, and the hard Limit is 10% B_0.

1183. For Foveaux Strait the assessment is based only on bottom trawl and set net CPUE indices. The assessment determined that this rig stock is about a likely as not (40-60%) to be at or above the target, and unlikely (<40%) to be below either the soft or hard limits, with overfishing is as likely not to be occurring (Figure 3).

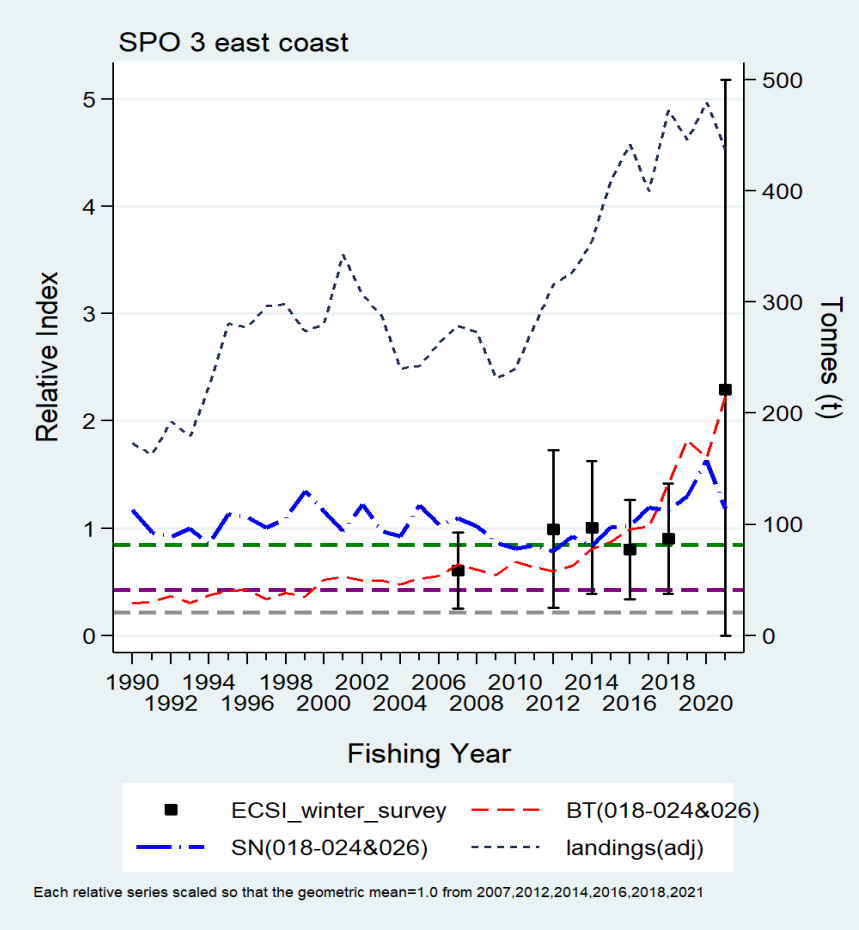


Figure 2: A comparison of the ECSI trawl survey (black square) with two accepted East Coast CPUE indices- blue dashed line- Set Net (SN) and red dashed line - Bottom Trawl (BT), adjusted to landings (black dotted line) for SPO 3. The interim management target 40% SB_0 is shown as a green dashed line, the Soft Limit is shown as a purple line and the Hard Limit is shown as a grey line.

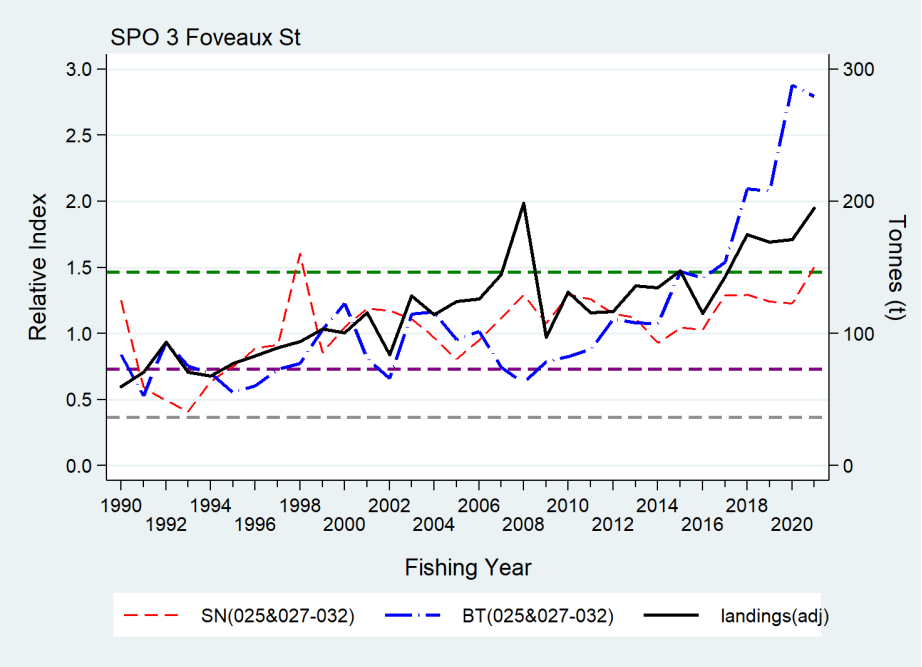


Figure 3: A comparison of two Foveaux Strait CPUE indices- blue dashed line- Bottom Trawl (BT) and red dashed line- Set Net (SN) with the adjusted QMR/MHR landings for SPO 3 Foveaux Strait. The agreed target proxy of 40% SB_0 is shown as a green line, and the calculated Soft Limits shown as a purple line and the Hard Limit is shown as a grey line.

1184. Rig biomass estimates from the ECSI trawl survey series were relatively consistent between 2007 to 2018, but higher compared to the 1990s. Preliminary results from the 2021 ECSI trawl survey series survey indicate an increase in estimated biomass, however, this is associated with very high Confidence Intervals (CIs). These mean the recorded increase in estimated biomass is unreliable and should be treated with caution (Figure 4). Rig is not a target species and, therefore, the survey does not sample core rig inshore strata (10-30 m) sufficiently due to constraints on what species and depth strata can be targeted by the survey to obtain sufficient CIs. FNZ will be considering whether the uncertainty in the results can be reduced by optimising future ECSI trawl surveys for rig.

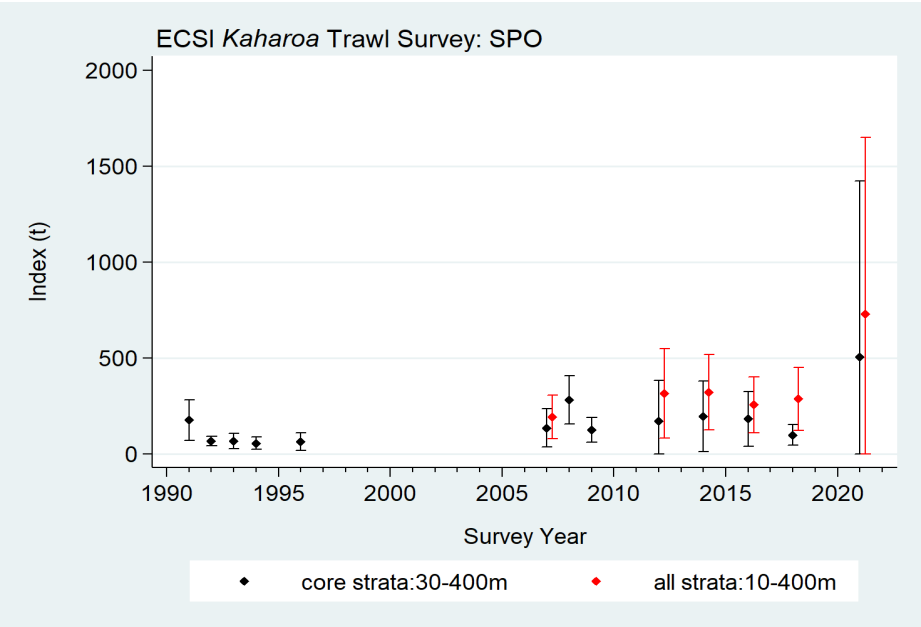


Figure 4: Rig total biomass and 95% confidence intervals for all ECSI surveys in core depth strata (30–400 m, black dots), and core plus shallow strata (10–400 m, red dots) in 2007, 2012, 2014, 2016, 2018, and 2021.

2 Catch information and current settings within the TAC

2.1 Commercial

1185. Rig catch pre-QMS (up until 1986) far exceeded current levels, with most taken in the inshore set net fishery around the Canterbury Bight and Kaikoura. After the introduction of the QMS in 1986, SPO 3 catch was constrained to approximately half pre-QMS levels by the TACC. Rig catch was considered unsustainable at pre-QMS levels with signs the fishery was under pressure with rapidly declining catch rates.

1186. Since 2010, a steady increase in commercial catch has been observed with the TACC has been consistently exceeded since 2018 (Figure 5). Commercial fishing stakeholder groups (Southern Inshore Fisheries, and Fisheries Inshore New Zealand) advise that commercial fishers are finding it difficult to avoid catching rig and that its abundance has increased over the last few years especially along the East Coast of the South Island.

1187. Anecdotally, it has been suggested that increases in SPO 3 catch since 2010 could be attributed to greater recruitment success due to the ban on commercial and recreational set netting within 4 nautical miles of the East and Southern Coast of the South Island implemented in 2008.

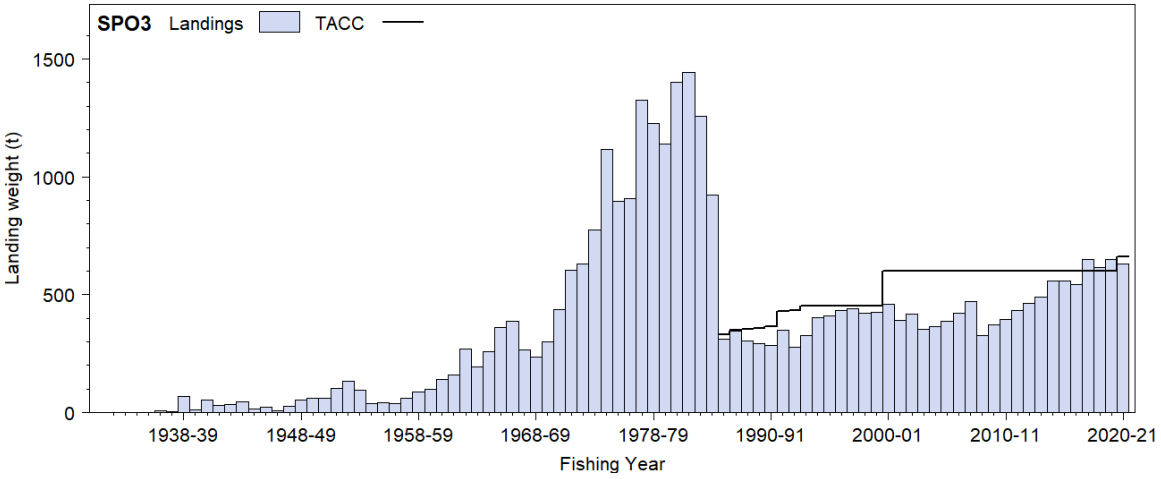


Figure 5: Historical landings (in tonnes) and TACCs for SPO 3 (South East Coast).

2.2 Customary Māori

1188. Under the Fisheries (South Island Customary Fishing) Regulations 1999, rig (pioke, makō) has been reported as taken in small amounts in SPO 3. The small amount of customary reporting may reflect that tangata whenua are using recreational fishing regulations for their harvest and not being reported as customary take.

1189. The customary allowance for SPO 3 is currently set at 20 tonnes based on available information from kaitiaki reporting for FMA 3, 5 and 4.

2.3 Recreational

1190. Rig is an important recreational species across New Zealand. The main recreational fishing method is rod and line, and the recreational daily bag limit for SPO 3 is five per person per day as part of a mixed species daily bag limit. The last time the recreational allowance was reviewed was in 2020 when it was reduced from 60 to 20 tonnes.

1191. Based on the National Panel Survey of Marine Recreational Fishers (NPS) catch of rig in SPO 3 increased between the 2011/12 and 2017/18 surveys (Table 2).

Table 2: Summary of the National Panel Survey of Marine Recreational Fishers results from SPO 3 for rig.

Fish stock	2011/12 Estimated harvest (tonnes)	CV (tonnes)	2017/18 Estimated harvest (tonnes)	CV (tonnes)
SPO 3	8.1	± 1.3	9.4	± 1.5

1192. The NPS is, however, only a snapshot of fishing activity over a single fishing year, and it is not appropriate to draw robust conclusions around increases or reductions in recreational harvest solely from this information. Factors such as weather, wind, swell, water temperature and fuel prices all determine how much fishing occurs in any given year.

2.4 All other mortality caused by fishing

1193. The allowance for other sources of mortality caused by fishing includes mortality associated with the requirement to return fish below the minimum legal size to sea and other mortality from fish escaping fishing gear, or illegal discarding.

1194. As part of decisions relating to the 2020 October sustainability round, the then Minister of Fisheries decided to set allowances for all other sources of mortality caused by fishing at a level equivalent to 10% of the TACC for predominantly trawl caught fisheries. Rig are caught within both set net and trawl fisheries and there is uncertainty in the exact level of incidental mortality for this species. The current setting is considered an appropriate approach unless evidence suggests an alternative setting would be more suitable to the stock.

3 Treaty of Waitangi Obligations

3.1 Input and participation of tangata whenua

1195. 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.

1196. Particular regard must be given to kaitiakitanga when making sustainability decisions.

1197. SPO 3 falls within the rohe of Te Waka a Māui me Ōna Toka Iwi Forum, the South Island iwi fisheries forum — it includes all nine Iwi of Te Wai Pounamu.

1198. Te Waka a Māui held a hui on 12 July 2022 and FNZ presented one-pagers at the hui for the South Island stocks under review, including SPO 3. There was no formal view from the forum on the proposal for SPO 3. The forum noted that it would support a submission from Ngai Tahu Seafoods (if deemed necessary by Ngai Tahu), but Ngai Tahu did not provide a submission on SPO 3.

3.2 Kaitiakitanga

1199. Mango (rig) are identified as a taonga species in Te Waipounamu Iwi Forum Fisheries Plan. 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 2:** South Island Iwi can exercise kaitiakitanga;
- **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.

1200. FNZ considers the options proposed in this paper will not directly impact on, or be impacted by, the customary fisheries management areas in SPO 3. Commercial fishing is prohibited in mātaitai reserves and there are no regulations relating to rig in taiāpure, or bylaws in any of the mātaitai reserves.

1201. FNZ did not receive specific feedback from tangata whenua on how the proposed options for SPO 3 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.

4 Environmental and Sustainability Considerations

4.1 Environmental principles (section 9 of the Act)

1202. The key environmental principles, which must be taken into account when considering sustainability measures for GUR 3 are as follows:

a) Associated or dependent species should be maintained above a level that ensures their long-term viability (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).

b) Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and

c) Habitats of particular significance for fisheries management should be protected.

1203. It is important to note that in some cases FNZ has made assumptions about environmental interactions based on fisher reported data that may not have been independently verified (for example by an on-board FNZ Observer). Observer coverage in SPO 3 has averaged below 5% in the past five fishing years based on event level data, with observer effort prioritised to monitor protected species interactions in fisheries considered to be higher risk.

1204. Increased uptake of cameras onboard vessels in SPO 3 will enhance FNZ's abilities to monitor environmental interactions in the fishery.

4.1.1 Marine mammals

1205. Sometimes marine mammals are accidentally caught during commercial fishing. Commercial fishers must file daily reports about what they have caught and FNZ releases these reports quarterly. It is important to note in some cases FNZ has made assumptions about the likely fishing method.

1206. The Hector's and Māui dolphin Threat Management Plan guides management approaches for addressing both non-fishing and fishing related impacts on Hector's and Māui dolphins. In recognition of the threat from commercial trawling and set netting, area-based restrictions have been put in place. The total area covered by restrictions has increased over time, reflecting improved information on the nature and extent of the risks.

1207. Both commercial and recreational set netting is prohibited within 4 nautical miles of the East Coast and Southern South Island since 2008. Commercial set netting is still allowed in areas outside 4 nautical miles, as well as within some estuaries and off the coast of Rakiura and Fiordland.

1208. Trawl gear is restricted outside 2 nautical miles from the coast between Cape Jackson in the Marlborough Sounds and Slope Point in the Catlins – only trawl nets with defined low headline heights may be used. Existing restrictions along the East Coast of the South Island are presented in the Table 3 below.

Table 3: Existing trawl restrictions along the east coast South Island.

East coast South Island	Method	Existing measures
Pegasus Bay	Trawl	Low headline height required on trawl vessels operating within 2 nm of shore.
Banks Peninsula to Timaru	Trawl	Low headline height required on trawl vessels operating within 2 nm of shore.

1209. New Zealand sea lions, New Zealand fur seals, common dolphins and other marine mammals inhabit the marine environment where rig are caught in FMAs 3, 4 and 5. These species periodically interact with trawl vessels. For inshore trawl vessels in 2019/20, three New Zealand fur seal deaths were reported by commercial fishers or observed by FNZ Observers in the SPO 3 area (see East Coast South Island). However, only around 6% of inshore trawls were observed, so the total number of interactions is uncertain. Over the same period three New Zealand Fur Seal deaths were also reported or observed by set net vessels in the SPO 3 area (East Coast South Island). However, only around 5% of set netting was observed, so the total number of interactions is uncertain.

1210. Overall, FNZ considers the number of incidental marine mammal captures is unlikely to increase under the options proposed in this paper as it is not expected that the amount of trawling or set netting effort will increase significantly with either Option 1 or Option 2.

4.1.2 Seabirds

1211. The most recent Spatially Explicit Fisheries Risk Assessment ranks black petrel as the most at risk seabird, followed by the Salvin's albatross, Westland petrel, flesh-footed shearwater, southern Buller's albatross, and Gibson's albatross[146].

1212. Seabird interactions with New Zealand's commercial fisheries are managed under the National Plan of Action (NPOA) - Seabirds 2020. The NPOA – Seabirds, with its focus on education and ensuring fishers take all practicable steps to minimise risk to seabirds, will drive significant changes in fisher behaviour and help to ensure that fishing does not adversely impact on the health of seabird populations.

1213. FNZ and the fishing industry have worked collaboratively for over a decade, more recently for the inshore fleet, to ensure vessels have, and follow, a Protected Species Risk Management Plan (PSRMP). A PSRMP specifies the measures that must be followed on board each vessel to reduce the risk of incidental seabird captures. While there is no legal requirement that fishers have a PSRMP, more than 90% of the full-time vessels that operate in the SPO 3 trawl and set net fishery have, and follow, one.

1214. For the inshore trawl fishery in 2019/20 for the East Coast South Island 12 seabird interactions (seven deaths, five released alive) were reported or observed. However, as described for marine mammals, only a small proportion of trawls are observed by FNZ observers. Over the same period, three seabird deaths were also reported or observed by set net vessels in the SPO 3 area East Coast South Island. However, only around 5% of set netting was observed.

1215. Overall, FNZ considers the number of incidental seabird captures is unlikely to increase under the options proposed as it is not expected that the amount of trawling or set netting effort will increase significantly with either Option 1 or Option 2.

4.1.3 Fish bycatch

1216. Fish and invertebrate bycatch information in the inshore mixed trawl fishery is primarily from trawl surveys. Trawl surveys along the ECSI have captured more than 50 finfish species including spiny dogfish, red cod, barracouta, tarakihi, hake and jack mackerel. Invertebrates

[146] Baird, S J., Mules, R (2021). Extent of bottom contact by commercial trawling and dredging in New Zealand waters, 1989–90 to 2018–19. New Zealand Aquatic Environment and Biodiversity Report No. 260. 161

captured included sponges, mussels, octopus, and arrow squid.

4.1.4 Benthic impacts

1217. Bottom trawling can damage the marine environment; particularly where trawling occurs on biodiverse habitats. However, the proposed increase in Option 2 is modest and are not likely to significantly increase trawl effort as they reflect increased fish abundance and CPUE. Trawling in this fishery is also typically confined to areas that have been consistently fished over time (and are not areas of high biodiversity).

1218. Aquatic Environment and Biodiversity research has characterised both New Zealand's benthic environment and the level of benthic impact from fisheries activity (Aquatic Environment and Biodiversity Annual Review 2018). The environmental impacts of fishing are summarised annually by FNZ. FNZ will continue to monitor the bottom trawl footprint of fisheries.

1219. Overall, FNZ considers the increase to catch limits proposed reflects increased CPUE and, therefore, are unlikely to increase impact on the benthic habitat.

4.1.5 Habitats of particular significance for fisheries management

1220. Rig in SPO 3 is broadly distributed 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 SPO 3 are discussed in the table below (Table 4).

Table 4: Summary of information on potential habitats of particular significance for SPO 3.

Stock	SPO 3
Habitat	No specific areas are identified in SPO 3. However general areas of Canterbury Bight, Pegasus Bay, Akaroa, Lyttleton and other sheltered bays, harbours, and estuaries throughout SPO 3 where high catches occur. This suggest bays and estuaries are nursery areas which might supply recruits to the East Coast of the South Island
Attributes of habitat	**Breeding**: Rig give birth to live young in spring annually in shallow coastal bays and harbours. Soft sediments and sand are preferred pupping areas along the East Coast of the South Island. **Juvenile**: Prefer shallow sheltered waters such as bays and harbours with abundant shellfish beds in their first summer. As the water temperatures drop in autumn they move into deeper water.
Reasons for particular significance	Successful birth of live young in shallow coastal waters and harbours is critical to supporting the productivity of the stock and ensuring juveniles recruit into the fishery. Juvenile habitats in shallow waters are likely to provide shelter and protection from predation and harvesting and provide suitable food for their first summer. As they grow, deeper water habitats are essential while growth and development proceeds.
Risks/Threats	• Land-based impacts on habitats in harbours, estuaries and shallow embayment's that provide juvenile habitat. • Benthic impacts from bottom contact trawl fisheries damaging benthic habitats.

4.2 Sustainability measures (section 11 of the Act)

1221. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

1222. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to SPO 3, the natural variability of the stock concerned, and any relevant fisheries plans.

1223. The following plans and strategies are relevant for SPO 3.

4.2.1 National Inshore Finfish Fisheries Plan

1224. Although not yet approved under section 11A of the Act[147], the National Inshore Finfish Fisheries Plan (the Plan) provides guidance on FNZ's management strategies for inshore finfish stocks including rig. The Plan outlines the management objectives and strategies for finfish fisheries including SPO 3 for the next five years and was consulted on in early 2020.

1225. 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.

1226. SPO 3 falls into Group 2, which recognises the need to manage it to provide for moderate levels of use with moderate levels of information to monitor its stock status (i.e., a partial quantitative assessment compared against trends over time).

4.2.2 Regional Plans – s11(2)(a)

1227. There are three regional councils and one unitary authority that have coastline within SPO 3 boundaries: Canterbury, Otago, Southland and The Chatham Islands. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems and habitats.

1228. The provisions of these various documents are, for the most part, of a general nature and focus mostly on land-based stressors on the marine environment. There is nothing specific to rig stocks. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235).

1229. FNZ considers that the proposed management options presented are in keeping with the objectives of relevant regional plans.

1230. The FNZ Coastal Planning Team engages with the RMA coastal planning processes (including regional authorities) to support marine management decisions to manage not only the fishing effects on the coastal environment but also land-based impacts on fisheries.

4.2.3 National Plan of Action for sharks

1231. This review along with the scientific assessment for rig that underpins it supports several objectives of the NPOA Sharks.

1232. As an elasmobranch (cartilaginous fish, including sharks, skates, and rays), rig is included in the plan, which considers the biological characteristics of rig in terms of its vulnerability to fishing pressure and the connectivity of rig stocks.

1233. One of the goals of the NPOA Sharks is to maintain the biodiversity and long-term viability of New Zealand shark populations based on a risk assessment framework. The risk assessment framework evaluates stock status, measures to ensure any mortality is at appropriate levels, and protection of critical habitat. Objectives of this goal that are met by the current review of rig are:
    - For shark species managed under the quota management system (QMS), undertake an assessment to determine the stock size in relation to the biomass (total weight of fish) that can support harvest of the maximum sustainable yield (B_{MSY}) or other accepted

[147] Therefore, under section 11(2A), you are not required to take it into account.

management targets and on that basis, review catch limits to maintain the stock at or above these targets;

- Mortality of all sharks from fishing is at or below a level that allows for the maintenance at, or recovery to, a favourable stock and/or conservation status giving priority to protected species and high-risk species; and
- Ensure adequate monitoring and data collection for all sectors (including commercial, recreational, customary fishers, and non-extractive users) and that all users actively contribute to the management and conservation of shark populations.

5 Submissions

1234. There were 14 submissions on the proposed changes to SPO 3 (Table 5). Twelve submissions supported Option 1 (*status quo*) and two supported Option 2. There were no other options proposed as alternatives.

Table 5: Written submissions and responses received for SPO 3.

Submitter	Option Support		
	1	2	
Environment and Conservation Organizations of NZ Inc. (ECO)	✓		Supports a cautious approach with the lowest risk to the stock, and wider ecosystem (Option 1).
Fish Mainland	✓		Supports Option 1. Nine other individual recreational submissions received supported Fish Mainland's position (below).
A. Crossland	✓		Supports Fish Mainland's submission
A. Reay	✓		Supports Fish Mainland's submission
B. Capill	✓		Supports Fish Mainland's submission
B. & G. Stewart	✓		Supports Fish Mainland's submission
B. Reay	✓		Supports Fish Mainland's submission
D. Broome	✓		Supports Fish Mainland's submission
G. McInnes	✓		Supports Fish Mainland's submission
M. Lamb	✓		Supports Fish Mainland's submission
R. A. Meikle	✓		Supports Fish Mainland's submission
NZ Sport Fishing Council joint submission with LegaSea, NZ Angling & Casting Association and NZ Underwater Association	✓		Support Option 1 and recommend retaining current TAC for the SPO 3 fishery. Recommend that FNZ make meaningful changes towards its stated goal of more holistic management of our oceans based on a set of principles..
Southern Inshore Fisheries (SIF) Endorsed by: Fisheries Inshore New Zealand Ltd (FINZ)		✓	Support Option 2 and agree with the modest adjustment to the TACC as its in line with request to FNZ. Southern Inshore Fisheries Management Ltd believes SPO 3 is in a strong position and it has remained above the target reference limit for a number of years now with an increasing trend.
Te Ohu Kaimoana Endorsed by: –Maruehi Fisheries Ltd –Ngaruahine Fisheries Ltd –Raukawa Asset Holding Co Ltd –Tama Asset Holding Co Ltd –Taranaki Iwi Fisheries Ltd –Te Atiawa (Taranaki) Holdings Ltd –Te Paataka o Tangaroa Ltd –Whanganui Iwi Fisheries Ltd		✓	Support for Option 2 and also support change to SPO 3 deemed value rates.
Total	12	2	

6 Options and analysis

1235. There are no alternative management targets for SPO 3, therefore, the HSS default target applies to this stock. As SPO 3 is about a likely as not to be at or above B_{MSY} the options provided below are being considered under section 13(2)(a) of the Act.

6.1 Option 1 - *Fisheries New Zealand preferred option*

TAC: 766 t	**TACC:** 660 t	**Customary**: 20 t	**Recreational**: 20 t	**Other mortality**: 66 t

1236. Option 1 is to retain the current TAC and other settings. This option is appropriate given the latest stock assessment, which determined SPO 3 to be about as likely as not to be at or above the Harvest Strategy Standard target of 40% SB_0, suggesting current catch levels are appropriate for this stock.

1237. This option also considers rig's low productivity and susceptibility to overfishing and New Zealand's goals and objectives for maintaining the biodiversity and long-term viability of New Zealand shark populations under the NPOA Sharks. One of these goals is to maintain elasmobranchs at or above target, others relate to maintaining the biodiversity and long-term viability of New Zealand shark populations.

1238. Twelve submissions were received in support of Option 1 for SPO 3. Generally, on the basis that rig are an important recreational fishery and the need to be cautious in relation to shark stocks which can have low productivity.

1239. NZ Sport Fishing Council in a joint submission with LegaSea, NZ Angling & Casting Association and NZ Underwater Association also support Option 1 on the basis that *"SPO 3 catch cannot be increased without also increasing other associated species caught in the trawl and set net fisheries. Many associated and interdependent species are not in similar abundance, especially east coast tarakihi, which is assessed as below the management soft limit".*

1240. In addition, they are concerned about the effects of trawling on inshore biodiversity and productivity and request FNZ make more meaningful changes towards our goal of taking a precautionary approach to achieve the objective of promoting "an ecosystem-based approach to research, monitoring and management".

1241. Overall, Option 1 is preferred by FNZ as a more cautious approach with respect to meeting the requirements of section 13(2) (a) of the Act to maintain the stock at or above a level that can produce MSY.

6.2 Option 2

TAC: 802 t (↑ 36 t)	**TACC:** 693 t (↑ 33 t)	**Customary**: 20 t –	**Recreational**: 20 t –	**Other mortality**: 69 t (↑ 3 t)

1242. Option 2 provides a modest increase to the TAC of 36 tonnes, with no increase to customary or recreational allowances. It increases other mortality caused by fishing by 3 tonnes and increases the TACC by 33 tonnes. This would maintain the allowance for other mortality at 10% of the TACC as decided by the previous Minister of Fisheries in 2020 to be appropriate for this stock.

1243. This option considers the upward trend in trawl CPUE indices for both the ECSI and Foveaux areas, and that rig biomass estimates from the 2021 ECSI trawl survey also appear to be higher than previously recorded (noting these estimates are highly uncertain and considered

unreliable).

1244. The proposed TAC increase is modest, and rig is regularly monitored by the biennial ECSI trawl survey (with new results due at the end of 2022). Management action can be quickly taken if a decline in abundance is observed. Nevertheless, this option creates a greater risk that rig mortality could move above target levels leading to overfishing of a low productivity stock that is considered vulnerable to fishing pressure.

1245. Two submissions were received in support of Option 2 for SPO 3. Southern Inshore Fisheries Management Ltd (SIF) support a modest increase to the TACC. SIF believes SPO 3 is in a strong position and it has remained above the target reference limit for a number of years, with an increasing CPUE trend.

1246. Overall, FNZ considers there is a greater level of uncertainty with this option with respect to meeting the requirements of section 13(2)(a) of the Act to maintain the stock at or above a level that can produce MSY, noting that the fishery is assessed as being at or above the management target.

6.3 Economic considerations

1247. Based on the 2022/23 port price[148], the proposed increases in TACC under Option 2 for rig could generate a further $131,000 per year in commercial fishing revenue.

1248. It is important to note that port price is an average of what commercial fishers receive across a QMA, not what the fish is worth at market (which is higher). Nor does it reflect the income for Licensed Fish Receivers (including, wholesalers and/or processors) and retailers.

7 Deemed values

1249. The current deemed value rates for SPO 3 are shown in Table 6 below.

Table 6: Current deemed value rates ($/kg) for SPO 3.

	Interim Rate	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
	($/kg)	100-120%	120-140%	140-160%	160-180%	180-200%	200%+
SPO 3- status quo	1.53	1.70	2.04	2.38	2.72	3.06	3.40

1250. Section 75 of the Act lists mandatory considerations and other matters that may be considered when setting deemed values. Current annual deemed value rates for SPO 3 are set above the average ACE price ($0.77/kg), however they are lower compared to similar rig stocks' deemed value rates such as SPO 7 and SPO 2. Current deemed values are also far less than current port prices (from $1.70/kg deemed value vs. $3.96/kg port price) and may not sufficiently incentivise fishers to stay within their ACE holding. FNZ therefore recommends deemed value rates are adjusted to increase and align with other similar rig stocks (Table 7).

1251. Increasing deemed value rates to better align with the port price for this stock will strengthen incentives for fishers to remain within their ACE holdings. This is consistent with your mandatory statutory consideration under section 75(2)(a) of the Act and is supported by the only submission received on this issue (from Te Ohu Kaimoana).

1252. FNZ also considers that aligning the basic annual deemed value rate for SPO 3 with the adjacent SPO 7 and SPO 2 stocks is something you may have regard to under section 75(2)(b)(vi) (any other matters you consider relevant). Aligning deemed value rates between

[148] Note that port price has been updated from the value presented in the consultation paper ($5.56/kg) based on the most recently available port price data for 2022-23.

adjacent stocks provides appropriate incentives for fishers who fish across the stock boundaries to report accurately.

Table 7: Proposed deemed value rates ($/kg) for SPO 3.

	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	200%+[149]
SPO 3- proposed	2.70	3.00	3.60	4.20	4.80	5.40	6.00

8 Conclusions and recommendations

1253. FNZ recommends Option 1 for SPO 3, which will maintain the current TAC, TACC, recreational and customary allowances, and other sources of mortality. The latest stock assessment for SPO 3 has determined it to be about as likely as not to be at or above the target, suggesting current catch levels are appropriate for this stock.

1254. FNZ also recommends increasing deemed values in line with other similar rig stocks in SPO 2 and SPO 7. Current deemed values are far less than current port price of $3.96/kg. Raising the deemed value will sufficiently incentivise fishers to stay within their ACE holding.

1255. Maintaining the *status quo* for the stock will contribute towards the achievement of the Te Waipounamu Iwi Forum Fisheries Plan management objectives; particularly Objective 3, supporting environmentally responsible, productive, sustainable, and culturally appropriate commercial fisheries that create long-term commercial benefits and economic development opportunities for South Island iwi.

[149] The differential rates presented in this table between 120% and 180% ACE have been slightly amended from values in FNZ's consultation document (the key proposal remains unchanged, and the interim DV, basic annual DV, and DV at maximum excess were all correctly presented).

9 Decision for Rig - SPO 3

Option 1 *(Fisheries New Zealand preferred option)*

Agree to set the SPO 3 TAC at 766 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Retain the allowance for recreational fishing interests at 20 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 66 tonnes;
iv. Retain the SPO 3 TACC at 660 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

OR

Option 2

Agree to set the SPO 3 TAC at 802 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 20 tonnes;
ii. Retain the allowance for recreational fishing interests at 20 tonnes;
iii. Increase the allowance for all other sources of mortality to the stock caused by fishing from 66 to 69 tonnes;
iv. Increase the SPO 3 TACC from 660 to 693 tonnes.

Agreed / Agreed as Amended / Not Agreed

AND

Agree to increase the deemed value rates for rig in SPO 3 to the values outlined below:

Stock	Interim Rate ($/kg)	Annual Differential Rates ($/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	200%+
SPO 3	2.70	3.00	3.60	4.20	4.80	5.40	6.00

Agreed / ~~Agreed as Amended / Not Agreed~~

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

Attached bladder kelp (KBB 3G & KBB 4G) - East Coast South Island and Chatham Islands

Bladder kelp - *Macrocystis pyrifera*

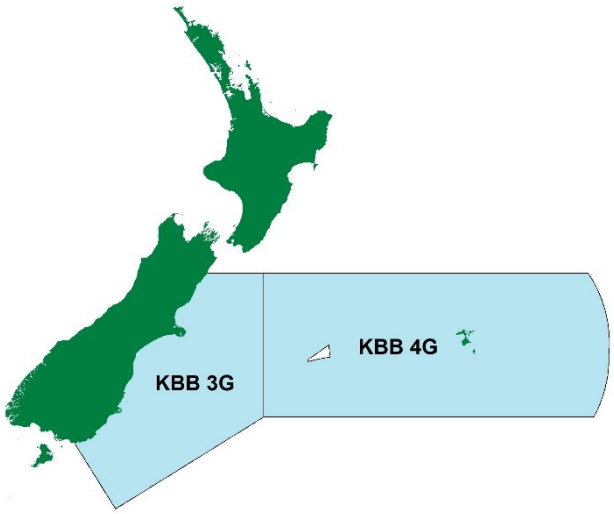


Figure 1: Quota Management Areas (QMAs) for attached bladder kelp.

Table 1: Proposed management options (in tonnes) for KBB 3G and KBB 4G from 1 October 2022. The preferred option of Fisheries New Zealand is highlighted in blue.

Stock	Option	TAC	TACC	Allowances		
				Customary Māori	Recreational	All other mortality caused by fishing
KBB 3G	**1** *(Status quo)*	1238	1236.8	0.1	0.1	1
	2 (50% decrease)	619.6 ↓ (618.4 t)	618.4 ↓ (618.4 t)	0.1	0.1	1
	3 (75% decrease)	310.4 ↓ (927.6 t)	309.2 ↓ (927.6 t)	0.1	0.1	1
KBB 4G	**1** *(Status quo)*	274	272.8	0.1	0.1	1
	2 (75% decrease)	69.4 ↓ (204.6 t)	68.2 ↓ (204.6 t)	0.1	0.1	1
In total 9 submissions were received on the proposed options.						

1 Why are we proposing a review?

1256. Kelp forests, including bladder kelp, are declining in many regions of the world due to warming sea temperatures, marine heatwave events, coastal sedimentation and, in some cases, overharvesting. Recent reports of declines in South Island bladder kelp beds suggest a proactive approach may be needed to safeguard kelp forests from increasing global and localised environmental stressors.

1257. Current harvest levels in KBB 3G (South East Coast) and KBB 4G (Chathams) are significantly lower than the TACs and are very likely sustainable but have the potential to increase significantly as demand for high-value seaweed-based products grows.

1258. FNZ sought feedback during consultation on whether reductions to the TACs and TACCs were required for both stocks, as outlined in Table 1, to address potential risks under significantly higher catch levels.

1.1 About the stock

1.1.1 Fishery characteristics

1259. Globally, bladder kelp is used for human and animal food and dietary supplements (kelp salt, abalone and sea urchin feeds), fertilisers, and bio-stimulants. In New Zealand there is growing attention on seaweeds as a new aquaculture sector (including bladder kelp) to produce high-value chemical, nutraceutical and pharmaceutical products, and production of biofuel and bioplastics. Seaweeds are also being explored for the purposes of environmental bioremediation, and potential nutrient and carbon sequestration.

1260. Commercial harvest of attached bladder kelp is restricted to two QMS fisheries only –KBB 3G and KBB 4G (Figure 1). Limited commercial fishing occurs in the KBB 3G fishery with catches mainly taken from Akaroa Harbour and Shag Point (Otago). No commercial fishing occurs in the KBB 4G fishery. Commercial harvest in both fisheries is restricted by regulation to cutting of the surface canopy fronds to a maximum water depth of 1.2 metres. Generic commercial fishing requirements and restrictions also apply. Both fisheries have a 1 October to 30 September fishing year.

1261. Customary Māori and recreational fishing of attached bladder kelp is permitted. No method restrictions or daily limits apply to the recreational fishery. Typically, most recreational fishers collect beach cast material after storms to use as compost in domestic gardens.

1262. There are a small number of marine farms in Marlborough, Banks Peninsula, and Southland that are either consented to, or are already farming bladder kelp to meet a growing market demand.

1.1.2 Biology

1263. Bladder kelp is globally widespread. In New Zealand its distribution extends from southern North Island, South Island, Chatham Islands, Stewart Island, to the Sub-Antarctic Islands. It prefers cooler waters (12-14ºC) and is generally not found where maximum sea temperatures exceed 18-19ºC for several days. Its northern distribution will be likely influenced by long-term increases in surface sea temperatures.

1264. This seaweed grows up to 45 metres long and occurs to a maximum depth of 10-15 metres (depending on water clarity). Where the bottom is rocky and affords places for juvenile plants to anchor, it can form extensive kelp forests with very large floating surface canopies in bays, harbours, and sheltered offshore waters.

1265. Bladder kelp beds are key habitats and are amongst the most productive coastal and marine subtidal communities in New Zealand. They provide important ecosystem functions including modifying the physical environment and providing a highly structured three-dimensional habitat for important commercial and non-commercial shellfish (i.e., pāua, rock lobster, kina) and finfish (i.e., butterfish, blue cod, moki, wrasse). The presence of kelp forests can dampen wave action and storm surges, reduce coastal erosion and sedimentation, provide food and shelter, shade the seafloor, remove nutrients from the water column, sequester carbon, buffer localised ocean acidification, and stabilise the seabed.

1.1.3 Information on wild kelp bed declines

1266. FNZ's consultation paper noted that international studies have reported significant losses of kelp forests, such as bladder kelp, in many parts of the world including California, Australia, and Chile. These losses have been attributed to increasing global and local environmental stressors, often in combination, including warming surface sea temperatures and heatwave events, sea urchin barrens, pollution, direct wild harvest, and smothering and lower light availability from increasing coastal sedimentation and erosion.

1267. Kelp loss can dramatically change both regional and localised community and ecosystem-level structure and function. Declines in kelp forests can enable non-canopy forming, small turf and foliose algae assemblages to become more dominant, inhibiting the kelp's ability to recolonise areas. If persistent, this can result in the long-term reduction of kelp-dominated ecosystems.

1268. Declines in kelp abundance and distribution in coastal waters off southern and western Australia (up to 95% losses in surface canopies in some areas) have been directly linked to marine heatwaves over the past 20 years.

1269. In New Zealand, kelp abundance is also reported to have declined in some areas. A strong warming trend in sea surface temperatures (SST) between 2015 and 2020 (particularly during the 2017-18 southern marine heatwave event[150]) caused extensive canopies of bladder kelp and southern bull kelp (*Durvillaea antarctica*) to disappear in eastern and southern areas including Marlborough Sounds, Kaikōura, Lyttelton Harbour, and Otago Harbour.

1270. FNZ's consultation paper noted New Zealand kelp beds may continue to be vulnerable because increasing SST and marine heatwaves are predicted to increase in magnitude and duration. Temperature-related effects may be compounded by other environmental stressors, particularly from increasing sedimentation from land-based sources along parts of the coastline that may lead to reduced light availability and smothering of kelp.

Updated information from submissions

1271. Some submissions received during consultation have questioned the conclusions and relevance of the information summarised in FNZ's consultation document. In particular, a report from Professor David Schiel (University of Canterbury) commissioned by quota holders concludes that bladder kelp beds have been and will continue to be highly resilient to surface canopy removal, either through natural causes such as summer sea temperatures and storm events, or from wild harvest. This is largely because the reproductive *sporophyll* is positioned at the base of the plant and is unaffected by surface canopy loss, enabling the continued release of reproductive spores for future regeneration. Canopy removal also allows for greater sunlight penetration, which increases growth and productivity of sub-surface seaweeds, including bladder kelp.

1272. Sub-surface fronds continue to grow and replace lost canopy cover over a short timeframe following harvest (bladder kelp has the fastest growth rate of all kelps – up to 50cm per day). This means the beds are prolific, resilient, and fast growing, and when harvested in accordance with current commercial techniques can be sustainable. Thinning of the upper canopy by way of commercial harvest can also reduce disturbance to the entire kelp bed during winter storms, thereby retaining otherwise lost biomass.

1273. This report and other submissions point to the observed die-back and recovery in response to the 2017-18 marine heatwave event. New bladder kelp recruits were more abundant during this period and the beds recovered quickly (in less than six months) after the reductions in cover caused by higher SST. They also state that kelp coverage during summer/autumn of 2020-21 was very high despite SST anomalies in central and southern regions being +2-3ºC warmer than average.

1274. Overall, Professor Schiel considers the scientific evidence points to there being no detrimental impact detectable in the wider area from direct harvesting of kelp as practised in New Zealand. This is because all harvest is restricted to the surface canopy only and a relatively small

[150] During the 2017-18 summer, New Zealand experienced an unprecedented ocean-atmosphere heatwave covering an area of 4 million km2. Regional average air temperature anomalies over land were +2.2oC, and sea surface temperatures anomalies reached +3.7oC in the eastern Tasman Sea (Salinger, et.al., 2019).

proportion of the kelp bed is harvested at any one time (usually on a rotational basis as the canopy recovers); thereby ensuring no or minimum fishing impacts.

1275. On the other hand, the submission by Dr Matthew Desmond (University of Otago) supports the information presented in the consultation document. He states that local beds of bladder kelp continue to suffer significant declines with the main drivers being increasing sea temperature, reduced light availability, and smothering. Recent work has shown that kelp in Otago cannot produce offspring at temperatures above 18.8-20.2 ºC and its ability to fertilise is sharply reduced at temperatures above 16-17 ºC. As such, Dr Desmond believes that bladder kelp populations are vulnerable to increasing ocean sea temperatures and marine heatwaves.

1276. Overall, FNZ considers the new information provided in submissions highlights there is uncertainty and a lack of a consensus in the scientific community on future changes to bladder kelp in response to increasing environmental change, and the vulnerability of the kelp beds to harvesting.

1.1.4 Management background

1277. Bladder kelp (attached stage only) was introduced into the QMS on 1 October 2010 within KBB 3G and KBB 4G only. A TAC and allowances for commercial, recreational, and customary fisheries, and other sources of mortality caused by fishing were set for each stock (Table 2).

Table 2: Current TACs and allowances for the KBB 3G and KBB 4G stocks (in tonnes).

Stock	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
KBB 3G (South East Coast)	1,238	1,236.8	0.1	0.1	1
KBB 4G (Chathams)	274	272.8	0.1	0.1	1

1278. Prior to QMS introduction, there was a small, but increasing commercial harvest of bladder kelp in both areas, which required active management under the QMS framework to ensure long-term sustainable use. The initial TACs were based on historical bladder kelp biomass information and conservative estimates of Maximum Constant Yield (MCY). For KBB 3G, seasonal point estimates of biomass in Akaroa Harbour and Pleasant River (Otago) for the 1995-98 period [151] were used, and aerial images taken in 2005 of likely harvest areas around the Chatham Islands for KBB 4G [152].

1279. Using the above information, the then Minister set TACs/TACCs for both stocks under section 13(2A) of the Act [153] (shown in Table 2) and introduced a commercial maximum cutting depth requirement of <1.2 metres to reduce any harvest effects. His decision noted there was a substantial bladder kelp resource and balanced the need to provide an economic incentive to develop an emerging fishery against ensuring long-term sustainability [154]. A cautious proving up

[151] The Akaroa Harbour study estimated a combined annual harvestable canopy biomass ranging between 0 t and 377 t. (Pirker, et al., 2000). The total surveyed biomass (entire plants) near Pleasant River (November 1995) ranged between 6600 t and 9954 t (Fyfe, et al., 1999).

Pirker, J J; Schiel, D R; Lees, H (2000). Seaweed Products for Barrel Culture Paua Farming. Unpublished Report for Foundation for Research. Science and Technology's Technology for Business Growth Development project. 88 p.

Fyfe, J., Israel, S.A., & Chong, A. (1999). Mapping Marine Habitats in Otago, Southern New Zealand. Geocato International, Vol. 14(3).

[152] Aerial images taken in 2005 were used to calculate canopy biomass to be between 1460 t and 2190 t.
[153] This recognised that no current biomass estimates were available at that time and no rotational harvest strategy was in place (a consideration for setting a TAC under section 14).
[154] Minister of Fisheries' decision letter, September 2010.

of each fishery was proposed until robust stock assessments and information on the potential effects of harvesting on other species and the marine environment became available.

1280. The Minister also signalled an expectation that quota owners would develop a *Memorandum of Understanding* to promote appropriate harvest strategies and management measures for both fisheries. This has not been developed given the very small nature of each fishery.

1281. There has been no review of KBB 3G and KBB 4G since QMS introduction. FNZ notes that the information used to set the initial TACs for both stocks may no longer reflect current biomass levels. The relatively small current catch levels in KBB 3G and KBB 4G are, nevertheless, highly unlikely to be having any detrimental effect on the harvested kelp beds and associated and dependent species, and are considered to be sustainable.

1.2 Status of the stocks

1282. There is insufficient information on current biomass (canopy area and plant density) to allow for a stock assessment for KBB 3G and KBB 4G. Due to temporal and spatial variation in bladder kelp growth, estimates of localised biomass should be looked at conservatively when applying regional scale management. As such, no estimates of fishery parameters or abundance are available.

1283. The May 2022 Fisheries Assessment Plenary report states that due to relatively low levels of exploitation it is likely that all stocks are still effectively in a virgin state; therefore they are *Very Likely* (>90%) to be at or above the interim stock target and overfishing is *Very Unlikely* (<10%) to be occurring[155].

2 Catch information and current settings within the TAC

2.1 Commercial

1284. Since QMS introduction, commercial landings of attached bladder kelp have only occurred in KBB 3G (Table 3). Annual catch has varied from 5 tonnes (2012-13) to 94 tonnes (2013-14, 2020-21), with an overall average of about 54 tonnes. This level of catch is minor when compared to the TACC of 1,236.8 tonnes (<5%). No landings of attached bladder kelp have been reported in KBB 4G (except for a very minor catch in 2014-15)[156].

Table 3: Reported commercial landings for KBB 3G and KBB 4G in greenweight (tonnes) by fishing year since 1 October 2010 (QMS introduction).

Fishing Year	KBB 3G (South East Coast)	KBB 4G (Chathams)
2010-11	53.34	0.00
2011-12	34.25	0.00
2012-13	5.00	0.00
2013-14	94.00	0.00
2014-15	62.00	0.02
2015-16	30.54	0.00
2016-17	41.77	0.00
2017-18	40.81	0.00
2018-19	67.24	0.00
2019-20	72.83	0.00
2020-21	94.00	0.00
Average Catch	54	<0.02

[155] Under the Harvest Strategy Standard, the default management target is 40% B_0 (unfished biomass), the soft limit is 20% B_0, and the hard Limit is 10% B_0.

[156] A total catch of less than 2 tonnes was reported for FMA 4 prior to QMS introduction.

2.2 Customary Māori

1285. A customary Māori allowance of 0.1 tonne was set in 2010 for the KBB 3G and KBB 4G stocks, respectively. The customary harvest of attached bladder kelp is negligible. There are no reported catches under the Fisheries (South Island Customary Fishing) Regulations 1999.

2.3 Recreational

1286. A recreational allowance of 0.1 tonne was set in 2010 for the KBB 3G and KBB 4G stocks, respectively.

1287. There is no quantitative estimate of recreational harvest of bladder kelp at this time, although it is assumed to be mainly restricted to the collection of beach cast material for composting of domestic gardens. It is likely that some opportunistic hand cutting of kelp occurs.
The recreational harvest of attached bladder kelp is negligible.

2.4 All other mortality caused by fishing

1288. An allowance for all other mortality caused by fishing of one tonne was set in 2010 for the KBB 3G and KBB 4G stocks, respectively.

1289. It is possible that there is a small amount of illegal, unreported or unregulated activity in both fisheries (for example to clear kelp to improve access to paua beds). There is also likely to be some unreported bycatch of attached kelp associated with the deployment and removal of fishing gear such as pots and lines.

3 Treaty of Waitangi Obligations

3.1 Input and participation of tangata whenua

1290. 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.

1291. Particular regard must be given to kaitiakitanga when making sustainability decisions.

1292. KBB 3G falls within the rohe of Te Waka a Māui me Ōna Toka Iwi Forum, the South Island iwi fisheries forum — it includes all nine Iwi of Te Wai Pounamu. KBB 4G falls within the rohe of the Chatham Islands Fisheries Forum (CIFF).

1293. Table 4 below provides a summary of engagement with these Iwi Fisheries Forums on the KBB 3G and KBB 4G proposals.

Table 4: Summary of engagement with Iwi Fisheries Forums.

Iwi Fisheries Forum	Input on KBB 3G & KBB 4G
Te Waka a Māui me Ōna Toka Iwi Forum (all of South Island) FNZ also met with Araiteuru (30 May 2022) and Murihiku (8 July 2022) Papatipu Runanga iwi and provided information on the review of KBB 3G.	At a hui for the forum held on 12 July 2022, the forum emphasised that there is a need to ensure the careful proofing-up of this fishery. This was reaffirmed in a written submission from Te Rūnanga o Ngāi Tahu received on the KBB 3G proposal.
FNZ discussed the proposals with the Chatham Island Fisheries Forum (CIFF) in May and July 2022	No specific input received. Submissions were subsequently received from Ngati Mutunga o Wharekauri Asset Holding Company Limited and the Chatham Island Enterprise Trust (both represented on CIFF) supporting Option 1 (*status quo*) for KBB 4G.

3.2 Kaitiakitanga

1294. The Fisheries Act defines kaitiakitanga to mean "the exercise of guardianship; and, in relation to any fisheries resources, includes the ethic of stewardship based on the nature of the resources, as exercised by the appropriate tangata whenua in accordance with tikanga Māori", where tikanga Māori refers to Māori customary values and practices.

1295. The Te Waipounamu Iwi Forum Fisheries Plan includes the KBB 3G and KBB 4G stocks and identifies bladder kelp as a *taonga* species.

1296. There are 24 customary fisheries management areas within KBB 3G. These are 19 mātaitai reserves, four taiāpure and one temporary closure (Table 5). Commercial harvest of kelp is currently prohibited within most of these areas (harvest is permitted within the Akaroa Taiāpure).

Table 5: Customary fisheries management areas in KBB 3G (there are no areas in KBB 4G).

QMA	Customary Area	Management Type
KBB 3G	Te Taumanu o Te Waka a Māui (Kaikōura) Oaro-Haumuri (Kaikōura), Akaroa Harbour (Canterbury) East Otago Taiāpure	**Taiāpure** *The management committee for the Taiāpure. can recommend regulations for commercial, recreational and customary fishing. The East Otago Taiāpure kelp beds are closed through taiāpure regulations, and the two Kaikōura taiāpure are currently closed as part of the wider earthquake-related closure.*
KBB 3G	Kaikōura/Wakatu Quay (Kaikōura)	**Section 186A Temporary Closures** *Section 186A temporary closures are used to restrict or prohibit fishing of any species of fish, aquatic life or seaweed or the use of any fishing method.*
KBB 3G	Mangamaunu (Kaikōura), Kahutara (Kaikōura) Oaro (Kaikōura) Tūtaeputaputa (Kaikōura) Lyttelton Harbour/Whakaraupo (Banks Peninsula) Rapaki Bay (Banks Peninsula) Koukourārata (Banks Peninsula) Wairewa/Lake Forsyth (Banks Peninsula) Te Kaio (Banks Peninsula) Opihi (South Canterbury) Waitarakao (South Canterbury) Te Ahi Tarakihi (South Canterbury) Tuhawaiki (South Canterbury) Waihao (South Canterbury) Moeraki (East Otago) Waikouaiti (East Otago) Ōtākou (East Otago) Puna-wai-Toriki (East Otago) Waikawa Harbour/Tumu Toka (East Otago)	**Mātaitai Reserve** *Commercial fishing is not permitted within mātaitai reserves unless regulations state otherwise.*

4 Environmental and Sustainability Considerations

4.1 Environmental principles (section 9 of the Act)

1297. The environmental principles, which must be taken into account when considering sustainability measures for KBB 3G and KBB 4G are as follows:

a) Associated or dependent species should be maintained above a level that ensures their long-term viability (associated or dependent species include marine mammals, seabirds, fish and invertebrates caught as bycatch).

b) Biological diversity of the aquatic environment should be maintained (any benthic impacts from fishing are an important consideration in relation to this principle); and

c) Habitat of particular significance for fisheries management should be protected.

1298. FNZ notes that both KBB 3G and KBB 4G stocks are target fisheries, and the proposed options will either have the same or reduced environmental interactions. These options do take the above principles into account.

4.1.1 Marine mammals

1299. Attached bladder kelp harvest is selective. There are no known marine mammal interactions associated with the KBB 3G and KBB 4G stocks.

4.1.2 Seabirds

1300. There are no known seabird interactions associated with the KBB 3G and KBB 4G stocks.

4.1.3 Fish bycatch

1301. There is thought to be little fish bycatch associated with the KBB 3G and KBB 4G stocks, as any animals unintentionally caught when surface fronds are brought onboard are likely to survive when returned.

4.1.4 Benthic impacts

1302. Commercial fishing for attached bladder kelp is restricted to cutting of frond to a maximum surface depth of 1.2 metres. As such, fishing is not in direct contact with the seabed.

4.1.5 Biodiversity and habitats of particular significance for fisheries management

1303. Attached bladder kelp plays a critical role in coastal and marine environments by providing a wide and diverse range of ecosystem services.

1304. Bladder kelp beds are critical for maintaining biodiversity:

- Act as a foundation species and ecosystem engineer of highly productive and valuable coastal and marine communities.
- Provide a key habitat for a range of coastal and marine invertebrates and fish species. The three-dimensional forest structure is known to strongly influence faunal diversity.
- Have strong associations with a range of associated macroalgal species, sessile invertebrates (eg, cook's turban, topshells, pāua, rock lobster, and kina), and fish species (eg, butterfish, blue cod, moki, wrasse, and leatherjackets).

1305. FNZ is currently undertaking public consultation on a separate project to develop guidelines for identifying *habitats of particular significance for fisheries management* to inform habitat identification and provide greater transparency on fisheries management advice[157].
The guidelines will assist in identifying the potential for adverse effects on habitats of particular significance for fisheries management (including non-fishing stressors) and will better inform the need for greater protection when making fisheries management decisions.

1306. Under the above project, consideration will be given to locations where bladder kelp may be a habitat of significance for other species, as well as locations that may be particularly significant habitats for supporting kelp forests. This information will inform a proposed review of both KBB

[157] Guidance for identifying a habitat of particular significance for fisheries management

3G and KBB 4G stocks (refer below).

Table 6: Summary of information on potential habitats of particular significance for fisheries management for KBB 3G and KBB 4G.

Fish Stock	KBB 3G & KBB 4G
Potential habitats of particular significance	Bladder kelp is typically attached to rocky substrates from the shallow subtidal zone through to depths of about 10-15 metres. Both the gametophyte and sporophyte (reproductive) phases are found on reefs, boulders, and stable cobble substrates. Extensive areas of rocky substrates exist through the KBB 3G and KBB 4G QMAs. Specific locations where rocky substrate is a HoS for kelp are unconfirmed.
Attributes of habitat	• Rocky substrates – reefs, boulders, and stable cobbles. • While bladder kelp requires water motion, it does not tolerate strong currents or wave action. • Found primarily found in bays, harbours and relatively sheltered offshore waters. • Where mature beds persist, these can serve to dampen wave action and movement.
Reasons for particular significance	• The adult sporophyte phase requires stable substrates, given the weight (and drag) of mature thalli. Strong wave action eg, storm surges result in thalli being ripped off substrates. • Gametes do not travel far from the gametophyte phase; so the habitat of spores, gametes and gametophytes is primarily that of the sporophyte phase. • Settlement and recruitment of juvenile plants appear to be favoured within or on the margins of existing beds.
Risks/Threats	• Sedimentation (smothering gametophyte stage and reducing capacity for settlement of spores and gametes; reducing light and photosynthesis). • Ocean warming and heatwaves, ocean acidification, and increasing storm intensity and frequency. • Loss of habitat through coastal erosion, developments, and reclamation. • Changes in trophic levels including kina barrens.
Existing protection measures	• Commercial bladder kelp harvest is prohibited within the Kaikōura Marine Area. • Commercial kelp fishing is prohibited in most taiāpure and all mātaitai within KBB 3G. • Commercial harvest of attached bladder kelp within KBB 3G and KBB 4G is restricted to cutting of the upper surface canopy to a maximum water depth of 1.2 metres.

Table 7: Summary of information on KBB 3G and KBB 4G as potential habitats of particular significance for fisheries management for other harvest species.

Fish Stock	KBB 3G & KBB 4G as habitats of significance for other harvest species
Potential habitats of particular significance	• Provides habitat, shade, shelter, refuge from predation, and food for a wide arrange of coastal and marine algal, invertebrate, and fish species at all life stages.
Attributes of habitat	• Bladder kelp grows up to 45 metres long, occurs in waters to a maximum depth of 10-15 metres, and creates significant three-dimensional habitat in coastal and marine areas. • Alters physical conditions in coastal and marine areas by dampening water motion, altering sedimentation, shading the seabed, removing nutrients from the water column, and stabilising substrata.
Reasons for particular significance	• Bladder kelp beds provide key habitat for a range of coastal invertebrates and fish species. • Bladder kelp is a foundation species and ecosystem engineer of highly productive and valuable coastal and marine communities. • Provides significant three-dimensional habitat over substantial coastal and inshore areas to provide settlement, nursery, shelter, and refuge habitats for a wide range of important commercial and non-commercial shellfish (i.e., pāua, rock lobster, kina) and finfish (i.e., butterfish, blue cod, moki, wrasse). • Kelp beds are critical for spawning, growth, and survival of juveniles and adults and are essential for maintaining biodiversity and productivity of stocks.
Risks/Threats	• Seaweeds, including bladder kelp, have declined in many places around the world (incl NZ) due to global and localised warming sea temperatures and marine heatwave events. • Inputs of sedimentation and eutrophication from land-based sources also poses significant threats, often in combination with the above.

4.2 Sustainability measures (section 11 of the Act)

1307. Section 11 of the Act sets out various matters that you must take into account or have regard to when setting or varying any sustainability measures (such as a TAC).

1308. These include any effects of fishing on the stock and the aquatic environment (see 4.1 above), existing controls under the Act that apply to KBB 3G and KBB 4G, the natural variability of the stock concerned, and any relevant fisheries plans.

1309. There are no specific fisheries plans for the KBB 3G and KBB 4G fisheries, but the following plans and strategies are considered relevant.

4.2.1 Regional Plans - s11(2)(a)

1310. There are four regional councils and one unitary authority that have a coastline within the KBB 3G and KBB 4G QMA boundaries: Environment Canterbury Regional Council, Otago Regional Council, Environment Southland and the Chatham Islands Council. Each of these regions have policy statements and plans to manage the coastal and freshwater environments, including terrestrial and coastal linkages, ecosystems and habitats. FNZ has reviewed these documents and the provisions that might be considered relevant are set out in Addendum 1 (page 235).

1311. The provisions of these various documents are, for the most part, of a general nature and focus mostly on land-based stressors on the marine environment. There is nothing specific to bladder kelp stocks.

1312. The FNZ Coastal Planning Team engages with the RMA coastal planning processes (including regional authorities) to support marine management decisions to manage not only the fishing effects on the coastal environment but also land-based impacts on fisheries.

4.2.2 Kaikōura Marine Strategy

1313. The Kaikōura Marine Strategy is developed under the Kaikōura (Te Tai ō Marokura) Marine Management Act 2014 and aims to integrate and establish marine protection and fisheries measures in the Kaikōura marine environment. All commercial and recreational harvest of seaweeds (including bladder kelp) within the Kaikōura Marine Area is prohibited to promote their recovery following the November 2016 earthquakes.

5 Submissions

1314. There were nine submissions on the proposed options for the KBB 3G and KBB 4G stocks (Table 8). For KBB 3G, two submissions supported Option 1 (*status quo*), no submissions supported Option 2, and one submission supported Option 3. For KBB 4G, five submissions supported Option 1 (*status quo*) and one submission supported Option 2. One submission supported a new option to set the TAC/TACC for both stocks at 0 tonnes.

1315. Submissions did not provide feedback on non-commercial allowances for either stock.

Table 8: Written submissions and responses received for KBB 3G (South East Coast) and KBB 4G (Chathams) stocks.

Submitter	KBB 3G Option			KBB 4G Option			
	1	2	3	1	2	Other	Comments
Dr Matthew Desmond, University of Otago						✓	Supports a TAC/TACC of 0 tonnes for both stocks to prevent further declines in wild bladder kelp.
Te Rūnanga o Ngāi Tahu						✓	No option preferred stated but supports *the gradual and careful proofing-up of the KBB 3G stock*.
Te Ohu Kaimoana Endorsed by: – Maruehi Fisheries Ltd – Ngaruahine Fisheries Ltd – Raukawa Asset Holding Co Ltd – Taranaki Iwi Fisheries Ltd – Te Atiawa (Taranaki) Holdings Ltd – Te Paataka o Tangaroa Ltd – Whanganui Iwi Fisheries Ltd				✓		✓	Support Ngāi Tahu's position on KBB 3G. For KBB 4G, support the position of the iwi and quota holders to maintain the current TAC and TACC levels to support their aspirations for the fishery.
Joint submission from Bill Chisholm, Chisholm Associates, on behalf of Roger Beattie, Aotearoa Quota Brokers Ltd, Gina Preece, Gisborne Fisheries 1955 Ltd, and Rekohu Ocean Fisheries Ltd (representing 67% of KBB 3G quota holdings)	✓						Supports option 1 (KBB 3G) as fishery was introduced into the QMS as a 'developmental fishery' and submits that reducing the TACC would be contrary to this objective. No scientific information that fishing is having a detrimental impact on current kelp beds. Potential annual earning losses will range between $3.71m (Option 2) and $5.65m (Option 3).
Chatham Islands Enterprise Trust				✓			Supports Option 1 (KBB 4G) as no evidence that stock is at risk from commercial harvesting. Given there is no commercial fishing at present, a lower TACC will have no effect on the biomass and remove the commercial viability of the fishery and undermine quota value. Development of new seaweed-based products would prevent valuable employment and income opportunities for Chatham Islanders.
Joint submission from Bill Chisholm, Chisholm Associates, on behalf of Roger Beattie, Chathams Islands Quota Holdings Ltd, Hokotehi Settlement Quota Holding Co. Ltd, Ngati Mutunga o Wharekauri Asset Holding Company Limited (representing 100% of KBB 4G quota holdings)				✓			Supports Option 1 (KBB 4G) as was introduced into the QMS as a 'developmental fishery' and submits that reducing the TACC is contrary to this objective. Any development would be under protocols to manage fishing effects. No scientific information that fishing is having a detrimental impact on current kelp beds. Potential annual earning losses that will be about $1.23m (Option 2).

Ngati Mutunga o Wharekauri Asset Holding Company Limited				✓			Supports Option 1 (KBB 4G) and endorse Bill Chisolm's submission.
Environment and Conservation Organisations of NZ Inc.			✓		✓		Supports Option 3 as a minimum without further information given the ecological importance of kelp beds. Kelp beds meet the criteria of habitats of significance for fisheries management given they are habitat forming.
R D Beattie, Beyond Organics/NZ Kelp Ltd	✓			✓			Supports Option 1 for both stocks as it is nascent growth industry and reducing the TACCs will limit growth and prevent the opportunity to develop a fully sustainable industry. NZ Kelp projects growth to increase substantially and forecasts it will harvest and sell 500 tonnes each year by 2025. Potential economic loss (quota value) to NZ Kelp is as follows (based on a quota value of $10,000 per tonne): KBB 3G – $2.47m under Option 2 and $3.71m under Option 3. KBB 4G – $0.18m under Option 2.
Total	2	0	1	5	1	3	

6 Options and analysis – KBB 3G (South East Coast)

1316. There is insufficient information to reliably estimate the current or target biomass that would produce maximum sustainable yield for KBB 3G. Therefore, the options below are being considered under s 13(2A) of the Act.

6.1 Option 1 – *status quo* (*Fisheries New Zealand preferred option*)

TAC	TACC	Customary	Recreational	Other mortality
1238 t	1236.8 t	0.1 t	0.1 t	1 t

1317. This option retains the TAC and TACC at current levels and allows for significantly higher commercial catch levels. Two submissions were made in support of this option.

1318. Option 1 recognises the developmental nature of this fishery and the environmental risk to the stock and associated and dependent species is very low under current catch levels. Industry submissions contend that the stock was introduced into the QMS as a *low knowledge developmental fishery* and that reducing the TACC without providing an opportunity to develop the fishery would be contrary to the Act's purpose to provide for utilisation while ensuring sustainability.

1319. Ngai Tahu's position is to support a '*gradual and careful proofing-up'* of the fishery, without stating a preferred option. Retaining the *status quo* with ongoing monitoring and review can achieve this outcome.

1320. Mr Beattie has advised in his submission that his seaweed harvest business is entirely sustainable and will likely increase catch to about 500 tonnes by 2025 (this may include the use of a floating mechanical harvester). This option assumes, therefore, that any environmental risk can be appropriately managed as the fishery develops.

1321. An expert report commissioned by quota holders (refer to *updated information from submissions* under Heading 1.1.3 above) during consultation suggest that the decline in bladder kelp biomass during recent marine heatwave events may have not been as extensive as set out in the consultation document and that affected kelp beds have now recovered.

Nevertheless, another expert submission states that kelp beds are in a state of decline and uncertainty remains regarding the long-term future effects of environmental change. Mr Beattie and other industry submissions point to the need for new research on the state of bladder kelp to better inform an understanding of the relevant areas and stock size. Should the *status quo* be retained, FNZ will consider commissioning a new stock assessment for KBB 3G in the next 1-2 years and, potentially, research on the wider impacts of marine heatwaves on fisheries resources, including kelp. This will allow for updated information to be assessed on the potential effects of future environmental change on the stock given the lack of consensus in the science community.

1322. In the interim, FNZ agrees with submissions that there is little immediate threat to existing kelp beds under current low catch levels. The requirement for commercial fishers to harvest only surface canopy fronds currently provides adequate protection to overfishing by spreading catch over a wider area, protects the reproductive sporophyll for future regeneration, and avoids removing the sub-surface fronds that quickly replace lost surface canopy cover.

1323. In addition, commercial kelp fishing is prohibited in most taiāpure and all mātaitai within KBB 3G. The proposed South East Marine Protection Network (north Otago) also includes kelp protection areas. The Kaikōura Marine Area is likely to remain closed to all bladder kelp fishing in the foreseeable future as the region recovers from the 2016 earthquakes. Consequently, a significant proportion of the QMA is, or may be, closed to commercial kelp harvest. This may assist in mitigating some of the potential risks associated with retaining the *status quo*.

1324. Overall, in light of the information and reports provided during consultation, FNZ supports Option 1. Kelp beds are critical components of the coastal and inshore environment and FNZ will continue to monitor the fishery as it develops. This includes consideration of a further review once a stock assessment has been completed.

6.2 Option 2 (50% reduction)

TAC	TACC	Customary	Recreational	Other mortality
619.6 t (↓ 618.4 t)	618.4 t (↓ 618.4 t)	0.1 t –	0.1 t –	1 t –

1325. Option 2 proposes a more cautious TAC and TACC based on a 50% reduction. The non-commercial allowances would be retained. Submissions did not support this option.

1326. This option provides a greater level of protection to the stock while still allowing commercial catches to increase from current levels. It recognises that commercial fishing has the potential to significantly increase, while reducing some environmental risk.

1327. The proposed TAC still provides for the industry to develop the fishery. Some economic potential is foregone under this option and industry considers that the incentive to develop the fishery and its potential economic value would be much lower under this option. Industry submissions propose that this option would decrease annual earnings by about $3.71 million[158]; however, FNZ cannot verify this value and considers it high relative to other value indicators. The most recent port price for KBB 3G and KBB 4G is $0.15/kg[159], which would equate to a potential loss value of around $93,000 for Option 2, relative to the *status quo*.

[158] Industry submission uses a landed value of bladder kelp of NZ$6,000 per tonne.

[159] Port price is an average of what commercial fishers receive across a QMA, not what the stock is worth at market (which is higher). Nor does it reflect the income for Licensed Fish Receivers (including wholesalers and/or processors) and retailers. It is also important to note that port price would likely change if demand for bladder kelp were to increase and produce higher value.

6.3 Option 3 (75% reduction)

TAC	TACC	Customary	Recreational	Other mortality
310.4 t (↓ 927.6 t)	309.2 t (↓ 927.6 t)	0.1 t –	0.1 t –	1 t –

1328. Option 3 is based on a 75% reduction of the TAC/TACC. The non-commercial allowances would be retained.

1329. ECO supports this option but considers that an even lower reduction (90%) of the TAC/TACC is more appropriate.

1330. This is the most cautious option and provides a high level of protection to the stock while allowing recent catch levels to continue (with some room for expansion). It reduces the opportunity to develop the fishery but does not remove it.

1331. This is not FNZ's preferred option given the lack of consensus regarding the potential risk to the kelp beds from harvesting apparent in the submissions. The industry contends that this option would lead to an annual earning loss of about $5.65 million. However, FNZ has not been able to verify this value, and based on the most recent port price calculates the potential loss value of around $139,000 for Option 3, relative to the *status quo*.

6.4 Other options proposed by submitters

1332. Dr Matthew Desmond submits that the TAC/TACC should be set at 0 tonnes given the ecological functions bladder kelp provides to coastal and marine services. This would provide full protection to the stock. Enabling any level of harvest undermines efforts to restore areas of lost kelp forests and to develop strategies to buffer the effects of environmental change.

1333. FNZ does not support this option as it would prevent future utilisation of bladder kelp at any catch level and is inconsistent with the Act's purpose to provide for sustainable utilisation. It would have an economic impact on the commercial sector and is also not supported by tangata whenua.

7 Options and analysis – KBB 4G (Chathams)

1334. There is insufficient information to reliably estimate the current or target biomass that would produce maximum sustainable yield for KBB 4G. Therefore, the options below are being considered under s 13(2A) of the Act.

7.1 Option 1 – *status quo* (*Fisheries New Zealand preferred option*)

TAC	TACC	Customary	Recreational	Other mortality
274 t	272.8 t	0.1 t	0.1 t	1 t

1335. This option retains the TAC and TACC at current levels and allows for significantly higher commercial catch levels. Five submissions were made in support of this option.

1336. The views expressed in submissions to retain current catch settings (Option 1) for the KBB 3G fishery are also made for the KBB 4G stock. As such, much of the information provided above and FNZ's view also applies to this fishery. Of note is the following:

- Iwi/imi are mindful of the potential effects of fishing for kelp and would not support harvesting that presents risks to associated and economically valuable Chatham Islands' fisheries (ie, pāua and kina). Instead, they will determine how their settlement assets will

be used to protect their fisheries interests and health of the coastal marine system using appropriate protocols and conditions.

- There is presently no commercial harvest and the fishery remains effectively in an unfished state. As noted above, the requirement for commercial fishers to only harvest the surface canopy fronds mitigates the effects of fishing.

1337. The TAC/TACC is relatively low and was introduced into the QMS as a *low knowledge developmental fishery*. Reducing the TACC would reduce the incentive and potential economic value of the fishery (including settlement-issued quota) with implications for the Chatham Island's community and value. Industry suggests that a 75% reduction of the TACC would lead to a reduction in earning potential of about $1.23 million[160]; however, FNZ has not been able to verify this value and considers it high relative to other value indicators.

1338. In light of submissions received, FNZ *supports* Option 1. As noted above, kelp beds are critical components of the coastal and inshore environment and FNZ will continue to monitor the fishery as it develops.

7.2 Option 2 (75% reduction)

TAC	TACC	Customary	Recreational	Other mortality
69.4 t (↓ 204.6 t)	68.2 t (↓ 204.6 t)	0.1 t –	0.1 t –	1 t –

1339. Option 2 is based on a 75% reduction of the TAC/TACC. The non-commercial allowances would be retained.

1340. One submission was made in support of this option from ECO, however, they also support an even lower reduction (90%) of the TAC/TACC in light of the kelp's ecological role.

1341. This is the most cautious option to provide greater protection while allowing very limited catch. This option places least weight on providing for utilisation by constraining industry's ability to grow.

1342. As with the KBB 3G fishery, FNZ does not support this option as it would greatly reduce the incentive and potential economic value from this fishery developing. This could have a significant effect on iwi/imi and Chatham Island's commercial interests to develop a new valuable fishery. The industry contend that this option would lead to a significant annual earning potential loss and this would be contrary to the decision to introduce the stock into the QMS as a developing fishery.

7.3 Other options proposed by submitters

1343. Dr Matthew Desmond submits that the TAC/TACC should be set at 0 tonnes.

1344. FNZ does not support this option as it would prevent any future utilisation of bladder kelp. This would be contrary to the decision to manage the fishery under the QMS and be inconsistent with the Act's purpose to provide for sustainable utilisation. It would have a significant economic impact on the commercial sector and is not supported by tangata whenua. It could have a significant economic impact on iwi/imi and the Chatham island's commercial sector and community.

8 Deemed values

1345. The deemed values rates for KBB 3G and KBB 4G are shown below in Table 9.

[160] Industry submission uses a landed value of bladder kelp of NZ$6,000 per tonne.

Table 9: Current deemed value rates ($/kg) for KBB 3G and KBB 4G

Stock	Interim	Annual differential rates ($/kg) for excess catch (% of ACE)					
		100-120%	120-140%	140-160%	160-180%	180-200%	>200%
KBB 3G	3.60	4.00	4.80	5.60	6.40	7.20	8.00
KBB 4G	3.60	4.00	4.80	5.60	6.40	7.20	8.00

1346. FNZ is satisfied that these existing deemed value rates are consistent with your mandatory statutory consideration under section 75(2)(a) in that they provide sufficient incentive for fishers to balance their catch with ACE. On that basis, FNZ is not recommending any changes to deemed value rates for these stocks.

1347. Submissions did not raise matters regarding the deemed values for either stock.

9 Conclusions and recommendations

1348. Bladder kelp is a critical component of coastal and marine environments and provides a wide range of ecosystem functions. Kelps around the world are declining due to increasing environmental stressors and there are reported losses in local bladder kelp biomass in KBB 3G and KBB 4G following recent marine heatwaves. However, information and reports provided during consultation suggest that these bladder kelp beds are resilient and may now have recovered to past levels.

1349. Commercial catches are very low compared to the current TAC and TACC and pose little risk at this time. FNZ supports retaining the *status quo* (Option 1) for both KBB 3G and KBB 4G in light of low environmental risk under current catches and the need to better confirm the status and vulnerability of these stocks were the TAC and TACC fully caught.

1350. To this end, FNZ will consider commissioning a scientific stock assessment over the next 1-2 years to summarise and review the available scientific information and provide a basis for considering whether a further review of the sustainability settings for these fisheries is required.

10 Decision for KBB 3G (South East Coast) Stock

Option 1 (***Fisheries New Zealand preferred option***)

Agree to retain the KBB 3G TAC at 1,238 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 0.1 tonnes;
ii. Retain the allowance for recreational fishing interests at 0.1 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 1 tonne;
iv. Retain the KBB 3G TACC at 1,236.8 tonnes.

Agreed / ~~Agreed as Amended / Not Agreed~~

OR

Option 2

Agree to set the KBB 3G TAC at 619.6 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 0.1 tonnes;
ii. Retain the allowance for recreational fishing interests at 0.1 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 1 tonne;
iv. Decrease the KBB 3G TACC from 1,236.8 to 618.4 tonnes.

~~Agreed / Agreed as Amended~~ / Not Agreed

OR

Option 3

Agree to set the KBB 3G TAC at 310.4 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 0.1 tonnes;
ii. Retain the allowance for recreational fishing interests at 0.1 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing at 1 tonne;
iv. Decrease the KBB 3G TACC from 1,236.8 to 309.2 tonnes.

~~Agreed / Agreed as Amended~~ / Not Agreed

11 Decision for KBB 4G (Chathams) Stock

Option 1 *(Fisheries New Zealand preferred option)*

Agree to retain the KBB 4G TAC at 274 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 0.1 tonnes;
ii. Retain the allowance for recreational fishing interests at 0.1 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing 1 tonne;
iv. Retain the KBB 4G TACC at 272.8 tonnes.

Agreed / Agreed as Amended / ~~Not Agreed~~

OR

Option 2

Agree to set the KBB 4G TAC at 69.4 tonnes and within the TAC:

i. Retain the allowance for Māori customary non-commercial fishing interests at 0.1 tonnes;
ii. Retain the allowance for recreational fishing interests at 0.1 tonnes;
iii. Retain the allowance for all other sources of mortality to the stock caused by fishing 1 tonne;
iv. Decrease the KBB 4G TACC from 272.8 to 68.2 tonnes.

Agreed / Agreed as Amended / Not Agreed

Hon David Parker
Minister for Oceans and Fisheries

7 / 9 / 2022

Addendum 1: Provisions and policy statements of regional plans that might be considered relevant.

This addendum is linked to 'Regional Plans' sections of the stock chapters in this decision document. FNZ has reviewed the regional policy statements and plans for each of the stocks under review. The provisions are not stock specific, and for the most part, are of a general nature and focus mostly on land-based stressors on the marine environment.

Regional Council	Document	Relevant sections
Northland	**Regional Policy Statement for Northland**	**2.2 Indigenous ecosystems and biodiversity** The key pressures on Northland's indigenous terrestrial, freshwater, and coastal marine ecosystems and species are: (d) Fragmentation, loss and isolation of populations and communities of indigenous species due to habitat loss, land use changes and vegetation clearance. **4.5.1 Policy – Identification of the coastal environment, outstanding natural features and outstanding natural landscapes and high and outstanding natural character** This policy assists in the implementation of s6. Resource Management Act and the New Zealand Coastal Policy Statement 2010 (NZCPS) by: • Identifying the coastal environment; • Identifying high and outstanding natural character areas (in the coastal environment); and • Identifying outstanding natural features and landscapes
	Proposed Regional Plan for Northland	**Section D.2 General** D.2.18 Managing adverse effects on indigenous biodiversity 1a) avoiding adverse effects on: i. indigenous taxa that are listed as Threatened or At Risk in the New Zealand Threat Classification System lists, and ii. the values and characteristics of areas of indigenous vegetation and habitats of indigenous fauna that are assessed as significant using the assessment criteria in Appendix 5 of the Regional Policy Statement, and iii. areas set aside for full or partial protection of indigenous biodiversity under other legislation 1b) avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects on: i. areas of predominantly indigenous vegetation, and ii. habitats of indigenous species that are important for recreational, commercial, traditional or cultural purposes, and iii. indigenous ecosystems and habitats that are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, intertidal zones, rocky reef systems, eelgrass, northern wet heathlands, coastal and headwater streams, spawning and nursery areas and saltmarsh.
Auckland	**Auckland Council Regional Policy Statement**	2.4.7 Auckland's coastal environment is a fundamental part of its heritage and is sensitive to the adverse effects of inappropriate subdivision, use and development. It is also essential for the Region's social and economic wellbeing. The Hauraki Gulf and its islands are resources of regional and national significance for navigation and port purposes, fishing, recreation, tourism and settlement. The Hauraki Gulf Marine Park Act 2000 requires the Council maintains the interrelationship between the Hauraki Gulf, its islands and catchments to sustain the life supporting capacity of the environment.

		Harbours, such as the Mahurangi, sustain a variety of recreational uses as well as commercial shell fisheries. The catchment also contains large tracts of forest and some urbanisation. These potentially conflicting uses must be carefully managed to ensure this diversity of use is sustainable and the resource qualities are maintained. **7 Coastal Environmental** 7.3 Objectives 2. To protect outstanding natural features and landscapes, areas of significant indigenous vegetation and significant habitats of indigenous fauna, and significant historic and cultural places and areas in the coastal environment. **7.4.4 Policies: Natural character of the coastal environment** 1. The natural character of the coastal environment shall be preserved, and protected from inappropriate subdivision, use and development by: (b) areas of indigenous vegetation and habitats of indigenous fauna and associated processes; (g) habitat important for preserving the range, abundance and diversity of indigenous and migratory coastal species; (j) In all other areas, avoiding any adverse effects which result in the significant reduction in habitat important for preserving the range and diversity of indigenous and migratory coastal species within the Auckland Region.
	Auckland Unitary Plan	**Section B6 – Mana Whenua** Section B6.3.2 of the Auckland Unitary Plan states its policy to: "(4) Provide opportunities for Mana Whenua to be involved in the integrated management of natural and physical resources in ways that do all of the following: (a) Recognise the holistic nature of the Mana Whenua world view; (b) Recognise any protected customary right in accordance with the Marine and Coastal Area (Takutai Moana) Act 2011; and (c) Restore or enhance the mauri of freshwater and coastal ecosystems." **Section B7 – Natural Resources** Section B7.1 of the Auckland Unitary Plan notes that the combination of urban growth and past land, coastal and freshwater management practices have placed increasing pressure on land and water resources including habitats and biodiversity. Section B7.7 of the Auckland Unitary Plan states that: Coastal and marine ecosystems are also subject to change, damage or destruction from inappropriate subdivision, use and development, as well as natural processes. Areas containing threatened ecosystems and species require effective management to protect them, and enhance their resilience which is important for the long-term viability of indigenous biodiversity and to help respond to the potential effects of climate change. Effectively addressing these issues requires a combination of regulatory and voluntary efforts. Areas of high ecological value have been identified as significant ecological areas using significance factors set out in the schedules of the Unitary Plan. (See Schedule 3 Significant Ecological Areas – Terrestrial Schedule and Schedule 4 Significant Ecological Areas – Marine Schedule.) The coastal marine area has not yet been comprehensively surveyed for the purpose of identifying marine significant ecological areas. Those that have been identified may under-represent the extent of significant marine communities and habitats present in the sub-tidal areas of the region. It is important that both areas be considered together because of the dynamic and interconnected nature of coastal environments and because the

		classes may change over time as more knowledge is gained and as pressures on receiving environments change. There is evidence that even moderate levels of degradation can result in ecosystem level changes, and it is not yet known how reversible these changes might be. **Section B8 – Coastal Environment** Section B8.3.2 of the Auckland Unitary Plan lists policies for use and development, including: Provide for use and development in the coastal marine area that: (a) Have a functional need which requires the use of the natural and physical resources of the coastal marine area; (b) Are for the public benefit or public recreation that cannot practicably be located outside the coastal marine area; (c) Have an operational need making a location in the coastal marine area appropriate and that cannot practicably be located outside the coastal marine area; or (d) Enable the use of the coastal marine area by Mana Whenua for Māori cultural activities and customary uses. **Section B8.5. Managing the Hauraki Gulf/Te Moana Nui o Toi/Tīkapa Moana** Section B8.5 lists objectives and policies provide guidance on giving effect to the Hauraki Gulf Marine Park Act. Objectives include: (1) The management of the Hauraki Gulf gives effect to sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000. (2) Use and development supports the social and economic well-being of the resident communities of Waiheke and Great Barrier islands, while maintaining or, where appropriate, enhancing the natural and physical resources of the islands. (3) Economic well-being is enabled from the use of the Hauraki Gulf's natural and physical resources without resulting in further degradation of environmental quality or adversely affecting the life-supporting capacity of marine ecosystems. Policies include: Integrated management (1) Encourage and support the restoration and enhancement of the Hauraki Gulf's ecosystems, its islands and catchments. (2) Require the integrated management of use and development in the catchments, islands, and waters of the Hauraki Gulf to ensure that the ecological values and life-supporting capacity of the Hauraki Gulf are protected, and where appropriate enhanced. (3) Require applications for use and development to be assessed in terms of the cumulative effect on the ecological and amenity values of the Hauraki Gulf, rather than on an areaspecific or case-by-case basis. (4) Maintain and enhance the values of the islands in the Hauraki Gulf. (5) Avoid use and development that will compromise the natural character, landscape, conservation and biodiversity values of the islands, particularly in areas with natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal, historic heritage and special character. (6) Promote the restoration and rehabilitation of natural character values of the islands of the Hauraki Gulf. (7) Ensure that use and development of the area adjoining conservation islands, regional parks or Department of Conservation land, does not adversely affect their scientific, natural or recreational values. (8) Enhance opportunities for educational and recreational activities on the islands of the Hauraki Gulf if they are consistent with protecting natural and physical resources, particularly in areas where natural and physical resources have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal, historic heritage and special character. (9) Identify and protect areas or habitats, particularly those unique to the Hauraki Gulf, that are: (a) significant to the ecological and biodiversity values of the Hauraki Gulf; and

		(b) vulnerable to modification; (10) Work with agencies and stakeholders to establish an ecological bottom line, or agreed target, for managing the Hauraki Gulf's natural and physical resources which will do all of the following: (a) provide greater certainty in sustaining the Hauraki Gulf's ongoing life-supporting capacity and ecosystem services; (b) assist in avoiding incremental and ongoing degradation; (c) co-ordinate cross-jurisdictional integrated management and effort to achieve agreed outcomes; (d) better measure the success of protection and enhancement initiatives; (e) assist in establishing a baseline for monitoring changes; (f) enable better evaluation of the social and economic cost-benefits of management; and (g) provide an expanded green-blue network linking restored island and mainland sanctuaries with protected, regenerating marine areas where the ecological health and productivity of the marine area will be enhanced. Providing for the relationship of Mana Whenua with the Hauraki Gulf (11) Work in partnership with Mana Whenua to protect and enhance culturally important environmental resources and values of the Hauraki Gulf that are important to their traditional, cultural and spiritual relationship with the Hauraki Gulf. (12) Incorporate mātauranga Māori with western knowledge in establishing management objectives for the Hauraki Gulf. (13) Require management and decision-making to take into account the historical, cultural and spiritual relationship of Mana Whenua with the Hauraki Gulf, and the ongoing capacity to sustain these relationships. Maintaining and enhancing social, cultural and recreation values (14) Identify and protect the natural and physical resources that have important cultural and historic associations for people and communities in and around the Hauraki Gulf. (15) Identify, maintain, and where appropriate enhance, areas of high recreational use within the Hauraki Gulf by managing water quality, development and potentially conflicting uses so as not to compromise the particular values or qualities of these areas that add to their recreational value. (16) Encourage the strategic provision of infrastructure and facilities to enhance public access and recreational use and enjoyment of the Hauraki Gulf. Providing for the use of natural and physical resources, and for economic activities (17) Provide for commercial activities in the Hauraki Gulf and its catchments while ensuring that the impacts of use, and any future expansion of use and development, do not result in further degradation or net loss of sensitive marine ecosystems. (18) Encourage the strategic provision of infrastructure and facilities that support economic opportunities for the resident communities of Waiheke and Great Barrier islands. (19) Promote economic development opportunities that complement the unique values of the islands and the Hauraki Gulf. **Section B8.6** summarises the reasons of adopting the proposed policies, including: • The coastal environment and the resources of the coastal marine area comprise some of the most important taonga to Mana Whenua, who have a traditional and on-going cultural relationship with the coast.

		• Auckland's richly varied coastal environment is a finite resource with high environmental, social, economic and cultural values. Its coasts and harbours are among its most highly valued natural features. It is the location of New Zealand's largest commercial port and international airport. The marine industry, transport and aquaculture activities all contribute to social and economic well-being. • The coastal marine area also provides a range of ecosystem services, including providing food, assimilating discharges from land into coastal waters and enabling a range of coastal uses that support the economic well-being of people and communities. • Promoting use and development that provides for social and economic opportunities while avoiding further degradation of the marine environment of the Gulf. **Section D9 – Significant Ecological Areas** Significant Ecological Areas – Marine are identified areas of significant indigenous vegetation or significant habitats of indigenous fauna located in the coastal marine area. Policies for managing these areas include: (12) Manage the adverse effects of use and development on the values of Significant Ecological Areas – Marine, taking into account all of the following: (a) The extent to which existing use and development already, and in combination with any proposal, impacts on the habitat, or impedes the operation of ecological and physical processes; (b) The extent to which there are similar habitat types within other Significant Ecological Areas – Marine in the same harbour or estuary or, where the significant ecological area - marine is located on open coast, within the same vicinity; and (c) Whether the viability of habitats of regionally or nationally threatened plants or animals is adversely affected, including the impact on the species population and location.
Waikato	**The Waikato Regional Policy Statement**	**3.7 Coastal environment** The coastal environment is managed in an integrated way that: a) preserves natural character and protects natural features and landscape values of the coastal environment; b) avoids conflicts between uses and values; c) recognises the interconnections between marine-based and land-based activities; and d) recognises the dynamic, complex and interdependent nature of natural biological and physical processes in the coastal environment. **15.4.4 Coastal marine area** (c) Marine habitats and ecosystems are protected from significant adverse effects.
	Regional Coastal Plan for Waikato	**Section 3.4 – Protection of Coastal Processes** 3.4.3 Policy – Biodiversity Ensure the protection of biodiversity, the inter-relatedness of coastal ecology, and the natural movement of biota within the coastal marine area. **Section 13.1 – Integrated Management Across Boundaries** 13.1.2 Policy – Coastal Environmental Inter-Relationships When managing the use, development and protection of the coastal environment, provide for: (a) The interconnected nature of the coastal environment; and

		(b) The inter-relationships between natural and physical resources; and (c) The potential for adverse effects to occur; and (d) The range of social, cultural and economic values within the Region. **Section 17.2 – Natural Character, Habitat and Coastal Processes** 17.2.3 – Consultation with the Ministry of Fisheries Environment Waikato, in conjunction with the Ministry of Fisheries, will advocate management practices to resource users harvesting marine life that: i Do not adversely affect significant or extensive areas of indigenous vegetation and habitat of indigenous fauna; ii Avoid sensitive inshore areas; and iii Ensure marine ecosystems and fish stock are managed sustainably.
Bay of Plenty	**Regional Policy Statement**	**Part Two (Issues and objectives)** Objective 20 The protection of significant indigenous habitats and ecosystems, having particular regard to their maintenance, restoration and intrinsic values. **Part Three (Policies and methods)** Policy IR 6B: Promoting consistent and integrated management across jurisdictional boundaries Collaboration and information sharing between agencies with different responsibilities in the coastal environment such as fisheries and conservation should be encouraged to promote integrated and efficient resource management.
	Bay of Plenty Regional Coastal Environmental Plan	**Part 2, Section 2 – Objectives** Objective 1 of this section seeks to "achieve integrated management of the coastal environment" by: (a) Providing a consistent, efficient and integrated management framework; (b) Adopting a whole of catchment approach to management of the coastal environment; (c) Recognising and managing the effects of land uses and freshwater-based activities (including discharges) on the coastal marine area; (d) Enabling the exercise of kaitiakitanga; (e) Planning for and managing: i. cumulative effects; and ii. the effects of climate change; and (f) Promoting the sustainable management of the Bay of Plenty coastal fisheries. **Part 5 Methods, 1.2 Natural Heritage** Method 3A: Support research to identify areas in the Bay of Plenty region where ecosystems and biodiversity values are being, or are likely to be, adversely effected by fishing activities, and investigate the options available to manage such activities for the protection of indigenous biodiversity. Method 19AA: Council will partner with tangata whenua for additional spatial mechanisms for the coastal marine area that identify and protect: (a) Areas or sites of cultural, biodiversity and/or natural character value that may require additional protection and/or restoration;

		(b) Areas or sites of cultural, biodiversity and/or natural character value that are, or are likely to be, adversely affected by activities (including fishing), and options to manage such activities for the protection of cultural, biodiversity and/or natural character values.
Gisborne	**Gisborne District Council – The Tairāwhiti Resource Management Plan**	**Section C3.6 – Tangata Whenua** Under Policy 7, the Plan notes that: The RMA does not address Fisheries issues which are dealt with under the Fisheries Act or the Marine Reserves Act. Council may, however, advocate for the protection of special areas in the Coastal Marine Area that support traditional fishing or food gathering areas to the responsible agencies on behalf of or in conjunction with Iwi or hapu authorities, This policy is designed to recognise this advocacy role and supports Objective C3.6.2(3), which is to "maintain the integrity of the relationship of Māori with their culture, traditions, ancestral lands, and other resources."
Taranaki	**Taranaki Regional Policy Statement**	**Section 1.2 Purpose** The Regional Policy Statement for Taranaki ('the Regional Policy Statement' or 'Statement') is a statement of policy for the Taranaki region (as constituted under the Local Government (Taranaki Region) Reorganisation Order 1989). Its purpose is to promote the sustainable management of natural and physical resources in the Taranaki region by: • providing an overview of the resource management issues of the Taranaki region • identifying policies and methods to achieve integrated management of the natural and physical resources of the whole region. **Section 8. Coastal Environment** **Objective 1:** To protect the natural character of the coastal environment in the Taranaki region from inappropriate subdivision, use, development and occupation by avoiding, remedying or mitigating the adverse effects of subdivision, use and development in the coastal of subdivision, use and development in the coastal environment. **Objective 2:** To provide for appropriate, subdivision, use, development and occupation of the coastal environment in the Taranaki Region. **Section 9: Indigenous Biodiversity** **Objective 1:** To maintain and enhance the indigenous biodiversity the indigenous biodiversity of the Taranaki region, with a priority on ecosystems, habitats and areas that have significant indigenous biodiversity values.
	Interim version of the Proposed Coastal Plan for Taranaki	**Section 1.2 Purpose** The purpose of the Plan is to assist the Taranaki Regional Council to carry out its functions under the Resource Management Act 1991 (RMA) to promote the sustainable management of the coastal environment, including the coastal marine area, in the Taranaki region. **Section 4. Objectives** **Objective 2: Use and development** Natural and physical resources of the coastal environment are used efficiently, and activities that have a functional need or an operational need, that depend on the use and development of these resources, are provided for in appropriate locations. **Objective 4: Life-supporting capacity and mouri** The life-supporting capacity and mouri of coastal water, land and air are safeguarded from the adverse effects, including cumulative effects, of use and development of the coastal environment. **Objective 6: Natural character**

		The natural character of the coastal environment is preserved and protected from inappropriate subdivision, use and development and is restored where appropriate. **Objective 7: Natural features and landscapes** The natural features and landscapes of the coastal environment are protected from inappropriate subdivision, use and development. **Objective 8: Indigenous biodiversity** Indigenous biodiversity in the coastal environment is maintained and enhanced and significant indigenous biodiversity in the coastal environment is protected.
Hawke's Bay	**Hawke's Bay Regional Council Coastal Environmental Plan**	Section 4 – Indigenous species and habitats The Hawke's Bay Regional Council Coastal Environmental Plan includes a policy to "ensure adverse effects on ecological systems (including natural movement of biota, natural biodiversity, productivity and biotic patterns) are avoided, including adverse effects on: (a) fishing grounds; (b) shell fish areas; (c) fish spawning and nursery areas; (d) bird breeding and nursery areas; (e) fish and bird migration; (f) feeding patterns; (g) habitats' importance to the continued survival of any indigenous species; (h) wildlife and indigenous marine biota; (i) dune systems; and (j) the intrinsic values of ecosystems."
Manawatu-Wanganui	**Regional Policy Statement**	**Policy 8-4: Appropriate use and development** Any use or development in the CMA must: (a) avoid, as far as reasonably practicable, any adverse effects on the following important values: iii. the landscape and seascape elements that contribute to the natural character of the CMA iv. areas of significant indigenous vegetation and significant habitats of indigenous fauna, and the maintenance of indigenous biological diversity v. the intrinsic values of ecosystems
	Horizons Regional Council One Plan (The Horizons One Plan includes the Regional Coastal Plan for the Manawatu-Wanganui region)	**Section 18** of the plan details activities in the coastal marine area. Specifically, it covers; • Occupation; • Structures; • Reclamations and Drainage; • Disturbances, Removal and Deposition; • Water Takes, Uses, Damming and Diversions; • Discharges; • Noise and Discharges into Air; • Exotic and Introduced Plants; and

		• Other Rules
Greater Wellington Region	**Regional Policy Statement for the Wellington region**	**3.2 Coastal environment** Objective 3 Habitats and features in the coastal environment that have significant indigenous biodiversity values are protected; and Habitats and features in the coastal environment that have recreational, cultural, historical or landscape values that are significant are protected from inappropriate subdivision, use and development
	Regional Coastal Plan for the Wellington Region	**Section 4 – General Objectives and Policies** The Regional Coastal Plan for the Wellington Region contains the following Environmental Objectives: 1) The intrinsic values of the coastal marine area and its components are preserved and protected from inappropriate use and development; 2) People and communities are able to undertake appropriate uses and developments in the coastal marine area which satisfy the environmental protection policies in the plan, including activities which: a. rely on natural and physical resources of the coastal marine area; or b. require a coastal marine area location; or c. provide essential public services; or d. avoid adverse effects on the environment; or e. have minor adverse effects on the environment, either singly or in combination with other users; or f. remedy or mitigate adverse effects on the environment and provide a net benefit to the environment; 3) The adverse effects that new activities may have on existing legitimate activities in the coastal marine area are avoided, remedied or mitigated as far as is practicable; 4) Land, water and air in the coastal marine area retains its life supporting capacity; 5) The natural character of the coastal marine area is preserved and protected from inappropriate use and development; 6) Important ecosystems and other natural and physical resources in and adjacent to the coastal marine area are protected from inappropriate use and development; 7) Public health is not endangered through the effects of previous, present or future activities in the coastal marine area; 8) Public access along and within the coastal marine area is maintained and enhanced; 9) Amenity values in the coastal marine area are maintained and enhanced. **Section 16 – Principal reasons for Objectives, Policies and Methods** Section 16 of the Plan states that: The objectives and policies acknowledge the need to protect important characteristics and values of the coastal marine area. They also recognise that the coastal marine area is an important location for many activities, some of which are dependent on this particular location. These activities are important for the economic well-being of the Wellington Region, and to enable people to fulfil their social desires to use the coastal marine area. **Appendix 2 – Areas of Significant Conservation Value** • Castlepoint is identified in the Plan as an Area of Significant Conservation Value in the Plan, due to: Scientific, wildlife, geological, scenic, natural and conservation values; • Naturally vegetated and fragile coastal vegetation containing rare plant species (including Brachyglottis compacta);

		• A habitat for sea mammals and breeding ground for bird species. An internationally significant crayfish (Jasus edwardsi) larvae (puerulus) population; and • Outstanding scenic values and an important physical and geological landscape.
Marlborough	**Regional Policy Statement**	**5.3.10 Objective – Coastal Marine Habitat** The natural species diversity and integrity of marine habitats be maintained or enhanced.
	Appeals Version of The Proposed Marlborough Environment Plan	**Volume 1** **2. Background - Other strategies and plans** Strategies and plans may also be prepared under the Fisheries Act and Council will have regard to these where relevant, such as protecting significant habitats of indigenous fauna in the marine environment. **Volume 1** **8. Indigenous Biodiversity** - Policy 8.3.8 Within vulnerable ecologically significant marine sites, activities that disturb the seabed must be avoided. Some activities use techniques or practices that result in disturbance of the seabed. Depending where this occurs, there is the potential for adverse effects on marine biodiversity. The policy seeks to specifically avoid activities that disturb the seabed to ensure areas identified as having significant biodiversity value in the coastal marine area and which are identified as being vulnerable to such disturbance are protected. This will help to give effect to Policy 11 of the NZCPS. Ecologically Significant Marine Sites evaluated to be vulnerable to seabed disturbance are identified in Appendix 27 of the plan. **Volume 2** **16.6. Discretionary Activities** - Application must be made for a Discretionary Activity for the following…. 16.6.6 Any dredging, bottom trawling, or deposition within the buffer for any Ecologically Significant Marine Site specified in Appendix 27 of the plan.
Nelson	**Nelson Draft Regional Policy Statement**	**1.0 Rationale for the Regional Policy Statement** This draft Regional Policy Statement (RPS) has been prepared by the Nelson City Council, in accordance with the requirements of sections 59 to 62 and Schedule 1 of the Resource Management Act 1991 (RMA). The RPS seeks to achieve the purpose of that Act by providing an overview of the significant resource management issues of the region and the intended responses to those issues, to achieve integrated management of the region's natural and physical resources. **Chapter 8: Biodiversity** **Objective 8.3** Protect Whakatū Nelson's significant freshwater and marine biodiversity values from the effects of sedimentation, discharges of contaminants, reclamation, and structures or works in, on, over or adjacent to the beds of rivers, streams and the coastal marine area. **Chapter 10: Coastal and Marine Environment** **Objective 10.1** Recognise and provide for tangata whenua's kaitiaki role in managing coastal resources in accordance with tikanga Māori. **Objective 10.2** Protect the values that contribute to outstanding natural character, outstanding natural landscapes and other significant natural features, and ensure use and development maintains or restores natural values in other areas. **Objective 10.3** Recognise and reconcile the competing social, economic and cultural values that are ascribed to the coastal environment, while providing for uses and development that by their nature must be located in the coastal environment.

		Objective 10.4 Maintain or enhance the quality of marine waters to a level that ensures healthy marine ecosystems and safety for people's recreational activities. **Objective 10.5** Protect the integrity, functioning and resilience of coastal physical and ecological processes, from the adverse effects of inappropriate subdivision, use and development.
Tasman	**Tasman Regional Policy Statement**	**Part 1: Introduction, interpretation and glossary** **1.2 Purpose of the Tasman Regional Policy Statement** The purpose of the Tasman Regional Policy Statement as set out in the Act is to promote the sustainable management of natural and physical resources by providing: (i) an overview of the resource management issues of the region; and (ii) policies and methods to achieve integrated resource management. **Section 9: Coastal Environment** **Objective 9.3** A coastal marine area in which adverse effects from activities, including structures, physical modification, or occupation, are avoided, remedied, or mitigated. **Objective 9.4** A fair and efficient process for the allocation of rights to use parts of the coastal marine area, especially where parties are in competition for a limited area. **Objective 9.5** Preservation of the natural character of the coastal environment, including the functioning of natural processes.
West Coast	**West Coast Regional Policy Statement**	**1.1 Role of the Regional Policy Statement – Its Scope and Effect** The role of the Regional Policy Statement (RPS) is to promote the sustainable management of the natural and physical resources of the West Coast. It does this by: • Providing an overview of the resource management issues of the region; and • Identifying policies and methods to achieve integrated management of the West Coast's natural and physical resources. **Chapter 9: Coastal Environment** Objectives (1) Within the coastal environment: a) Protect indigenous biological diversity; b) Preserve natural character, and protect it from inappropriate subdivision, use and development; and c) Protect natural features and natural landscapes from inappropriate subdivision, use and development. (2) Provide for appropriate subdivision, use and development in the coastal environment to enable people and communities to maintain or enhance their economic, social, and cultural wellbeing.
	Regional coastal plan for the West Coast	**Chairman's foreword** The Regional Coastal Plan will enable Council to sustainably manage activities in the coastal marine area of the region. The coastal area covered by this Plan has important ecological, economic, social and cultural values for local communities and visitors, while also being a dynamic environment subject to natural hazards. This Plan is intended to both enable low impact activities to be carried out as well as managing

		other uses with greater impacts, by way of regulatory and non-regulatory methods, in order to sustain the values associated with the coastal marine area. **Section 5.1 – Coastal Management** Objectives **5.3.1** To recognise and provide for the West Coast's significant coastal values, when considering the use, development and protection of the coastal marine area. **5.3.2** To avoid, remedy or mitigate adverse effects on the amenity, cultural, heritage, scenic and ecosystem values of the entire coastal marine area.
Canterbury	**Canterbury Regional Policy Statement**	8.**2.4 Preservation, protection and enhancement of the coastal environment** In relation to the coastal environment: 1. Its natural character is preserved and protected from inappropriate subdivision, use and development; and 2. Its natural, ecological, cultural, amenity, recreational and historic heritage values are restored or enhanced.
	Regional Coastal Environment Plan for the Canterbury Region	**1.2 Plan Purpose** The purpose of this Plan is to promote the sustainable management of the natural and physical resources of the Coastal Marine Area and the coastal environment and to promote the integrated management of that environment. In particular, the Plan sets out the issues relating to: i. protection and enhancement of the coast; ii. water quality; iii. controls on activities and structures; and iv. coastal hazards
Otago	**Otago Regional Policy Statement**	**Policy 3.1.9 Ecosystems and indigenous biological diversity** Manage ecosystems and indigenous biological diversity in terrestrial, freshwater and marine environments to: Maintain or enhance: a) Ecosystem health and indigenous biological diversity including habitats of indigenous i. fauna; ii. Biological diversity where the presence of exotic flora and fauna supports indigenous iii. biological diversity; b) Maintain or enhance as far as practicable: i. Areas of predominantly indigenous vegetation; ii. Habitats of trout and salmon unless detrimental to indigenous biological diversity; iii. Areas buffering or linking ecosystems **Policy 5.4.9 Activities in the Coastal Marine Area** In the coastal marine area minimise adverse effects from activities by all of the following: a) Avoiding activities that do not have a functional need to locate in the coastal marine area; b) When an activity has a functional need to locate in the coastal marine area, giving preference c) to avoiding its location in: i. Areas of significant indigenous vegetation and significant habitats of indigenous fauna;

		ii. Outstanding natural features, landscapes and seascapes; iii. Areas of outstanding natural character; iv. Places or areas containing historic heritage of regional or national significance; v. Areas subject to significant natural hazard risk; d) Where it is not practicable to avoid locating in the areas listed in b) above, because of the functional needs of that activity: i. Avoid adverse effects on the values that contribute to the significant or outstanding nature of b)i.-iii; ii. Avoid significant adverse effects on natural character in all other areas of the coastal environment; iii. Avoid, remedy or mitigate adverse effects on values as necessary to preserve historic heritage of regional or national significance; iv. Minimise any increase in natural hazard risk through mitigation measures; v. avoiding, remedying, or mitigating adverse effects on other values;
	Regional Plan: Coast for Otago	**Section 1.1: Purpose of the Plan** The purpose of this Plan is to provide a framework for the integrated and sustainable management of Otago's coastal marine area. **Section 2.10.2: Fisheries Act 1983** This Regional Plan: Coast for Otago does not contain any provisions relating to the management or allocation of the fishery resource within Otago's coastal marine area. **Objective 5.3.1** To provide for the use and development of Otago's coastal marine area while maintaining or enhancing its natural character, outstanding natural features and landscapes, and its ecosystem, amenity, cultural and historical values.
Southland	**Southland Regional Policy Statement**	**Section 1.1 Introduction** The Southland Regional Policy Statement (RPS) guides resource management policy and practice in Southland. It provides a framework on which to base decisions regarding the management of the region's natural and physical resources, gives an overview of the significant resource management issues facing Southland, including issues of significance to tangata whenua, and includes objectives, policies and methods to resolve any identified issues. **Chapter 6: Biodiversity** **Objective BIO.1 – Understand and identify** Understand the extent of loss of indigenous ecosystems and habitats across the Southland Region and identify those at risk to further loss and degradation. **Objective BIO.2 – Maintain and protect** Maintain indigenous biodiversity in Southland and protect areas of significant indigenous vegetation and significant habitats of indigenous fauna for present and future generations. **Objective BIO.3 – Enhance** Enhance the range, extent and condition of indigenous biodiversity in Southland, with a particular emphasis on those areas most at risk to further loss or degradation.

		Chapter 7: Coast **Objective COAST.1 – Direction on activities within the coastal environment** Provide clear direction on appropriate and inappropriate subdivision, use and development activities, the cumulative effect of an activity, and precedent effects of a decision, within the region's coastal environment. **Objective COAST.2 – Activities in the coastal environment** Infrastructure, ports, energy projects, aquaculture, mineral extraction activities, subdivision, use and development in the coastal environment are provided for and able to expand, where appropriate, while managing the adverse effects of those activities. **Objective COAST.3 – Coastal water quality and ecosystems** Coastal water quality and ecosystems are maintained or enhanced.
	The Regional Coastal Plan for Environment Southland	**Section 1.2 – Principal Reasons** The principal reasons for adopting the objectives, policies and methods of implementation in this Plan, are: (i) to promote the sustainable management of the coastal marine area; (ii) to minimise conflicts between the users of the coastal marine area; (iii) to provide for the communities social, economic and cultural wellbeing; and, (iv) to maintain, or enhance the opportunity for future generations to enjoy and utilise the coast. **Section 5.4.1 Ecosystems** **Objective 5.4.1.1 Protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna** To protect areas of significant indigenous vegetation and significant habitats of indigenous fauna within the coastal marine area. **Objective 5.4.1.2- Protect intrinsic values of ecosystems** To protect the intrinsic values of ecosystems in the coastal marine area. **Section 5.8 Efficient use of natural and physical resources** **Objective 5.8.1 - Efficient use and development of natural and physical resources** To provide for efficient use and development of natural and physical resources in the coastal marine area where adverse effects are avoided, remedied or mitigated **Section 5.10 Social, economic and cultural issues** **Objective 5.10.1 - Social, cultural and economic reliance on the coastal marine area** To recognise the need for social and economic utilisation of the coastal marine area in a manner that enables people and communities to provide for their social, cultural and economic well-being and for their health and safety.
Chatham Islands	**Chatham Islands Resource Management Document**	**1.1 Overview** The Chatham Islands Resource Management Document (referred to as "the document" or "the CIRMD") provides a framework for the integrated management of natural and physical resources of the islands including the sea area out to the 12 nautical mile territorial limit. The CIRMD is a unique one in the New Zealand context, containing aspects of a regional policy statement, a district plan, a coastal plan and regional plans in one document administered by the Chatham Islands Council, rather than separate plans administered by different authorities. **Part 4: Territory wide objectives and policies**

		4.1 The Imi/iwi **4.1.1 Objective – Management of Resources** (i) The management of natural and physical resources that takes into account the principles of the Treaty of Waitangi/Te Tiriti o Waitangi and that recognises the relationship, culture and traditions of imi/iwi with their ancestral lands, water, sites, wāhi tapu and other taonga. **4.2 Water Resources** **4.2.4 Objective – Te Whanga** (i) The maintenance and enhancement of Te Whanga as a significant natural ecosystem and community resource in respect of: (a) food gathering and recreation, (b) the functioning of ecosystems, (c) imi/iwi values and relationships. **4.3 Coastal Environment** **4.3.1 Objective - Natural Character** (i) Preserve the natural character of the Chatham Island's through the control of inappropriate use, development and subdivision where it may adversely affect the natural character of the coastal environment. **Part 5: Zones** **5.6 Coastal Marine Area** **5.6.3 Objective – Life Supporting Capacity** (i) To safeguard the life-supporting capacity of coastal ecosystems. **5.6.4 Objective – Vegetation, Habitat and Natural Features** (i) The protection of areas of significant indigenous vegetation, significant habitats of indigenous fauna and outstanding natural features within the Coastal Marine Area. **5.6.6 Objective – Coastal Processes** (i) Natural coastal processes are not adversely affected by activities on the foreshore or seabed. **5.7 Off Shore Islands Zone** **5.7.2 Objective – Retention of Natural Values** (i) To retain the values associated with the offshore islands including: • landscape features • indigenous vegetation and habitats of fauna • cultural and spiritual values